Key Policies for Accelerating Low Carbon Retrofit in the Existing Domestic Building Stock

Recommendations to Government for the Green Deal

from
The Existing Homes Alliance

December 2010
The Existing Homes Alliance

The Existing Homes Alliance is a collaboration of organisations, campaigning and lobbying for a national retrofit programme for carbon reduction in the existing domestic housing sector.

It brings together a wide range of organisations, including both experts and practitioners in the field of existing housing, all sharing the goal of making sustainable, low carbon homes a reality across the whole of the UK’s housing stock.

The Existing Homes Alliance steering group

The driving force of the Alliance is a very knowledgeable, experienced and dedicated team that make up the steering group, drawn from our 14 member organisations, providing a focus to lobby government, engage with stakeholders and demonstrate best practice.

Active steering group members:
- AECB
- Association for the Conservation of Energy
- Bartlett Centre for the Built Environment, UCL
- Camco
- Chartered Institute of Housing
- Environmental Change Institute
- Federation of Master Builders
- Green Gauge Trust
- Places for People
- PRP Architects Ltd
- Sustainable Energy Academy
- UK Green Building Council
- WWF-UK

Steering group members in an observer role:
- Energy Efficiency Partnership for Homes
- Energy Saving Trust
- Homes and Communities Agency

The Existing Homes Alliance supporters

In 2008 the Alliance called for UK organisations to support its Declaration, which called on “all sectors to play their part in making sustainable, low carbon homes a reality across the whole of the UK’s housing stock”.

As well as those key organisations on the steering group, the Alliance currently has approximately 150 supporting organisations who have signed up to this declaration and who continue to support its on-going work.
Executive Summary

Prior to the General Election in 2010, the Existing Homes Alliance released its campaign manifesto, a document that outlines key requirements for a robust national home retrofit programme. An ambitious programme is critical if the housing sector is going to have any chance of contributing to achieving the legislated target for reducing Greenhouse Gas (GHG) emissions by 80% (against 1990 levels) by 2050.

The new Government from May 2010 has opened the opportunity to rethink policy and drive forward the agenda on energy efficiency and low carbon refurbishment as one of the key environmental interventions of this Parliament. The new Government is positioning itself as the ‘greenest government ever’ and has presented one of the most significant opportunities in recent years to reduce carbon emissions – the Green Deal.

The Existing Homes Alliance strongly welcomes the Green Deal¹ and the commitment from the Coalition on this agenda. There is substantial work to be done on developing the policies, frameworks and mechanisms that will make the Green Deal a success, but we believe the Government has made some progress on this agenda. This report contains the recommendations of the Existing Homes Alliance on significant policy opportunities for the Government that will be key to ensuring the Green Deal is a success.

The Existing Homes Alliance, in consultation with other organisations active in this arena, has produced a series of recommendations on the key, priority topics presented in this report.

Financing deep, low carbon refurbishment

Government must engineer an environment that creates economic opportunities and delivers against national policy objective.

The refurbishment of the existing housing stock, enabled by the Green Deal, provides an enormous opportunity, anticipated to be in the region of £5-15bn per annum. This should be accessible to all interested, credible businesses and non-profit organisations (e.g. ESCOs, local authorities, housing associations).

Key recommendations:

- The fundamental requirement for the policy framework around the Green Deal is for it to be long-term and provide certainty for businesses looking to operate in this space. The framework must reiterate a clear set of targets, timescales, expectations and market mechanisms, ambitious enough to achieve 80% GHG reduction from the building stock by 2050, and sufficiently strong as to drive a step change in investment and the underlying business models to deliver that investment.

- A crucial requirement is that the cost of capital for investment in low carbon technologies should be kept low, which, from an investor’s point of view, means low risk, long-term stable returns and sufficient scale to ensure investments are liquid. Government has a clear role in keeping this cost low.

- Current and planned policies and incentives provide great potential for cost-effective refurbishment given a low cost of capital. It is important however that Government establishes tariffs and subsidies that provide a level playing field for energy efficiency and renewable energy or even to favour long-life energy efficiency measures that ‘lock in’ CO₂ reductions for the long term.

¹ http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/green_deal/green_deal.aspx
Costs of refurbishing existing housing

There is no single cost or price that can be applied across the housing stock to the refurbishment of a home.

Only estimated ranges are possible because there are a multitude of significant factors that impact on the retrofit of the UK’s complex housing, the primary factor being the level of intervention applied. Many other factors will also have a bearing on the cost of the refurbishment, for example; whether the property is solid wall or listed, off the gas or electricity grid, the timing of works, the location of the property, and supply chain constraints.

Key recommendations:

- The use of a single price for a low-carbon refurbishment in policy and decision-making is discouraged, as is restricting the applicable measures for a property by a schedule.

- The delivery mechanism through which the works are undertaken will have a significant impact on the cost – a delivery mechanism should be adopted that will reduce the cost impact on the householder, who will have the standing charge tied to their property for 25 years.

Delivering deep, low carbon refurbishment

The Green Deal must enable a high degree of flexibility of approach to the delivery of refurbishment packages.

It should allow both mass market, demand-driven delivery, by new and existing entrants, and a local area/community based form of delivery, in line with the localism agenda.

Key recommendations:

- Following early announcement and the provision of incentives and finance to enable voluntary uptake or delivery, Government must put in place both area-based and individual dwelling backstops that ensure that even the hardest to reach people and hardest to treat homes are included in the retrofit programme.

- The number and range of barriers to householder take up of energy efficiency and renewable energy measures, from attitudinal to physical and financial, requires that delivery mechanisms are designed to work on either a tipping point, at which the benefits outweigh the barriers, or a trigger point, at which it is most opportune to undertake the work.

- Area-based or community-based approaches to delivery of energy efficiency measures have been successful at achieving the tipping point for large numbers of individual households. There is a key role for Local Authorities and Registered Providers in either coordinating or delivering the step change in refurbishment activity needed. Steps must be taken to incentivise Local Authorities to prioritise refurbishment within existing spatial planning so that opportunities for investment and action add up to more than the sum of their parts.

- In order to drive take up and drive down costs of demand led or mass market delivery there is enormous opportunity to capitalise on the numerous trigger points in the lifetime of the dwelling. A delivery mechanism designed around trigger points therefore warrants development and more needs to be done to integrate energy efficiency improvements with other household works. The key partner in this mechanism is the small contractor or tradesperson. There must be more investment in the up-skilling of small contractors who will be vital to the widespread delivery of refurbishment packages.
Communication: Energy Performance Certificates and Green Deal advice

Communicating clear, credible, consistent advice and information is central to the success of the Green Deal.

The provision of finance will require accuracy in its determining energy-cost savings in order to guarantee that the savings in the energy bill will cover the repayments. Those delivering the advice and producing the householder’s report for the Green Deal must be adequately trained and planning the training to build capacity must begin immediately as quality advice is the first step in the Green Deal supply chain.

Key recommendations:

- The Energy Performance Certificate is the main tool for communicating householder energy efficiency to consumers. It must face significant reform to enable it to fulfil a role in the Green Deal programme.

- EPCs must be 'SMARTER':
  - Simple, with only one headline chart and clear information in a market tested format;
  - Meaningful, so that it relates to householder motivations, particularly on cost savings;
  - Accurate, based on a robust and tested calculation method;
  - Relevant, with householders being able to understand the language and marketed so that it has a value;
  - Transparent, with EPC ratings being in the public domain, as well as forming a basis for consumer-facing benchmarking and advice, with the calculation method being subject to public review;
  - Enforced, with rigorous policing and developed redress mechanisms, with compliance results being published; and
  - Regulated so that data is useful for future policy and programme development.

Quality assurance and accreditation framework

A robust framework that builds on existing schemes must be developed as early as possible to mitigate the risks of poor quality advice and workmanship with their potential to create long-term damage to building fabric and indoor air quality.

Consumer trust and confidence has already been identified by the Government as being key to the success of Green Deal and the early period is critical. The evidence from the Australian insulation programme\(^2\) clearly demonstrates the need for haste in delivery to be balanced with clear controls and accreditation of advice, selling, product, installation and service. In the UK, additional consideration needs to be given to preventing mould and damp that can occur from increased insulation and poor ventilation.

Key recommendations:

- The Existing Homes Alliance proposes that Government develop a trusted, robust system of quality assurance, through building on the strengths of existing schemes and opening up the market for new entrants, to keep costs and regulatory burdens to a minimum.

- A quality assurance system must cover a wide range of measures, irrespective of the restrictions placed on those measures that qualify for Green Deal finance, to ensure trust in the Green Deal programme as a whole.

- Existing quality assurance schemes provide a good foundation but there is significant variation between them, which could cause consumer confusion, as well as gaps. A single overarching brand that existing schemes can link with is proposed.

\(^2\) [http://news.bbc.co.uk/1/hi/8507538.stm](http://news.bbc.co.uk/1/hi/8507538.stm)
Minimum energy efficiency standards for homes

A clear, long term regulatory framework to increase minimum standards of energy efficiency needs to accompany Green Deal.

The Zero Carbon Homes target has focused the new build sector to invest, plan, develop supply chains and deliver low carbon housing at a clear trajectory towards its 2016 target. Regulation has given certainty on future standards and a specific timetable and this is a key lesson for the retrofit agenda.

There must be clarity from the outset of the Green Deal for business and investor on the energy and carbon performance should be achieved form the refurbishment of existing homes and the regulatory framework that will be in place to provide a backstop to the Green Deal.

It is essential to drive increased energy efficiency in the UK as its housing stock is among the worst in Europe. Minimum standards of energy efficiency for homes are one of the few mechanisms that will drive the take up of the Green Deal. The Government must ensure there is a significant increase in the standard of the existing housing stock if it is to meet carbon reduction targets.

Key recommendations:

- The Government should announce, in advance and prior to the commencement of the Green Deal, the intention to increase mandatory minimum standards incrementally across all tenures and how the direction of these will head towards the highest aspirational standard.

- Mandatory minimum standards will be required to act as a backstop to ensure that all homes meet the required energy demand reduction and carbon savings to deliver carbon targets for 2020 and leading up to 2050. The introduction of mandatory minimum standards in the private rented sector offers a good opportunity directly to improve the living conditions of tenants. The announcement that the Government intends to introduce these standards in the private rented sector is a welcome advancement and the starting point the Existing Homes Alliance wishes to see implemented.

- An aspirational standard should be introduced that will encourage householders to go above the minimum level and should be the guide for what the refurbishment of the property is aiming to achieve.

Driving consumer demand

The Green Deal, even with everything outlined in this paper, may still not be a success. Without consumer demand the scheme will fail. Householders have to be willing to undertake the refurbishment. Given that the savings on energy bills, once the Green Deal charge has been applied, are likely to be modest this will not be a significant driver for demand.

Minimum standards of energy efficiency are one aspect of the package from driving demand – but they do not constitute the entire package of incentives. ‘Carrots’, as well as ‘sticks’, will be necessary, especially in the owner occupier sector. This should include forms of subsidy, financial incentives (and disincentives), alongside the introduction of incrementally increasing energy efficiency standards.

What next?

The development of the Green Deal is going to be rapid and there are risks associated with not delivering the policy interventions necessary to mobilise consumers, drive investment and ensure carbon reduction targets are met. The legislative and policy timetable that will put the Green Deal in place will occur through late 2010 and 2011.

Early clarity for industry, investors and householders will be necessary due to the significant changes required to ensure the Green Deal is a success. The Government must be aware of the critical pathway in implementing this policy. Certain areas require clarity now to ensure the industry and supply chains have sufficient capacity, skills and training to ensure the Green Deal is a success.
1 Introduction

In 2010, the Existing Homes Alliance produced its campaign manifesto, a document that outlines key requirements for a robust national retrofit programme. An ambitious programme is critical if the housing sector is going to have any chance of achieving the legislated target of 80% greenhouse gas emission reduction by 2050 (on 1990 levels).

The change in Government in 2010 and the subsequent changes in developing policy provide an exciting opportunity to develop a framework for such a programme and, with the new Government positioning itself as the ‘greenest government ever’, this presents one of the most significant opportunities in recent years to reduce carbon emissions – the Green Deal.

The Existing Homes Alliance welcomes the Green Deal and the commitment from the Coalition on this agenda. However, there is still significant detail and issues that need to be addressed. Recognised experts in this field have an opportunity to support Ministers and officials in maximising on the success of that opportunity.

To facilitate this, the Existing Homes Alliance instigated a series of time limited working groups to undertake detailed policy analysis and develop recommendations to inform Government of key concerns and opportunities in the retrofit agenda.

1.1 Working groups

Based on the key areas identified in the development of the Manifesto, six working groups were established. These working groups form sub-sets of the main steering group and are chaired by individuals from member organisations.

Initial work has been focused on the priority topic within each group, culminating in the development of position papers on the specific areas required to develop the Green Deal programme.

As well as the expertise that already exists within the group, the Existing Homes Alliance sought input from other key stakeholders and experts externally. The purpose of this was to gain consensus from a wide and varied group on fundamental issues and to present these to Government in one cohesive message. (Details of contributors are listed at the end of this report.)
1.2 Methodology
The chair of each group initially developed Terms of Reference and invited key players to input. To ensure a focused approach, each group selected a priority issue within their remit, with the aim of publishing a paper that stated the position of the Existing Homes Alliance but that also had the support of external organisations.

A number of focused discussion groups took place to identify the key issues within each topic and draft summaries were developed.

All participants were given an opportunity to comment further into the papers by email and further discussion, culminating in the development of key position papers for specific issues.

The finalised position papers are presented as chapters in this report.
2 Financing deep low carbon refurbishment

2.1 Introduction

The Existing Homes Alliance, with a number of additional recognised experts, has formed a position on key points that it feels must be included in a policy framework that can facilitate the delivery of investment into low carbon retrofit of existing homes in order to achieve the target carbon savings in the UK’s housing stock.

2.2 Background

The fundamental requirement is for a policy framework to be put in place that is long-term and provides certainty for businesses looking to operate in this space so that it will be worth their while putting resources into skilling up to deliver on the back of such proposals. The framework must reiterate a clear set of targets, timescales, expectations and market mechanism, ambitious enough to achieve 80% GHG reductions from the building stock by 2050, and sufficiently strong as to drive a step change in investment and the underlying business models to deliver that investment. Given an early announcement of these milestones, we believe investors will begin to raise funds to back the scale of investment in line with the expected development of the market. Early announcement is essential to prevent an uncertain future resulting in the loss of the already considerable investment that has taken place, including the development of trusted partnerships and delivery infrastructures.

The costs of low carbon refurbishment have been described in Chapter 3 of this report. These can range from £12-40k depending on levels of carbon reduction being sought. For extensive deep low carbon refurbishments, a package of measures may be deployed including energy efficiency, renewable heat and renewable electricity. DECC and EST have also worked to agree some cost assumptions within the EST Housing Model. At this early stage of market development there are both a cost premium for technologies that are not widely used, and a wide variety of cost reflecting perceptions of risk and immature supply chains. It is expected that there is significant potential for economies of scale as the market develops.

The May 2009 Existing Homes Alliance paper ‘Paying for It’ compared the financial mechanisms that have been used to date in the UK and in other countries. The paper found that the most successful examples of large scale finance involve state intervention to keep the cost of capital low. To be successful it is crucial the cost of capital is kept low. The EEPH Social Housing Finance and Strategy Task Group produced a paper in May 2010 setting out some of the issues for consideration, including commentary on the previous Government’s proposals in its ‘Green Homes Warmer Homes’ strategy.

EEPH commissioned Camco to examine the whole-life costs and benefits of potential refurbishment packages including the potential value from FIT, RHI and Green Deal mechanisms based on tariffs proposed by the previous government. It found that there is great potential for cost effective refurbishment using the existing and planned market mechanisms, particularly when coupled with a low cost of capital.

This chapter sets out how the Coalition Government needs to shape finance mechanisms to deliver bankable projects and wide scale investment in this sector.

2.3 Overall requirements of finance mechanisms

The refurbishment of the UK’s existing housing stock presents an enormous investment opportunity - £5-15bn per annum. This is beyond the scale that could be managed through the traditional sources - banks and energy utilities – particularly given the scale of supply side investment that also needs to happen. Deep low carbon refurbishments are also long-term investments – and thus well suited, if structured right, for the long term holders of capital, e.g. institutional investors, who have the scale of capital that is required. The Government’s refurbishment policies should be designed with these long-term holders of capital in mind within the objectives of reducing carbon emissions and mobilising consumer take-up. If these investors are not prepared to engage with the top end of energy efficiency ‘finance supply chain’, scale will never be reached. Such investors will be looking for low risk, long-term stable returns and sufficient scale to ensure

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2 Paying For It, Existing Homes Alliance – Finance Working Group, May 2009
3 http://www.existinghomesalliance.org.uk/media/ExHA%20Finance%20Paper_%20Paying%20for%20it%20v4%20FINAL.pdf
5 New Finance Mechanisms for Housing, due to be published October 2010
6 Pay As You Save, Financing low energy refurbishment in housing, UK-GBC, August 2009
investments are liquid. There is the potential to deliver this – either through long-dated Green Investment Bank bonds that could provide ‘wholesale’ up front capital or through the assisting with the devising and/or initial purchasing or insuring of securitised asset-backed bonds developed by the market. However, to achieve this, strong and sustained market drivers and good risk management implicit in the policy framework will be required to mitigate issues around poor quality installations and operational risk, default on repayments, and so on.

In particular, low carbon policy has been susceptible to frequent change in recent years. This undermines investor confidence in the robustness of the business case and raises questions in the minds of project owners. This creates a prevailing feeling that something better will be around the corner and whether they will lose out by being early adopters. For energy efficiency this is the case for both investors and for households. It is crucial to have government commitment enshrined through appropriate legislation so as to increase investor confidence. It is important to provide a coherent policy ‘story’ on how deep low carbon refurbishment market growth will be delivered and how risks will be managed to provide as much certainty as possible over the timeframes in which investor pay back is expected to happen – i.e. 25 years.

Currently there is a mismatch between the needs of investors – who will require a return of upwards of 5–9% (depending on the risk profile and point at which investments are made) – and householders, who will be basing their decisions to invest on energy prices. Financial modelling by E3G7 has indicated that interest rates need to be kept very low to be attractive for consumers – at 3% or less. This mirrors similar experience in Germany, which currently offers a very low interest rate (2.65%) to the consumer. This mismatch will need to be addressed in the policy design so that either subsidies and other incentives are applied to drive demand, or regulations implemented to drive investment through making it a requirement and not an option.

The value of revenue streams must be great enough so as to encourage institutional investors (i.e. above their required hurdle rate after project risks accounted for). FIT rates have been designed to give a 5-8% return in real terms for individual households that also benefit from energy savings. The proposed exclusion of micro-generation from Green Deal and the desire for value share between investors and households makes it difficult to include these energy savings as bankable benefits to the investor. Returns are potentially in line with expectations for investors, but only just. Therefore, it is paramount that the FIT rates are not depressed too quickly, otherwise we will not see the required scale of interest in this new market.

The credit rating of revenue contracts (FIT/RHI/Green Deal) must be good enough to keep interest rates below the project IRR (Internal Rate of Return). FIT is currently seen as a good investment with the main risks being around development and system performance. RHI may be viewed in a similar way but probably with greater performance risks assumed for some systems. Green Deal contracts also need to be seen as strong enough so as to minimise rates of default and provide suitable recourse should this occur. Householders’ ability to pay and the actual level of energy savings compared with expected savings (and hence value of Green Deal charge) are both important considerations. Ultimately, credit rating agencies will need to take a view on the strength of a portfolio of Green Deal contracts as an investment opportunity and for this to be good enough to satisfy an investment committee.

It is important that Government establishes tariffs and subsidies so as to provide a level playing field between energy efficiency and renewable energy or even to favour long-life energy efficiency measures that ‘lock in’ CO₂ reductions for the long term. Currently FIT is in place, hence this is driving market ahead of renewable heat and energy efficiency. RHI support levels will generally need to be greater than required through FIT in order to compensate for greater technical and operational risks of heat technologies and the stimulation of a sizable new market. Work for EEPH suggests that rates of return on energy efficiency could be around 6% for low-medium levels of energy efficiency with an additional subsidy to support higher levels of energy efficiency – perhaps up to £150/tCO₂.

Due to timing, energy efficiency is last off the blocks and has greatest uncertainty due to the current requirement to predict potential energy savings on an individual household basis. There is a danger that energy efficiency will continue to be seen as the Cinderella of low carbon options when compared with renewable generation backed by FIT or RHI. Therefore there is a need to introduce the new energy company obligation (ECO subsidy) as a constituent part of the Green Deal to act as an additional incentive and to level up the playing field for investors and consumers.

Initial Green Deal success will be judged by how well it integrates with existing and planned finance mechanisms. An initial hiatus in activity following introduction of the Green Deal, and consequent job losses, would seriously undermine confidence in the policy before its potential would have been realised.

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7 Forthcoming unpublished analysis available on request
2.4 Carbon Floor Price

The coalition Government has proposed the introduction of a ‘carbon floor price’. An outline of how this might work was given in the Conservative manifesto. It suggested that the carbon floor price would be applied through the amendment of the Climate Change Levy. Together with the receipts from auctioning under the EU ETS, a significant and stable revenue stream could be created, all or part of which could be used to subsidise radical improvements in energy efficiency.

2.5 Green Deal

Unlike with the supplier obligation, there is no penalty if the Green Deal does not deliver on carbon reduction targets. This is quite a risk both to the Green Deal and also to the industry and needs to be addressed.

Green Deal should be available for a wide spread of energy efficiency technologies. DECC’s proposed ‘golden rule’ of only supporting measures that pay within the lifetime creates an ‘all or nothing’ situation. Customers should be able to choose to use the Green Deal Finance to part pay for measures in order to maximise opportunities to capture value of energy savings. This could be facilitated through accounting for ‘top up’ funding before the calculation of cost effectiveness is carried out. The ExHA is also concerned that Government is seeking to be too prescriptive about which measures are installed by defining eligible measures in a schedule in secondary legislation. Each home will require a unique set of solutions and there should be freedom to install the most appropriate measures to that property. So, all quality assured measures should be eligible and allow the market to meet the ‘golden rule’, e.g. by reducing costs or improving performance. There obviously needs to be checks and balances to maintain consumer confidence.

Green Deal contracts need to be over a 25 year term to capture the long-term paybacks of many energy efficiency measures. There should be no cap on maximum amount of capital investment per household so long as the measures pay for themselves through savings on the energy bill once top up funding or subsidies have been taken into account. The system should allow multiple Green Deal contracts per dwelling to enable householders to utilise trigger points. The calculation should consider the cost effectiveness and optimality of the whole package not individual technologies, i.e. treat the refurbishment as a system not just a collection of individual measures. For example, the effectiveness of mechanical ventilation with heat recovery is critically dependent on levels of air-tightness achieved. Similarly, the cost effectiveness of insulation depends upon efficiency of boiler plant.

It is difficult to understand why micro-generation would be excluded from Green Deal if, when included in a package of measures, they meet the ‘golden rule’ (as described above) and do not attract additional subsidy beyond FIT / RHI. Indeed the additional return generated would support other longer payback measures and, critically, including micro-generation would increase the scale of the combined Green Deal investment. This would shorten the time necessary to reach sufficient scale suitable for the bond market and subsequent lower interest rates. The Green Deal Finance charge must be linked to the property (e.g. through the energy meter). Further, this mechanism should not be able to be ‘negotiated away’ at change of tenure which would critically undermine the principle of spreading the cost over the long term. Energy efficient properties in Australia have shown to attract a 6 per cent premium over otherwise comparable houses. As the UK refurbishment market develops it is likely this benefit will be reflected in the housing market. This is likely to have a positive impact on perceptions of the Green Deal Finance that could negate the risk of the mechanism being negotiated away.

There must be strong enforcement powers to provide comfort to investors that the technology will deliver energy savings and that their repayments will be safeguarded (e.g. first loss loan guarantee fund, as has been successfully used by GESB in Hungary and which is being piloted in the UK). It will be important to ensure that Green Deal contracts have the right credit rating so as to attract low interest rates. This is of critical importance for attracting the scale of investment required at the right price.

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6 Retrofit South East, Radian Housing Group/GESB/Camco with assistance from SEEDA and ERDF.
2.6 New Energy Company Obligation
Government must introduce the post-2012 Energy Company Obligation (ECO subsidy) and not restrict its applicability by tenure, house type or location so as to encourage widespread, deep carbon refurbishment. It should not be restricted to a handful of particular locations as is the case with CESP.

The ECO subsidy should be an obligation to subsidise the whole package, rather than an obligation on energy companies to deliver and install measures. Government should establish a carbon purchase mechanism for savings generated through Green Deal.

The ECO subsidy should be coupled to Green Deal Finance to deliver on two objectives:
1. To subsidise the delivery of a package for deep carbon refurbishments in individual homes with the level of subsidy set to support the more expensive measures that will be required to achieve long term carbon reduction targets in the domestic sector as part of a package; and
2. To support those in a targeted priority group deemed eligible for support to reduce fuel poverty.

This should be achieved by payment of the Green Deal Finance charge by the energy companies on behalf of their customers deemed eligible during the period they are occupant in the property. Payment should revert to the occupier on change of tenant/owner.

2.7 Feed in Tariff
There is a need for long term certainty on availability of the scheme, the size of the market and tariff levels. This includes good visibility on the degression rates (at least 1 year ahead). It is important to maintain tariff levels at a sufficient rate so as to encourage institutional investors in order to drive the scale of market required to decarbonise the UK’s housing stock. At the time of writing, potential returns on investment are 5-10%, index linked.

2.8 Renewable Heat Incentive
There is a need to introduce the RHI for domestic sector. The extent of applicability in this sector must be wider than was envisaged by the previous government’s consultation document. It is essential that the scheme also creates an incentive for heat savings, such as through linking RHI to energy efficiency to avoid profligate use of renewable heat, i.e. rewarded for avoided heating demand. The measures supported must also reduce carbon emissions so as to avoid perverse outcomes from this policy. RHI payments must be assignable to third parties (e.g. investors) and levels must reflect the costs of market development and inherent project risks potentially including top up with grants to support specific early stage technologies.
3 Costs of refurbishing existing housing

The question frequently asked about eco-refurbishment of existing residential properties is “how much does it cost?” The answer often given is “how much do you want to spend?” This is not a very useful answer to those seriously considering the options. Estimates range from £10,000 to over £40,000.

There are suggestions being made by some that significant energy use emission reductions can be made for an outlay of less than £10,000. An over-optimistic view of costs or the level of reduction that can be achieved will only lead to consumer dissatisfaction. The Existing Homes Alliance wishes to promote a realistic view of costs and benefits so that a serious debate can be held about the means by which the very challenging targets can be met.

3.1 The Challenge

The residential sector is responsible for 27% of UK carbon emissions due to energy consumption for heating, lighting and appliances, and over the past ten years housing carbon emissions have increased. The Climate Change Act acquired Royal Assent and sets a UK greenhouse gas emission reduction target of 80% by 2050 (against 1990 levels). In addition, the previous Government’s ‘Warm Homes, Greener Homes’ strategy articulated an ambition for carbon emissions from UK housing to be ‘close to zero by 2050,’ so that it can counteract emissions from other sectors of the economy such as transport, where carbon reductions may be more difficult to achieve.

With approximately 26.65 million homes in the UK, consisting of a mix of housing types and tenures, responsible for 141 million tonnes of CO₂ in 2007, the challenge of delivering low carbon housing is huge. Nonetheless, the scope for energy saving opportunities is equally massive and, with an increased investment in our residential stock that goes beyond the simple measures currently implemented, it should be possible to deliver the substantial carbon reductions that are necessary.

Although there are a number of existing policies aimed at reducing domestic sector emissions these will not deliver the scale in reductions that are needed to achieve the 80% target. The CERT and other key policy instruments have delivered a huge quantity of (mainly low cost) energy savings within the residential sector, and have undoubtedly been successful in delivering carbon savings from housing. However, the impact of CERT has been small in terms of addressing the overall carbon footprint of housing and in stimulating a step change in the energy performance of the existing housing stock. Delivering ‘close to zero’ carbon emissions from the residential sector will require an unprecedented intervention in our existing housing stock, installing high performance ‘whole house’ carbon reduction packages in all housing, and marking a radical departure from the way household energy efficiency has been delivered in the past.

3.2 Cost Factors

The primary factor affecting the cost of eco-refurbishment is the level of intervention, which is determined either by the target for emissions reduction or the measures that can practically be undertaken; or a combination of the both.

There are a number of secondary measures that will affect the cost of any planned intervention, including:

- Property type;
- Timing;
- Location;
- Method of procurement;
- The specification;
- The market; and
- The unexpected.

3.2.1. Level of Intervention

Analysis by Camco illustrates the accumulating costs of applying individual energy reduction refurbishment measures to different property types. The example shown here shows the impact on energy related CO₂ emissions and costs for a ‘typical’ house (a three bedroom, 91m²; semi-detached home, built between 1965-
1972 with a gas central heating system). Installing all the measures up to and including solar photovoltaics is expected to deliver a 68% in regulated CO$_2$ emissions (excluding appliances) at a cost of £22,300.

### 3.2.2. Property Type

Similar analysis was undertaken for two other property types: a solid wall house and an off-gas house. Table 1 illustrates the carbon impact of the recommended package of measures for the ‘typical’ reference case home, the solid walled home and the off-gas home. The carbon reductions are greatest for the off-gas home due to the combination of a higher initial carbon footprint (due to electric heating). The whole house package also delivers a lower carbon footprint for the solid walled house than the typical house due to the slightly higher carbon savings from external wall insulation as opposed to cavity wall insulation.

![Impact of carbon reduction measures on typical house](image)

#### Table 1: Carbon Impact of Whole House Package for a Typical House, Solid Walled Property and Off-Gas Property

<table>
<thead>
<tr>
<th>Measure</th>
<th>Typical house</th>
<th>Solid wall house</th>
<th>Off Gas house</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case emissions for each house type (Kg CO$_2$/yr)</td>
<td>7,526</td>
<td>7,645</td>
<td>9,509</td>
</tr>
<tr>
<td>Emissions with whole house package (Kg CO$_2$/yr)</td>
<td>2,406</td>
<td>2,196</td>
<td>2,052</td>
</tr>
<tr>
<td>Total emissions reduction (%)</td>
<td>68%</td>
<td>71%</td>
<td>78%</td>
</tr>
</tbody>
</table>

The cost of delivering the whole-house package of measures in the solid wall house is estimated to be £29,500 and in the off-gas house is £27,400.

The range of property types and ages is clearly much greater than the three examples modelled in the study but they serve to illustrate the diversity of the stock and give an indication of the variability of refurbishment costs.

### 3.2.3. Timing

The cost of a whole house refurbishment varies substantially from case to case depending on the specific circumstances affecting the installation of each measure in the package. Camco has modelled three different cost scenarios, presented in Table 2:

- **A high cost scenario**, assuming a ‘piecemeal’ approach to installations, using highest cost quotes for measures;
- **A standard cost scenario**, assuming a programmatic approach that benefits from the economies of scale from a large scale programme of whole house refurbishments; and
- **A low cost scenario**, assuming that low carbon measures are installed concurrently with general refurbishment works for all measures.
Table 2: Whole House Package Cost Scenarios for a Typical House, Solid Walled Property and Off-Gas Property

<table>
<thead>
<tr>
<th>Cost Scenario</th>
<th>Typical house (£)</th>
<th>Solid wall house (£)</th>
<th>Off Gas house (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>£39,400</td>
<td>£54,100</td>
<td>£42,400</td>
</tr>
<tr>
<td>Standard</td>
<td>£22,300</td>
<td>£29,500</td>
<td>£27,400</td>
</tr>
<tr>
<td>Low</td>
<td>£12,200</td>
<td>£18,300</td>
<td>£18,700</td>
</tr>
</tbody>
</table>

The solid wall house is more expensive due to the cost of external wall insulation over cavity wall insulation. The higher cost of the off gas house is due to the additional cost of ground source heat pumps over a condensing gas boiler.

3.2.4. Location
Serious cost differentials can be caused by the location of the property. Whilst economies of scale are possible in an urban location with lots of the same house type, a single rural property will be more expensive to refurbish due to less developed supply chains and difficult access. This situation is exacerbated when the property is off the gas grid or, worse still, off the electricity grid.

3.2.5. Method of Procurement
How the works are procured and implemented will also influence the costs.
- DIY could be the cheapest approach but without sufficient knowledge and experience the householder could do more harm than good.
- A local builder may be cheaper but they may not have the necessary experience and can the quality be assured?
- Specialist installers are good for single items but are more likely to be expensive and they are unable to multi-task.
- Using an architect to design and tender is probably the most expensive but quality should be higher, provided that the architect is suitably experienced in eco-refurbishment.

3.2.6. The Specification
A good specification and, where appropriate, a set of drawings will always help control costs. There are issues to consider in that:
- Naming specific products could lead to higher prices. It would be better to set performance specification where possible and give the contractor some options to get the best price; and
- Making sure everything is in the specification, will avoid the higher cost of late additions.

3.2.7. The market
Market issues are largely outside the influence of individual refurbishment projects. Nonetheless it is important to be aware of the following facts:
- Volume of work and the availability of labour will affect prices;
- Lack of experience with certain measures (e.g. solid wall insulation) can result in defensive pricing; and
- There are regional and local variations in the maturity and efficiency of the supply chains.

3.2.8. The unexpected
It is not possible to anticipate everything in a refurbishment project. Issues will always crop up during the work and hence pre-agreed rates for main trades are a good idea.

3.3 Conclusion
There is no single price for a low-carbon refurbishment and the Existing Homes Alliance would discourage the use of a single price in policy and decision making. The cost of refurbishing a particular property is determined by the level of intervention (which measures are implemented) and a range of other factors that impact on the cost of implementing these measures. At present the costs of eco-refurbishments are not widely reported and as a result the impact of many factors are poorly understood.
4 Delivering deep low carbon refurbishment

4.1 Policy framework

The fundamental requirement for the policy framework put in place to enable energy and carbon reduction from our housing stock is that it is long-term and provides policy certainty. The framework must reiterate a clear set of targets, timescales and expectations, ambitious enough to achieve the 80% GHG emissions reductions from the building stock by 2050, supported by the establishment of accessible, long-term finance and skills development. Given early announcement of these milestones, delivery partners can begin to plan staged programmes and investments to reach the targets in the most cost-effective way. Early announcement is essential to prevent an uncertain future resulting in the loss of trusted partnerships and delivery infrastructures, built up around Decent Homes delivery and existing area-based schemes, which have taken many years to establish.

The policy framework must enable a high degree of flexibility of approach to enable both mass market, demand driven delivery and a plethora of local area or community based forms of strategic delivery. Following early announcement and the provision of incentives and finance to enable voluntary uptake or delivery Government must instate both area-based and individual dwelling backstops that ensure that even the hardest to reach and hardest to treat are included in the retrofit programme.

In order to drive take up and drive down costs of demand led or mass market delivery there is enormous opportunity to capitalise on the numerous trigger points for the installation of energy efficiency measures or enabling measures in the lifetime of the dwelling (see section on mass market delivery). More needs to be done to integrate energy efficiency improvements with other household works. There is a key role for building regulations in driving demand for ‘consequential’ or associated energy efficiency improvements and for both normalising and regulating the installation of these additional measures.

The ExHA and stakeholders conclude that Local Authorities will inescapably play an important role in either coordinating or delivering the step change needed (see Local Government’s Offer on Climate change11). Steps must be taken to incentivise Local Authorities to prioritise this agenda and the ExHA sees a clear role for a mechanism such as Local Carbon Frameworks in prioritising this agenda and integrating low carbon initiatives within a spatial plan so that opportunities for investment and action add up to more than the sum of their parts.

A key risk to the success of Local Carbon Frameworks is lack of coordination between the government department within which the Framework sits (DECC) and the Department which gives Local Authorities their powers and role (CLG). Echoing the recommendation of the recent SDC report ‘The Future is Local’12 far more coordination is needed within and between the key government departments of DECC and CLG to deliver low carbon refurbishment in the housing stock that reaches all households and communities.

The need to preserve the skills that have been developed under the requirements of HECA, NI186 and the CAA is a key driver for early announcement of the role of Local Authorities. Area management is an essential role in any localised delivery mechanism. It is not a role that has benefited from significant skills development programmes. Government must make clear the responsibilities of Local Authorities to either deliver or support housing stock retrofit in their areas in order to prioritise the retention of skilled individuals.

4.2 Delivery models

The number and range of barriers to householder take up of energy efficiency and renewable energy measures, from attitudinal to physical and financial, requires that delivery mechanisms are designed to work on either a tipping point at which the benefits outweigh the barriers or a trigger point at which it is most opportune to undertake the work.

No single delivery model can serve all of the different type of dwellings, communities and individual households in the UK. Delivering insulation into the remaining harder to find lofts and cavities, providing whole house energy efficiency retrofits, installing more expensive or difficult measures at individual dwelling trigger points or on an area basis will all need specific and relevant approaches. The ExHA find that two dominant approaches to delivery will be essential and must be supported.

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11 www.lga.gov.uk
The introduction of the Green Deal Finance and supporting package of policies potentially opens the market for delivery to a variety of potential agents. To allow the widest range of offerings to be developed and the widest range of householders to be targeted, the market for delivery must be truly open. Subsidy or other financial offering must not be tied to delivery as it has been under the current and historic energy supplier obligations. Small contractors and delivery agents, not limited to those contracted by or linked to finance or subsidy providers, must be enabled to enter to the market in order to promote local job protection and competition to drive quality of service.

4.2.1. Area or community-based delivery

It has been well documented that area-based or community-based approaches to delivery of energy efficiency measures have been successful at achieving the tipping point for large numbers of individual households in an area or community. Area-based approaches have made significant progress to overcome the important hassle barrier whilst motivating householders by setting a precedent for action in the area (for example Bellenden Renewal Area, LB Southwark). The development of strong local supply chains to deliver energy efficiency and ensure the local economy benefits from new green jobs can be best supported through concerted action on an area basis. Supply chain development has been central to the work of over a decade in Stroud to deliver energy efficiency into the housing stock and is one of the main drivers of the investment in the Welsh area based programme, Arbed.

Area-based approaches have perhaps most importantly been proved to provide significant cost reductions both through the logistics of treating a whole area at one time and in scale purchasing, WWF, in its evaluation of area-based approaches in Scotland, found that transport costs were minimised through area-based delivery, a finding that was supported by findings from Kirklees where productivity was estimated to be increased by 50% due to reductions in contractors travel and ancillary time costs. 30% reductions on individual insulation measure costs were found by the EST, through the bulk purchasing in area-based schemes, percentage reductions that are supported by the EEPH investigation into the costs of external wall insulation which found over 20% reductions when multiple properties are treated together, rising to over 30% when larger numbers are included.

Area-based approaches therefore must play an important role in the delivery of the national retrofit, particularly in harder to treat homes and harder to reach households. As already outlined, Local Authorities and Registered Providers will have key roles in this delivery alongside Energy Agencies, social entrepreneurs and community groups in relevant areas.

4.2.2. Mass Market delivery – the use of trigger points

The delivery of energy efficiency measures through a demand-based rather than strategic delivery approach will be limited by a households’ contact with a provider, interest, and ability to pay. Commercially delivered services based on Green Deal Finance, although playing a very important role, will serve only a particular segment of householders and arguably deliver a limited range of measures.

To contribute towards overcoming the issues of household disinterest and cost or ability to pay, the mass-market delivery approach must make best use of trigger points in the dwelling’s lifetime. Undertaking the relevant energy efficiency works or enabling works at the point of every home renovation or redecoration provides significant opportunities for the installation of retrofit measures every year (the market for maintenance and upgrade is four times that for full refurbishment). It also reduces the cost and inconvenience to the household. Findings of the PAYS pilots have shown that consumers are more interested in aesthetic works like replacing a kitchen or bathroom and those with expendable income would


16 http://assets.wwf.org.uk/downloads/achieving_our_potential.pdf


18 EST 2009. Area Based Approach - Best Practice Guide. Available at: http://server.uk.imrworldwide.com/cgi-bin/5b7c-uk energyst practicalhelpdocsc&stci-energyst&tu=http://www.energysavingtrust.org.uk/business/content/download/820339285-2758 version/3/file/ABA

choose this investment over an energy efficiency improvement (LB Sutton). Piggybacking on this investment choice turns a barrier to investment in energy efficiency into an opportunity.

A delivery mechanism designed around trigger points therefore warrants development. The key partner in this mechanism is the contractor (small builder/decorator/roofer/gas engineer/plumber/electrician). This contractor needs to be furnished with an awareness of the energy efficiency or enabling measures associated with the refurbishment job for which they are commissioned in order that they can either propose the measures to the householder or install as standard. Contractors also need to be made aware of the benefits of this additional service to their business and customer relationship. Finally contractors need awareness of, and access to, the Green Deal Finance mechanism. At present there is little demand for this kind of awareness training amongst contractors. As a basic step towards this end, the provision of up-skilling and awareness raising training for existing contractors must be put in place and well funded.

The sector skills councils along with the Federation of Master Builders and other industry organisations should be supported to engineer a change in ethos within the industry to internalise the responsibility for the energy demand of a building and to raise the awareness of contractors of the potential market and the benefits of being part of the agenda. The chapter on Quality Assurance proposes that the current gaps in the current provision of quality assurance and registration schemes be filled to formalise the new skill set for this sector.

4.3 Specific barriers

4.3.1. Planning policy
Planning permission is proving to be a significant but inconsistent barrier to the installation of energy efficiency and sustainable energy measures, most notably external wall insulation (where one authority does not require planning consent to be obtained and another does for exactly the same proposal) and micro-generation measures. The ExHA welcomed the introduction of permitted development rights for microgeneration measures but notes that some Local Authorities have overridden this ruling. The ExHA is also aware that planning decisions on energy efficiency measures are inconsistently delivered between Authorities and within Authorities.

The promotion of spatial planning within the Local Carbon Frameworks will go a long way to overcome this inconsistency as an identified area-wide need can be more easily justified through the planning process, with area-based delivery also overcoming an element of planning bureaucracy by allowing planning in principle decisions to be made for streets or areas. There is however a clear role for a more coordinated Governmental approach to enabling housing stock energy efficiency retrofit through the planning process. DECC and CLG must undertake to deliver a more joined up, consistent and clear voice on this issue with the Innovation and Growth Team being one available route for considered action. More guidance is needed for Local Authority Planners potentially in the form of a retrofit Supplementary Planning Document.

4.3.2. The Private Rented Sector
The delivery mechanism and partners involved for the private rented sector will essentially be the same mass market or local area/community based initiatives delivering into other tenures. However, the split incentive - the division of responsibilities between leaseholder, freeholder and tenant - and the lack of engagement of private landlords will require additional mechanisms to drive uptake. Although the Green Deal Finance will potentially overcome the landlord tenant split incentive, take-up of finance will be essentially reliant on the landlord’s initiative. Using take-up of the Landlord’s Energy Saving Allowance as a benchmark it is abundantly clear that landlords have not been engaged by the energy efficiency agenda, even when tax back incentives are available (in 2007-8 only 2050 landlords took up LESA). It is therefore essential that special attention be given to this sector of the housing stock.

The structure of the private rented sector furnishes it with a large number of trigger points for works. Voids, refurbishment or redecorating works between tenancies and the creation of an EPC all provide points at which works could be undertaken. It is clear that greater encouragement is needed for landlords to take action. Local Authorities have a duty to identify cold homes that are a risk to health and to require the improvement of the lowest rated (F and G) homes under the Housing Health and Safety Rating System. Enforcement of these powers is however expensive and retrieved costs would need to be ring-fenced for further action to promote investment from Local Authorities.

In support of this, the ExHA calls for the introduction of mandatory minimum standards that incrementally increase over time enforced at a national level (see the chapter on Minimum Standards of Energy Efficiency).
5 Communication: Energy Performance Certificates and Green Deal advice

5.1 Introduction
Communicating clear, credible and consistent advice is central to the success of the Green Deal. Home owners and occupiers need to know about the measures that should be adopted to reduce carbon emissions at a cost which delivers energy-cost savings greater than the loan repayments incurred.

The Energy Performance Certificate (EPC) is currently the main tool for informing consumers about the energy performance of their properties. Research has shown that consumers are often not aware of the EPC, or find it confusing and irrelevant to their needs. This reflected the views of most market players, particularly estate agents that EPCs suffer from low market credibility and would benefit from reform - the information contained within the EPC itself is insufficient to support rational and informed decision-making by consumers and has often been criticised for their inability to reflect the energy performance of a property accurately20.

It is clear that the EPC needs to be reformed because it will play a key role as the gateway to the Green Deal, providing the starting-point for engagement in the retrofit process. Ensuring that it is an effective way of communicating with householders is therefore essential.

It is also clear that consumer advice through the Green Deal must go beyond that provided under the EPC and incorporate information about actual energy use, consumer preferences, and Green Deal suppliers’ quotations. Given the impact of behaviour on final fuel bills, this more detailed – and significantly more sophisticated - advice will need to be given in the home by highly trained advisers, which will be followed up in a detailed Green Deal report.

5.2 Green Deal Report
The Green Deal Report to the householder should be specifically designed to explain Green Deal offers, particularly highlighting the financial benefits of the measures.

The Green Deal Report should use actual fuel bills information as part of assessing the current energy performance of a dwelling, alongside the EPC ‘in principle’ rating, and should identify measures that would improve that energy performance and cut fuel bills. There are other factors:

- It should include a set of standardised figures that demonstrate energy and cost savings that would be made for different levels of investment in Green Deal measures, based on standardised occupancy and behaviour, cost and savings. The Green Deal report should use the most current energy prices paid by that household.
- Given that energy prices are predicted to rise consistently over the coming years, consideration should be given to providing additional information in the form of three scenarios of future energy price inflation to help consumers make judgements about the level of investment it is worth making. These should be considered and only introduced after market-testing to ensure that they do not risk misleading consumers.
- It should also present a set of costs and savings based on different circumstances and occupancy patterns, enabling the householder to understand how changing circumstances and energy use will affect the savings and payback under the Green Deal. It should be considered if these figures should be based on real information about the current occupier’s fuel bills.
- A set of recommendations should be given, specific to the property, which takes into account any work already completed.
- Consumers should be able to shop around for Green Deal Providers, although data protocols are needed to ensure there is no duplication of data-capture, and Green Deal Providers’ quotations are in a comparable format.

The preparation of EPCs is currently undertaken by advisers with limited training and expertise and using a version of the underlying software with simplified assumptions that make the process of completing an EPC

20 Energy Efficiency and Value Project: RCS, DCLG, March 2010
relatively quick and easy. The Green Deal will demand a much higher level of detail and significantly more training for advisers for the programme to optimise its benefits.

Neither of the current HEA and DEA qualifications requires the level of technical knowledge required to properly advise a homeowner when making potentially significant investment decisions. For example, few advisers would be able to explain the relative merits of mineral fibre-quilting versus glass fibre or wool or cellulose, let alone explain the options for insulated boards, multi-foil products or insulation at rafter level rather than joist level and the complications of ventilation. Yet in practice, many homeowners make use of their loft space for storage, some have a water tank in the loft, others may be considering installing solar thermal or solar PV systems – all of which could influence the choice of the most appropriate solution. The assessment for the Green Deal will have to be delivered by highly-trained individuals, with competency proven under a national accreditation scheme. See the Quality Assurance chapter for further details.

It is important to make a clear distinction between advice provision and sales activity. If the advice visit is not independently financed, there will be an inherent tension within the role with the potential for the Green Deal Provider to skew their advice to products with which they may have a commercial connection. The starting point should be to clarify what is meant by “advice” as distinct from “selling” and how one individual can be expected to do both.

Adequate funding should be available to separate the advice and sales roles. This should theoretically resolve the tension, but it risks perpetuating the existing problem that actually implementing energy efficiency measures simply does not happen where the advice visit makes recommendations to get multiple quotes, each of which will require a visit and then a decision has to be made – possibly several if the measures are being provided by multiple companies.

The EPC is required to be provided whenever a dwelling is marketed for sale or rental. The EPC should also be provided with all Green Deal Reports.

The EPC should provide information about any charge for Green Deal Finance relating to improvements for the property. This will be key to enable potential homebuyers or renters to understand the liabilities they will be incurring in moving into the property.

An online tool has also been developed by CLG which consumers could access directly to allow them to explore their options for energy saving investments independently. As the Green Deal rolls out, and given the complexity of energy-saving options in different property types, the scope of the on-line tool would have to be considered very carefully to ensure it does not mislead consumers by providing over-simplified information that is not relevant to their particular circumstances.

5.3 Developing the Energy Performance Certificate

The Existing Homes Alliance believes that EPCs should play a significant role in the valuation of properties and in the sale or rental process; that they should, alongside other measures, prompt investment in reducing energy bills, and the subsequent EPC banding should reflect the improvement in the energy performance of a property.

We have established seven principles which should govern the re-design of the EPC and the development of the Green Deal Report:

5.3.1 Simple
The certificate should have only one headline chart and rating (not two as currently).

The choice of the current SAP rating as the headline metric should be reviewed, and any change should be made on the basis of rigorous market testing.

In addition to the headline rating, a range of additional ratings should also be provided, but in a form that does not risk confusing readers as to which is the one EPC rating for the home.

The certificate should be formed of a single page with limited additional information (rather than the four pages of densely-printed text as provided now). It must be useful to potential homebuyers or tenants when provided in marketing information, and useful to property owners as part of the Green Deal Report, as should the presentation of data via the online tool. The information supplied in the EPC should be consistent with
that provided in the Green Deal Report and online tool, whereby the latter two build on the information in the certificate.

5.3.2. Meaningful
Consumer research consistently shows that home-owners are most motivated to act on energy efficiency by the prospect of lower energy bills\(^2\). Improving the accuracy of information about running costs is a priority for EPCs.

This could be achieved by improving the SAP running costs information, by incorporating all energy services (i.e. including cooking, appliances and non-fixed lighting). The “in principle” basis for the EPC costs would then be the same as that for actual energy bills. This would need to be accompanied by clear information about the assumed occupancy factors – numbers of people, hours of heating, demand temperature etc.

Proposed amendments to fuel bills should ensure that the information provided is consistent with that on the certificate so that actual performance can be compared against the rating. This would involve suppliers providing fuel bill information in terms of annual energy, carbon emissions and costs.

We suggest that market testing is undertaken to understand what would be meaningful in presenting running costs information, for example:

- Cost of energy wasted
- Running cost of home, compared with ‘best-in-class’

The Certificate should include signposting to further information on the phone, via an online database, or via named advice agencies which will, in turn, provide access to local accredited providers so that prospective purchasers know where they can turn to for more detailed, tailored advice.

In presenting information about possible improvements, currently EPCs present measures in three groups in anticipated order of payback. These measures need review given the change in prices and the impact of government schemes such as the FIT.

An alternative way of expressing the benefits of investment should also be considered. EPCs could present the ‘return’ that consumers will make by reducing their energy bills in comparison with leaving money in a bank or building society (this methodology has been used to present the Feed-In Tariff for renewables).

5.3.3. Accurate
The National Calculation Methodology (NCM) (which forms the basis of P, rdSAP and SBEM) is constantly under development but has been limited in its scope for using measured energy and other monitoring data from real homes to correlate its calculations. There are a number of projects currently underway to evaluate the performance of new homes and others being refurbished to high standards. These should be used to inform the NCM, as should the research project to align energy data from the Digest of UK Energy Statistics (DUKES) and the HEED (Homes Energy Efficiency Database).

The National Calculation Methodology should also be developed as follows, to:

- Allow for account to be taken of different regions, climates (wind-speed), and orientation including elevation as well as the degree of local shelter;
- Be able to take into account “room by room” upgrades for the many people who undertake solid wall installation on a room-by-room basis;
- Allow for differences in the CO\(_2\) factors for primary energy; and
- Include measures such as a significant improvement in airtightness\(^2\), sunspaces and thermal mass.

Communicating the impact of changes is important. As it stands, often the installation of energy saving measures is not reflected in a change of banding. There could be scope for consideration of creating sub-

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\(^2\) This is of course not the case for landlords, who do not benefit from energy bill savings. Nonetheless, if tenants know what EPCs mean in terms of energy bills this provides scope for the market to operate, with tenants rejecting homes that will cost more to run. Private tenants may even be much more attentive to EPC bill data than home buyers – after all, they’re usually making a shorter term decision and cannot change the boiler or insulation after they move in. EEPH research has shown that – when it is highlighted to them - 80% of tenants claim that the EPC bills data is something they would use in choosing a property.

\(^2\) Issues such as air leakiness are relevant to a number of different trades.
divisions within bands - without losing the basis in the widely-liked and understood A-G rating\textsuperscript{23}. Sub-dividing some of the bandings will also demonstrate the impact of smaller steps\textsuperscript{24}.

Consumers should be made aware of and use the free service to appeal bandings to give confidence, to improve the quality of the dataset, and to inform the tool’s development. This must not only allow for appeals regarding the quality of the survey, but also handle appeals where the NCM is unable to measure the benefits of innovative carbon and energy-saving approaches. This service must drive continuous improvement of the NCM, and assessors’ professional development.

5.3.4. Relevant
A-G ratings are well understood by consumers, and similar rating approaches should be used across products, services and properties to avoid confusion.

Government and all stakeholders need to promote the language of EPCs, making everyone aware of and interested in, their home’s energy rating.

All those involved in marketing and selling homes – estate agents and conveyancers - should be aware of the role of EPCs so that they can either promote the benefits of low energy homes or the risks of homes with high running costs.

The online EPC tool must not be ‘hidden’ on Government websites. Once fully tested for its relevance to consumers, it should be white-labelled for use by local authorities’ planning portals, estate agents, DIY retailers and other websites that directly relate to the consumer journey. However, its primary purpose should be educational and based on the energy performance of a typical house, or range of typical houses. This would allow consumers to explore the potential for energy-and money-saving, but the tool could and should not be designed to deliver accurate answers specific to particular homes.

5.3.5. Transparent
EPC data should be recorded centrally (subject to data protection legislation) to inform Government policy, and to report on progress, whether it is captured for an EPC or via the more sophisticated Green Deal Report. An EPC rating should be fully in the public domain and easily accessible by the public. This information is made public as part of the house sale process and its on-going presence in the public domain will help consumers consider the value of the rating in the property purchase process.

The National Calculation Methodology and standard assessment tools should be subjected to a process of continuous improvement by appointing a stakeholder group of industry, government and consumer representatives to oversee its development and providing access to its algorithms allowing external expertise to contribute.

The development of consumer-facing services based on real data should be encouraged to provide benchmarking, energy advice and energy-saving installations.

5.3.6. Enforced
EPCs must be provided at the point of marketing as required by the recast of the Energy Performance Building Directive and compliance should be policed with rigour, providing redress for non-compliance across all sectors, including the private-rented sector.

Data on levels of compliance and non-compliance and of enforcement action should be published regularly by government, within industry in first instance and then to the wider public.

5.3.7. Regulated
Early consideration must be given to data requirements, to ensure consumers’ privacy is not compromised whilst accurate estimates of energy performance can be provided both for valuation purposes and to ensure that they contribute to the development of an accurate understanding of the trajectory of emissions reductions from the domestic sector against carbon budgets.

Recent research has shown that a heavy shroud of secrecy envelops the data on the EPC and this contrasts markedly with the situation in other countries. Publicly-funded government organisations are unable to

\textsuperscript{23} Extensive research was undertaken in 2005 by the Energy Saving Trust looking at the original design of the label of the EPC, which could provide insight here.

\textsuperscript{24} See Irish EPC as an example.
release data for property and environmental performance research purposes because of data confidentiality constraints or the requirement to achieve a commercial or near-commercial financial return on the sale of the data. Information on physical attributes of domestic property attributes is not publicly available although price information relating to domestic property transactions is available (for a fee)²⁵.

To ensure the efficiency of the process, all players in the energy services market need to understand the housing stock and that the use of existing energy performance data will help reduce the costs of sale and avoid unnecessary contact with customers. A public energy efficiency database is therefore required to manage and track improvements to the housing stock but access to data must be regulated according to need:

- The Green Deal Report belongs to the property owner, who must be free to share the data with providers of their choice and opt in to targeted marketing.
- We recognise that different Green Deal Providers will develop their own property databases, but all must be required to report measures back to a centralised database to limit unnecessary customer contact (to the benefit of both consumers and providers) and allow accurate, central reporting on progress on carbon budgets and other policy goals such as the elimination of fuel poverty.
- We recognise that mis-selling is a risk to both consumers and the wider industry, and Green Deal Providers and accredited installers must agree to use data legitimately and responsibly without invading a consumer’s privacy or causing them any concern about their personal safety.

If the advice and sales roles are (for want of a better solution) combined, then the competence of the individual and the effectiveness of the consumer protection framework they operate within will be crucial.

5.4 Conclusions

The Energy Performance Certificate, the Green Deal Report and the On-line Tool are treated here separately, but all have in common the National Calculation Methodology. This needs to be as accurate as possible, and properly linked by standard assessment methodologies and reporting requirements which are used within an accreditation framework to provide quality assurance. It must also be subject to continuous improvement to enable rather than act as a barrier to innovation.

The primary aim of all these tools is to inform consumers. Information must be clear, credible and comparable, and its presentation must be tested on a range of consumers. The Government also needs to consider the information it needs to inform on-going policy development, so that it can inform Green Deal Providers of its data requirements and address data protection concerns through the development of related legislation.

The complexity behind the EPCs and Green Deal Report do not however detract from the need to ensure that the high level principles we have spelt out are adhered to if communication with consumers is to be effective, and for it to lead to action. ‘SMARTER’ EPCs will be the foundation of a successful Green Deal.

²⁵ A data framework for EPC Analysis: University of Reading for RICS Education Trust
6 Quality assurance and accreditation framework

6.1 Introduction
A Government-backed system of quality assurance will be needed to deliver consumer trust and confidence and to create sufficient demand for the Green Deal. Instances of poor customer experience, especially during the early period of Green Deal, are likely to have significant negative knock-on impacts on consumer trust and appetite and could damage the ability to achieve wide and large-scale take-up. Additionally, high standards and assurances will also be needed for prospective investors to finance the Green Deal, as poor quality work and low consumer satisfaction is likely to lead to higher risks of default on payments, higher costs and possible reputation damage.

The Government could leave it to the market to self-police standards. Pressure to maintain brand value and reputation might act as an incentive for Green Deal Providers to enforce high standards. However, this would rely on very high levels of trust in the Green Deal Providers and would leave the programme open to abuse from less scrupulous companies that could tarnish the reputation of all. This is an unacceptable risk in light of what must be achieved through the Green Deal so a robust assurance framework will be needed.

The Existing Homes Alliance believe it is possible develop a trusted, robust system of quality assurance through building on the strengths of existing quality assurance schemes and opening up the market for new entrants, so that costs and regulatory burdens are kept to a minimum for Green Deal Providers.

6.2 Assumptions
The scope of a system of quality assurance for Green Deal will clearly depend to a large extent on the range of measures that will be offered through a Green Deal programme (not just the Green Deal Finance). There is much uncertainty over this scope of the programme this needs to be urgently clarified by the Government.

A quality assurance scheme must cover a wide range of measures, and take a broad view of what consumers will perceive to be part of the Green Deal Umbrella. This approach should be taken regardless of any restriction on the eligibility of measures through mechanisms under the Green Deal Finance. This is in recognition of the individual characteristics of homes requiring very different solutions and the fact that Green Deal Providers may seek to package different energy efficiency and energy generation measures together in order make their offers most attractive. Should only a few measures be covered by the quality assurance system, poor experiences with those measures not covered, would risk consumer confusion, dissatisfaction and damage to the reputation of the Green Deal.

A Quality Assurance framework within the Green Deal should include, but not be limited to, the measures listed below. Products in these, and other categories, should be subject to the quality assurance system that will define eligibility for mechanisms and finance under the Green Deal.

a. Loft insulation;
b. Cavity wall insulation;
c. Solid wall insulation – internal and external;
d. Highly energy efficient glazing;
e. Draught proofing;
f. Floor insulation;
g. Party wall insulation;
h. Smart meters
i. Heating system (the entire system not just located to a boiler);
j. Heat pumps (air, ground source etc);
k. Renewable technologies (for the purposes of a whole package, which is better from a marketing point of view, including FITs and RHI);
l. Next generation lighting; and
m. Heat recovery ventilation.
This will require the work currently underway assessing quality assurance as part of the Microgeneration Strategy and consultation to be fully joined up and consistent with the work looking at quality assurance through the Green Deal.

6.3 The Green Deal Quality Assurance System

A new purpose made Green Deal Quality Assurance System should be introduced that covers all the aspects of what the consumer perceives to be part of the Green Deal. Rather than starting from scratch and duplicate existing schemes and the associated membership costs for product manufacturers and installers the Green Deal Quality Assurance System should utilise and build on the range of existing certification/accreditation schemes. There are many such schemes currently including product labelling schemes (e.g. ESTR), trade association quality marks (e.g. NIA, INCA, NHBC), industry initiatives (e.g. CIGA, SWIGA) and competent person schemes (e.g. Gas Safe, FENSA) etc. Henceforth these schemes are referred to as quality assurance schemes. However, the levels of quality assurance and consumer protection currently offered by these quality assurance schemes are variable and there are gaps. The current plethora of existing quality assurance schemes is also likely to confuse consumers. A single over-arching brand is required to provide assurances that the different aspects of Green Deal offer conform to high standards.

The Green Deal Quality Assurance System needs to be ‘beginning to end’, covering all the key elements of a Green Deal including advice, the marketing of offers, products and installations. The way in which Green Deal offers are devised and presented to consumers is particularly important. Although the quality of products and installations are essential considerations, the quality of the advice provided to households and the standards of practice in marketing and sales of the Green Deal will have considerable impact on the customer experience and level of satisfaction (and ultimately consumer demand for offers).

The standards of services and products should be monitored and enforced by individual quality assurance schemes. A national ‘Green Deal Quality Assurance Body’ will be required to set over-arching standards and ensure individual quality assurance schemes perform and achieve these standards. The ‘Green Deal Quality Assurance Body’ would be responsible for auditing the range of quality assurance schemes across the different aspects of Green Deal Quality Assurance System (advice, installation, products) to ensure they comply with agreed requirements.

This interrelationship of the various bodies is illustrated in the diagram below.

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26 The overall system would therefore function in a similar way to Trustmark, whereby assurance schemes within the general repair, maintenance and improvement sector, are certified to use the Trustmark logo once they have achieved certain standards.
Failure to properly enforce the standards effectively should result in incremental penalties. If there is a systemic failure of a quality assurance scheme to comply with the agreed requirements then the scheme and its members should be struck-off the Green Deal Quality Assurance System. This will be a strong driver to ensure compliance. Quality assurance schemes at risk from competition in the marketplace will be incentivised to improve their performance and minimise their costs so as to be attractive to members.

The Green Deal will be at risk of collapse if the consumer trust is not fostered and maintained. A strong monitoring and enforcement mechanism is the core means of ensuring the industry adheres to the minimum standards and principles defined in the Green Deal Quality Assurance System.

The Green Deal Quality Assurance Body would also be responsible for brand management, providing Board oversight, a means of auditing and reporting, and as a means of handling consumer complaints where cases have not been resolved satisfactorily through the normal routes offered by individual quality assurance schemes.

6.4 Key principles and standards for the quality assurance system

There are key high-level principles that quality assurance schemes should be required to meet to qualify under the Green Deal Quality Assurance System and in order to use the Green Deal branding. A company that does not seek to receive accreditation to deliver through the Green Deal will not be able to offer or direct its customers to the Green Deal Finance and access other incentives associated with the Green Deal.

6.4.1. Standards for marketing of offers and advice services

All advice, whether verbal or the written output of home assessments or surveys, must achieve high standards, be accurate and consistent. Green Deal offers must be reliable and comparable to enable consumers to make the right decisions for their circumstances.

Green Deal advisors must be able to provide:

- Interpretation and explanation of technical and lifestyle/behaviour surveys;
- Explanation of the technical measures suggested;
- Associated energy and cost savings;
- Trigger points associated with the measures suggested;
- Implications and any disruption caused by the work;
- Saving and behaviour assumptions;
- Billing processes;
- Financial aspects of Green Deal offers;
- Guarantees and Green Deal quality assurance;
- Advertising and marketing activities
- Standards of customer service including customer complain procedures and redress
- Rules to protect against excess profits
- Binding legal aspects; and
- Beneficial behavioural changes.

Advisers under the Green Deal will need to have the full necessary skills and qualifications to deliver all of these roles. At present there is no such qualification (see the chapter on Energy Performance Certificates for details of the concerns)

Home energy advice must be based on a standardised technical methodology that is used by all Green Deal Providers. This must reflect consistent assumptions covering underpinning data, e.g. energy inflation assumptions, RPI, as well as specific householder variables such as the number of occupants, occupancy pattern, behavioural aspects etc. Calculations of energy savings from specific measures must be based on standardised data that is informed by evidence from in-situ performance testing.

All assumptions, such as savings and fuel prices, must be transparent and communicated clearly to consumers. A code of practice will be needed to cover how verbal advice is given and how savings and assumptions are communicated. It will also be important to ensure that financial products offered to consumers comply with financial regulation. This suggests a role for the Office of Fair Trading alongside and with the Green Deal Quality Assurance System.

Advice and marketing activities under the Green Deal will need to be monitored to ensure they conform to these standards. This could be done through mystery shopping exercises and follow up satisfaction surveys.
with a sample of customers undertaken by an quality assurance scheme. The Green Deal Quality Assurance Body would then undertake audits of the quality assurance scheme to ensure standards are being maintained. At present, there are no quality assurance schemes in operation for level of advice services that will be required for the Green Deal. Current DEA accreditation bodies do not cover the range of skills and services required and there are uncertainties over how robust standards of enforcement are. This is a significant gap in the coverage of existing quality assurance schemes that needs to be prioritised as part of the development for delivering the Green Deal.

6.4.2. Standards for installers

It will be important to ensure that energy efficiency and energy generation products are installed correctly and that these installers have the necessary training and qualifications, as repayment schedules and householder benefits will be based on assumptions of energy savings which will be significantly reduced by poor installation. The quality of work must be guaranteed so that poor workmanship, faults or problems arising from the installation are remedied without the householder incurring additional costs. It is important that a well designed, high quality training infrastructure is in place before the commencement of the Green Deal, with funding systems particularly for small builders, including a matrix of QCF accredited units, qualifications and a ‘training the trainers’ programme that instils a quality ethos in the programme.

It is important the Green Deal is able to utilise the opportunities offered through installation ‘trigger points’, when householders are already undertaking refurbishment work and the additional costs and disruption of improvements can be minimised. The use of trigger points may be essential in stimulating significant uptake.

General non-specialist builders are extremely well placed to be able to identify these opportunities, to make recommendations to householders and to undertake the work. Such small builders will need to be able to access the new market offered by Green Deal while also ensuring high standards of workmanship. The involvement of local business will also help ensure economic benefits for local communities and economies, much more so than if Green Deal only enabled large national or multinational companies to participate. As most householders will undertake works at various trigger points or on a room-by-room basis local businesses will have a key role in delivery. Mechanisms to enable smaller businesses to participate must be put in place. A key issue for small businesses offering the Green Deal is access to sources of structurally low cost finance to enable them to compete with Green Deal offerings.

Membership schemes such as those operated by the Federation of Master Builders, the National Federation of Builders and the National Insulation Association may offer a route through which new standards could be introduced in this sector. However, membership requirements do not typically currently extend to capabilities relating specifically to fitting of energy efficiency measures and the levels of consumer protection and guarantee vary between schemes.

Green Deal accredited companies through a quality assurance scheme covering installations would need to demonstrate that they meet specific criteria for:

- Appropriately qualified and skilled;
- Monitoring and enforcing standards;
- Guaranteeing the quality of work, with faulty work remedied within set time and at no additional cost;
- Insurance, so that consequential damage resulting to the building is corrected and paid for;
- Minimum standards of customer service, with an easy route for complaints and queries;
- Professional conduct; and
- Required training, skills and qualifications.

The Green Deal Quality Assurance Body would undertake audits of the installer quality assurance schemes, require a level of reporting and commission a low level of independent random performance monitoring as part of confirming the on-going robustness of the individual quality assurance schemes. This would be financed by the individual quality assurance schemes. Should this uncover concerns then appropriate action would be taken up to, and including, the removal of the Green Deal accredited status from the individual quality assurance scheme.

27 The FMB is currently seeking to become a Competent Person Scheme Operator, an initiative which could in future provide a way of ensuring high standards of workmanship by small builders under the Green Deal programme.
28 The Energy Saving Trust is currently running a pilot training programme for general builders focusing on developing skills for installation of solid wall insulation and other building fabric improvements.
29 For example see BUFCA’s and NIA’s customer service requirements.
6.4.3. Standards for products

The performance of installed products is fundamental to the success of the Green Deal as repayment schedules and householder benefits will be based on assumptions of energy savings. The evidence of product performance must be based on installed ‘in-situ’ performance rather than relying solely on laboratory tests. Specific products must be able to demonstrate in-situ performance to stimulate innovation and competition in driving up performance standards (as with the Robust Details scheme). This will enable new products to enter the Green Deal rather than relying on a restrictive list of allowable products in legislation. Where products are unable to demonstrate third party in-situ performance, then laboratory tests can be used but a precautionary ‘confidence factor’ penalty must be applied to protect the householder and the integrity of the scheme. (For example, CERT currently applies a 50% reduction factor to insulation measures for a range of reasons.) The Green Deal Quality Assurance Body should set the requirement for, and oversee (via a third party), the product quality assurance schemes developing a suitable confidence factor approach for product families in a similar way to the Robust Details scheme.

Products need to be guaranteed for a minimum specified period so that should they fail prematurely they are replaced.

Green Deal accredited product quality assurance schemes would need to demonstrate that they meet specified criteria for:

- Technical standards;
- Installation quality standards;
- Third party standard laboratory performance tests and in-situ performance standards and confidence factors (for products or systems as appropriate);
- Installation quality surveillance schemes;
- Product guarantees;
- Householder information; and
- Customer complaint procedures and metrics.

As with advisors and installers, the national Green Deal Quality Assurance Body would undertake audits of the individual quality assurance schemes, require a level of reporting, and commission a low level of independent random tests of products in-situ quality and performance as part of confirming the robustness of the schemes. This would be financed by the product quality assurance schemes. Should this uncover concerns then appropriate action would be taken up to, and including, removing the Green Deal accredited status of the product assurance provider.

6.5 Governance and funding structures

The national Green Deal Quality Assurance Body should be established as an independent joint enterprise overseen by a Board consisting of Government, industry and consumer group representatives. The Board would need to be supported by a Secretariat that would be responsible for the day-to-day operations of the quality assurance system administration. This need not require the establishment of a new organisation. Such a body could be hosted by an existing organisation that provides the necessary services yet still reports into the independent Board.

The governance structure should define clear accountabilities for the parties involved. The role of the Green Deal Quality Assurance Body within the Green Deal should be made clear.

The Green Deal Quality Assurance Body will require sufficient funding to enable it to deliver on its role. In the initial phase, start up costs should be met through government funding and industry pump-priming. The Green Deal Quality Assurance Body should repay the government portion of seed funding over a subsequent period to be agreed. This finance should be used to establish the body and ensure the principles, Green Deal brand development, standards and technical review is in place. There should be no burden on Treasury in the longer term.

The Board should decide the detail of how the organisation would be funded, such as through the registered providers and manufacturers trade/certification schemes. This body should be self-sustaining in funding through this means. The decision should rest with the Board to decide on levels of charges and division between assurance streams. The costs should not be too onerous or costly to the industry.
6.6 Timeline and next steps

Quality assurance and consumer protection standards for the Green Deal need to be developed as a matter of urgency. Existing quality assurance schemes will then have sufficient time to be able to respond by developing their procedures and requirements in order to form part of the Green Deal Quality Assurance System. In order for the existing schemes to have time to work towards these new standards, ahead of Green Deal being introduced in 2012, the standards will need to be developed and communicated in early 2011.

New quality assurance schemes must be able to form part of Green Deal Quality Assurance System, once they have demonstrated they achieve the necessary requirements.

The Green Deal Quality Assurance System will need to be established, defined and ready to deliver by the summer of 2012. This will allow the industry reasonable time to adjust to the refined environment and prepare their internal processes and business for the Green Deal delivery landscape.

The Government must immediately bring clarity to the strategy forming the Green Deal and define the ambition, extent and scope of what is to be delivered in the Green Deal. This will need to be clear prior to the publication of the Energy Security and Green Economy Bill in December 2010.

Upon publication of the strategy and policy clarity the Government should establish the Shadow Board of the national Green Deal Quality Assurance Body. This should be accomplished by early 2011 with a mandate to develop the principles of the Green Deal Quality Assurance System in partnership with industry.

The work currently being carried out on a gap analysis in this sector should be accelerated to ensure it is relevant to the delivery timetable for the Green Deal (i.e. programme delivering to consumer in 2012). There needs to be a phased approach through the transition from CERT to Green Deal.

Between the establishment of the Shadow Board and the formal commencement through marketing and introduction in mid-2012, Government and industry must develop the standards and technical review processes in line with the principles of the QA system and ensure a viable, funded body is able to deliver from summer 2012.
7 Minimum standards of home energy efficiency

7.1 Background

There is clear need for the entire housing stock to undergo a transformation in its energy performance if carbon reduction targets are to be met. All homes will require a deep low carbon retrofit to reduce energy demand and carbon emissions. Without a clearly defined ambition for carbon reduction from the existing housing stock it is extremely difficult to determine what should be expected from each home to contribute to the carbon reduction targets up to 2020, 2030, and to ensure all homes are zero carbon by 2050.

The Government must frame the ambition and extent of delivery of the Green Deal around the need to meet legally binding carbon targets by 2020, and the longer term requirement to reduce emissions by at least 80% from existing homes by 2050. The Committee on Climate Change have already outlined the role for minimum standards, starting with the private rented sector.

Each home under the Green Deal must receive a once-and-for-all retrofit to make every home fit for 2050. This necessitates the government defining what the energy saving required from each building must be so Green Deal Providers, industry, householders, and the finance community know the extent and depth of retrofit that will be necessary for individual properties.

A system of minimum standards of energy efficiency for homes must be introduced.

DECC has announced that private rented sector landlords will have to upgrade their property to meet a minimum standard. This is a significant step towards the suggested framework in this report.

7.2 The role and purpose of minimum energy efficiency ratings

The new build sector provides an exemplar for the introduction of minimum energy efficiency standards and regulation on all tenures through the zero carbon homes target, with a clear trajectory and milestones for 2010, 2013, 2016. The introduction of this standard in the new build sector focussed house builders and enabled planning for investments in supply chains, product design, and business plans to deliver the policy.

The clarity for business has come from clearly outlining milestones and the ambition. Regulation has given certainty on future standards and what needs to be achieved within a specific timetable. This has enabled the industry to plan for how they will deliver zero carbon homes. Different build types were tested as a result and this has led to the mainstreaming of lower carbon homes and cost reductions have been achieved in the process. This process should be adopted for the existing housing sector to drive the improvements and delivery of deep low carbon refurbishment.

A system of minimum standards based on energy efficiency ratings will act as a driver creating demand for the Green Deal and as a backstop to push those laggards that will not take the offer up even when incentivised. The system of minimum standard can be complementary to the Green Deal Finance by ensuring those taking out the charge will be achieving the required depth of retrofit to achieve carbon reduction targets and therefore will not be expected to do further deeper retrofits in the future. Householders should be given clarity that what is expected under the Green Deal is the only retrofit they will need to undertake to ensure their home is fit for 2050.

Minimum standards must prioritise reducing overall demand for energy through improvements to the building fabric and systems (heating, lighting and ventilation) first, with energy generation being considered after the demand reduction have been specified. The dwelling should be seen as a whole system.

Data from the English Housing Survey (and its predecessor) demonstrate how little progress there has been on shifting the distribution of EPC ratings of the UK housing stock towards the higher energy performance bandings. Figure 2 shows the current distribution of properties in each banding. It represents slow progress and is a clear signs of market failure due to the lack of shift in distribution in any discernible significant manner.

The distribution on the curve needs to shift significantly to the right by 2020 if the UK is to achieve the required carbon reductions from existing homes. The housing stock must become considerably more efficient otherwise carbon budgets for 2020 will be difficult to meet and more costly to the UK economy, and consumers, than it would need to be.

7.3 The system of minimum standards

Minimum standard based on energy efficiency ratings for homes must be introduced within the enabling environment of appropriate delivery structures, quality assurance, access to finance, support and advice, and incentives.

There are two aspects to the system of minimum standards: the Green Deal aspirational standard to ensure clarity on the depth of retrofit required to be achieved under the Green Deal which should be reflected in the survey, report and recommendations to the homeowner, and; the mandatory minimum standard acting as a backstop with mandatory minimum energy performance ratings for all tenures linked to the point of rental and sale to ensure all homes, where possible, are improved and the obligation is spread fairly across the housing market and all tenures.

7.3.1. Aspirational standards

The system adopted should act to encourage householders to go over and above any mandatory minimum standard in expectation of a rising standard. The aim of the aspirational standard should be to communicate the necessary level of energy performance of a property to ensure that the macro ambition of carbon reduction from existing homes is meet and homes contribute the necessary reductions in energy demand and carbon emissions to meet legally binding carbon targets.

The aspirational standard should be used to define the extent of the retrofit required and the intention should be for the survey, report, and measures recommended under the Green Deal to the householder should reflect what is needed to meet this standard.

The standard should reflect the expected level of energy performance of homes required to ensure they are to be fit for 2050 and deliver significant carbon reductions in line with the ambition required to meet the carbon targets.

This should be defined at the outset of the Green Deal so industry and householder’s are clear from the outset on what the challenge and ambition across the housing stock will have to be.
The aspirational standard should take the form of one defined level applicable to all tenures.

7.3.2. Mandatory minimum standards
Mandatory minimum standards will be required to act as a backstop to ensure that all homes deliver on the required energy demand reduction and carbon savings to meet carbon targets for 2020 and leading up to 2050.

The mandatory minimum standards should be phased in across tenures.

7.4 Defining minimum standards
Minimum standards should be linked to the banding system on EPC’s so they are accessible and easily explainable to householders.

Standards should not be differentiated between property archetype, location (conservation areas), or listed/historic status. There should be a mechanism to allow for exemptions but the bigger picture is for Government to tackle the incongruity of climate change policy with other areas e.g. policy governing conservation areas.

The aspirational standard should be clearly defined based on the premise that all homes are going to have to have a once-and-for-all retrofit to make them fit for 2050 through considerably reducing energy demand and carbon emission. The Government should determine what this standard should be based on what standard homes will need to be in for 2050 considering 85 per cent of the housing stock present now will be in use in 2050.

The mandatory minimum standards should be defined to ensure a clear trajectory towards the aspirational standard for each tenure. The mandatory minimum standards should be defined at a level that will ensure the worst housing stock, those with the lowest ratings, are improved, and also to ensure that the carbon targets for intervening budget periods up to 2050 are met. The Green Deal should promote the improving of dwelling to the aspirational standard, but mandatory minimum standards should act as a backstop to ensure the worst are improved and the necessary carbon reductions are achieved.

The Existing Homes Alliance makes no recommendation here for what the aspirational standard should be and would recommend the Government carry out modelling and assess the level of aspirational standard in conjunction with the Committee on Climate Change. The mandatory minimum standards should be also be defined in a similar process, although the ExHA has made recommendations on some initial tenure specific mandatory minimum standards below.

7.5 Introduction of the system of minimum standards
Householders should be given every opportunity, and assistance, under the Green Deal to improve their home before the introduction of mandatory minimum standards. When minimum standards are introduced, other supporting financial incentives for the Green Deal should be phased out, relieving the burden on public expenditure. This should only be the case after sufficient opportunity has been given to property owners to meet this standard voluntarily.

It is vital that the minimum standard system is articulated before the commencement of the Green Deal.

Initially the aspirational standard should be voluntary to achieve but over time the mandatory minimum standard should incrementally increase until, in the future, it becomes a requirement to have met the aspirational minimum standard.

Specific factors around ownership, responsibilities and occupants will necessitate a differentiation of the timeframes for raising the mandatory minimum for each sector. A phased introduction of mandatory minimum standards by date and EPC rating increments clearly defined at the introduction with a clear trajectory (as with the Code for Sustainable Homes) is recommended.

The Government should put in place the enabling powers for the system of minimum standards at the earliest opportunity. The ExHA recommends the inclusion of these powers in the Energy Security and Green Economy Bill being published in December 2010. The detailed system of standards should be defined and introduced through secondary legislation prior to the commencement of the Green Deal with sunrise dates.
for the commencement of the standards for each tenure and outlining the date of incremental increases in the standard.

As an indication of the trajectory that needs to be communicated through secondary legislation see Figure 3 below.

*Figure 3: Indicative chart plotting timeframe and trajectory of mandatory minimum standard (based on SAP rating) for each tenure. This is not a recommendation on date or SAP level of any standard to be introduced.*

7.5.1. **Private rented sector**

The private rented sector should be the first to be regulated due to the nature of the quality of the housing stock and the current failure of landlords to undertake energy efficiency improvements.

The ExHA propose that removing G and F rated homes is the starting point start, noting that a *de facto* minimum standard is already implied in environmental health regulations – which identify that nearly all F&G rated homes are essentially a Category 1 Excess Cold Hazard (under the Housing Health and Safety Rating System). Energy Saving Trust research has also shown that most currently F&G rated homes could also be improved for comparatively low cost.

The need for regulation in this tenure is clear from the lack of action and the proportion of the stock that is sub-standard.

7.5.2. **Social housing sector**

The social rented sector, through the Decent Homes programme, has significantly improved its stock. The social housing sector should have a more stringent standard introduced. Due to the occupants of this tenure being on a low income, the need to maintain low fuel bills to reduce outgoings for them is a prominent concern. The social housing sector standard should be introduced early, and for a higher on the energy performance rating. The previous Governments strategy suggested a standard of SAP 70 for the social housing sector[^31].

7.5.3. **Owner occupier sector**

There is a need to introduce mandatory minimum standards in the owner occupier sector that link to the point of sale and other trigger points. This will act as a backstop to ensure that properties in the tenure contribute their fair share towards reducing the UK’s energy demand and carbon emissions. If the owner

occupier sector does not participate on the large scale expected by the Government for the Green Deal it will be necessary to introduce a mandatory minimum. The powers for this should be put in place before the commencement of the Green Deal so the Government can introduce regulation of this sector's energy performance at a later date in line with other tenures and without having to resort to the lengthy process of primary legislation again. This will allow the Government to react to any failing to deliver on their contribution towards carbon targets from this tenure.

7.6 Communication of the standard
Communication of the system of minimum standards must be clear. The ExHA propose a reformed EPC should form the basis of the minimum standard as this is easily communicated to householders.

The home survey carried out under the Green Deal should outline the property specific retrofit and measures required to raise the property to the aspirational standard and to interim standards. It is recommended these are identified in the whole house context, but also as works associated with trigger points (i.e. when a new kitchen is fitted; when new carpets are laid, etc). The householder needs to be able to adapt the retrofit to their personal circumstances.

See the earlier chapter on EPC's for further recommendations.

7.7 Change of ownership
Minimum standards should require all homes changing ownership to undergo a retrofit within a limited timeframe. A period of twelve months from the point of purchase/sale for the works completed should be specified. The burden of improvement should be placed with the building rather than the homeowner. The responsibility for meeting the standard can be transferred between the seller and the purchaser and works can be undertaken before or after sale. This flexibility must be built into the standard to avoid vulnerable homeowners who are unable to finance or manage energy efficiency improvements being left unable to sell their home.
8 Glossary

For clarity, we outline below definitions of current policy language and other terms that are used in this report, as assumed by the Existing Homes Alliance.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td><strong>Green Deal Finance</strong></td>
<td>The Pay-As-You-Save financial mechanism providing up-front capital with repayment linked to the property, through the energy meter, rather than the individual.</td>
</tr>
<tr>
<td><strong>Green Deal</strong></td>
<td>The Coalition Government programme for improving the energy efficiency of the existing housing stock. To be introduced from mid-2012.</td>
</tr>
<tr>
<td><strong>Green Deal offer / Green deal package</strong></td>
<td>What is presented to the householder/consumer after having their property assessed under the Green Deal. This offer/package would be what the householder would use to make the investment decision and what they undertake to improve their property.</td>
</tr>
<tr>
<td><strong>Green Deal Provider</strong></td>
<td>Those accredited providers of the Green Deal. They would be the point of interaction for the householder and are currently proposed as the delivers of the Green Deal.</td>
</tr>
<tr>
<td><strong>Green Deal Quality Assurance System</strong></td>
<td>The framework of accreditation that should underpin the Green Deal to ensure the quality of product, advice, and installation of measures, which includes the schemes, and bodies that constitute the system.</td>
</tr>
<tr>
<td><strong>Green Deal Quality Assurance Body</strong></td>
<td>The overarching body that governs the standards for products, installation and advice for the Green Deal and interacts with the quality assurance schemes.</td>
</tr>
<tr>
<td><strong>Quality assurance schemes</strong></td>
<td>QA schemes that are constituent parts of the QA system. These are responsible for accrediting parts of the supply chain for the Green Deal for products, installation and advice.</td>
</tr>
<tr>
<td><strong>ECO subsidy</strong></td>
<td>The working name for a supplier obligation post 2012 to complement Green Deal Finance.</td>
</tr>
<tr>
<td><strong>Green Deal Report</strong></td>
<td>The report that would form the means of communicating the offer and package to the householder/consumer. This would contain the advice and recommendations for improving the energy efficiency of the property.</td>
</tr>
<tr>
<td><strong>Golden Rule</strong></td>
<td>This governs the level of investment possible under the Green Deal. The level of savings on the household energy bills must be greater than the charge for the Green Deal Finance for the offering to meet the Golden Rule.</td>
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</tbody>
</table>
The views in this report represent the majority views of the group and key external organisations and may
not necessarily represent the individual views of member or supporter organisations.

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The Existing Homes Alliance
December 2010

Chair: Colin Butfield, Head of Campaigns, WWF UK

If you would like to speak with a representative of the Existing Homes Alliance regarding this report, please
contact the Secretariat:

Julie Robinson, Blooming Green Ltd
julierobinson@bloominggreen.co.uk