The Green Deal and ECO Consultation
Green Deal Legislation and Finance
Department of Energy & Climate Change
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Re: Consultation on the Green Deal / Energy Company Obligation

Dear Sir or Madam

We are writing to articulate our concerns as part of our response to the Consultation on the Green Deal (GD) and Energy Company Obligation (ECO). This letter also provides a little detail on our organisation, AECB - the Sustainable Building Association and our membership. Many of our members and the AECB itself have been at the forefront of the retrofit / energy efficiency sector for many years. Our formal response to the consultation has been partly based on feedback from members, for example including via feedback on our technical discussion forum and through the many AECB local groups around the country and as a result of discussions at our annual conference. We note the consultation has only been open for 8 weeks – a short time considering the complexity and length of the proposed GD/ECO consultation material. We have made significant attempts to engage our membership in the consultation process via our website, direct emailing, our newsletter and twitter.

About the AECB

AECB - the Sustainable Building Association (www.aecb.net) is an independent, not for profit, practical and action oriented organisation. It was established in 1989 to raise awareness within the construction industry of the need to respect the environment whilst carrying out design, product and material manufacturing and construction work - and to promote evidence based design and technical solutions to minimise environmental and social damage.

It is now an extensive network of individuals and companies with a common aim of promoting evidence based sustainable building. It brings together students and academics, self builders, contractors, trades people, developers, architects, designers, manufacturers and distributors, housing associations, and local authorities etc to develop, share and promote best practice in environmentally sustainable building.

Currently we have about 1,500 UK-based members who represent businesses with a turnover of at least £300 million per annum – many of whom are responsible for

directing the investment of many hundreds of millions of pounds into design and construction projects.

A good number of AECB members have longstanding and extensive experience designing, delivering and researching low-energy refurbishment. A number of our members have been deeply involved over the years, including in BRE and EST R&D work relating to BREDEM, SAP, Building Regulations, EST programmes, industry training and many other NGO and commercial industry initiatives.

The AECB subsidiary company the Passivhaus Trust was set up last year to take forward the energy efficiency work of the AECB CarbonLite programme into the mainstream using the methodology and principles of Passivhaus. The Trust is already highly successful already with over 150 member companies.

AECB promotes practicality, sound building physics, effectiveness and overall excellence in design and construction – our popular energy and water standards are founded on a detailed and realistic understanding of the performance of buildings.

Our recent work includes developing and providing technical support for the Retrofit for the Future project with the Technology Strategy Board (TSB), developing the Low Energy Buildings Database for the TSB (www.retrofitforthefuture.org) – and developing and delivering the popular Carbonlite training programme via WARM. We are partnering with BRE on their refurbishment portal project (http://www.rethinkingrefurbishment.com/portal/) – as part of the National Refurbishment Centre. We also sit on the steering committee of the Existing Homes Alliance.

Outline of our concerns about the Green Deal, ECO & the consultation process

The Climate Change Act 2008 contained a legally binding target of UK greenhouse gas emissions of at least 34% by 2020 and of at least 80% by 2050, compared to 1990 levels.

Green Deal defined by GHG reduction targets

AECB thinks that in order to reach the targets and given the central role of energy efficiency to achieve this, we should base the Green Deal on the Climate Change Act's overarching greenhouse gas reduction targets - and work back from these to determine the fundamental design and detail of this much needed programme.

Energy efficiency is still vastly under exploited and under appreciated.
We have now finalised our report, *Less is More: Energy Security After Oil*, looking at the benefits of energy efficiency, including better matching of energy supplied to type of energy needed, which will be published very shortly. We recommend

this report (available now in pre-publication format) as being an invaluable contribution to the further design and detail of the Green Deal.

More financial support for energy efficiency

The GD / ECO in our view would benefit from being *redefined* in terms of what is required to meet the national target and then financially supported in line with a recognition that almost all energy efficiency measures are generally significantly cheaper for UK PLC than (over investment) in increased renewable energy, particularly electricity, generation.

Stifling innovation and SMEs

We are also concerned that the GD / ECO mechanism will stifle 'alternative' successful and proven approaches to retrofit, particularly those designed, manufactured and installed by expert SME's. SME's have the real expertise and track records to drive innovation and progress in this sector - some use a different methodology to RdSAP and many promote different but demonstrably effective measures and interventions than those suggested by RdSAP and allowed by the Golden rule etc. There must be mechanisms agreed to encourage innovation and effective alternatives to thrive within the GD / ECO framework.

Increase, not reduce levels of energy saving installations

We also are concerned at the replacement of the existing Warm Front, CERT & CESP schemes. With a slow take up of the Green Deal / ECO, there could be a severe reduction in the installation of insulation and other energy-saving measures – this represents a risk that the UK cannot afford to take i.e. that the GD / ECO will not deliver the level of carbon reductions required in time.

Fuel poverty relief via energy bill levies

We believe it is counterproductive to fund a fuel poverty programme via energy bills and we call on the Government to retain and strengthen the centrally funded Warm Front programme. We agree a mass programme of energy efficiency is the only way to end fuel poverty, but it is not socially equitable to expect poor people to pay for it.

Our formal response to the GD / ECO consultation is set out below. Given the fundamental nature of our concerns, they all relate to Question 63, and cover various aspects of the proposals.

In terms of technical success for GD retrofits i.e. as measured by measured fuel consumption and GHG emissions, internal temperatures, indoor air quality, correct building fabric conditions with respect to moisture levels and occupant satisfaction generally, the Canadian experience in retrofitting offers invaluable lessons as does the Passivhaus Institute's experiences in building refurbishment – i.e. the principles and technologies underpinning their EnerPHit refurbishment standard.

AECB formal response to the Green Deal consultation

Our concerns are divided into three areas: the Green Deal, the Energy Company Obligation and the Consultation process.

Green Deal

- The programme is not integrated with the overall UK strategy to meet our carbon targets and the detail of the proposals effectively exclude many sensible, whole house measures needed to achieve in reality the necessary greenhouse gas reductions for buildings. This includes proven off-site measures, however we are for example pleased to see that the very promising role for piped heat is being considered and would entirely support this. In towns, this will most likely be one of the principal cost effective measures to deliver low-carbon heat in the future. Our forthcoming report, *Less is More,* looks at the experience in Denmark and illustrates the importance of looking at piped heat as means to deliver renewable heat at a low cost. It is self evident that access to district heating networks need to be factored in when making decisions about the most cost effective package of measures for buildings or groups of buildings.
- The program omits improvements to several typical UK ground floor and wall construction systems. This suggests that the Green Deal does not in fact offer a "comprehensive" approach. For example, there are numerous timber-frame, steel-frame and concrete panel walls built during the post-War period and up to the 1980s, needing technically distinct solutions and expert knowledge to upgrade. There is no clear mechanism to decide how to insulate them successfully to avoid subsequent technical and health risks even building failure; individual tailor made expert attention maybe required.

  For example three examples of non standard construction (not cavity or 215 mm brick solid masonry walls) include;
  - estates of early 20th century houses with concrete inner leaves and upper floors, brick outer leaves and 20-25 mm cavities;
  - estates of late 20th century houses in brick-clad 89 mm softwood frame, with nothing or only a sheet of metal foil as wall insulation and;
  - Historic small towns / villages with a wide range of pre-1850 construction including softwood /hardwood-frame and solid stone.

  The concept of a network of 'super assessors' using more appropriate assessment tools and bringing more expert and independent advice to such

properties should be explored urgently, and this is an area where the AECB could certainly help, and is indeed already exploring.

- The Green Deal distracts from the removal of existing subsidies; e.g., CERT and CESP from all but a very small group in fuel poverty.
- The 'Golden Rule' means a focus on low-hanging fruit measures such as cavity wall insulation and uninsulated lofts, which are currently funded by grant schemes. It even means a continuing focus on cavity wall insulation systems which do not deliver the savings possible via higher-specification wall insulation systems (either a higher performance CWI material or moving directly to EWI for example), permanently locking us into a needlessly energy-inefficient state.
- The 'Golden Rule' favours cheaper materials which give a faster payback. Therefore, there is a disincentive to use more expensive 'natural' materials such as wool or wood fibre, that may be more beneficial to the wider environment, or required due to specific characteristics such as moisture management in higher risks areas, e.g., suspended floors where no DPC is present. Such benefits may only be realised through a full life cycle analysis, (considering factors such as embodied energy, health and biodiversity and the GHG sequestration possible via the use of some insulation materials, such as hemp or flax) or through more expert input when specifying materials for risk management purposes, e.g., to reduce risk of interstitial condensation or black mould growth.
- Quality of workmanship – high standards of workmanship are needed or measures may not achieve the potential energy savings that they should, compromising both the building owner and the environment e.g., missing insulation, convective bypasses or airtightness measures not being achieved due to lack of knowledge/training/testing. The issue of adequate ventilation and internal air quality also may be affected, for 'natural ventilation', as well as mechanical ventilation systems.
- Energy modelling tools - enhanced RdSAP has significant shortcomings as a tool for analysing whole building energy use in many dwelling types. There are other appropriate energy modelling tools such as the Passivhaus Planning Package (PHPP) which have established track records and give more accurate results when assessing low energy, whole building packages of measures. Therefore, AECB calls for PHPP in particular or other proven methodology to be an allowable alternative to the enhanced RdSAP tool to calculate energy savings and guide in the choice of measures. A relatively small but influential network of PHPP users could continue to build an evidence base without being penalised by GD or ECO criteria - such a freedom for expert innovation would ultimately benefit the GD programme – again the AECB and the Passivhaus Trust would be keen to work with DECC to explore this possibility.
- Due to the "rebound" effect (AKA 'comfort take'), some energy 'saving' will of course be used to afford a higher indoor temperature e.g., the average

whole house temperature in the UK during the heating season is thought to be 17 - 18 °C and is probably lower during the coldest periods of mid-December to mid-March. In Denmark, average internal temperature is 22 °C (and rising marginally in new homes towards 23 °C, since many people want a living room and bathroom at nearer 24 °C). Unless retrofit insulation schemes such as the GD allow for the innate and understandable desire of consumers for increased thermal comfort (and health), then the GD will lead to warmer homes, but not energy savings. The GD needs to be redesigned so that it leads to both, which would make it a *great* success, as it would almost abolish the scourge of fuel poverty. This suggests that more integrated and more extensive measures need to be brought into the GD and ECO lists.

- It is planned to ask consumers to repay the Green Deal loan for thermal improvements on the electricity bill, but 93% of UK dwellings use gas, oil, LPG, solid fuel or district heating for space heating and over 80% use these systems for their hot water. It is not clear how these savings are reflected in lower electricity bills, except via the potential use of more energy-efficient pumps, fans and controls and savings on pumping power if heat consumption falls? Potential consumer backlash from negative feedback by early adopters, following technical errors – particular areas of concern are where measures fail to deliver through for example excessive air leakage, or where internal wall insulations give rise to black mould growth or decay in timber elements such as joist ends or embedded wall plates.
- Independent assessment & advice - there is a need for clear impartial professional advice in the difficult cases. It is not clear in the proposals how this will be realised or funded and there are widespread concerns that independent assessors will find it hard to compete with 'in-house' assessment by Green Deal providers who bundle assessments costs into the package, making the assessments appear 'free', but not impartial.
- Monitoring – there is no formal mechanism to measure the actual environmental performance (including thermal comfort and indoor air quality) of the retrofits and therefore no way to feed this understanding back at any scale into a continuous improvement loop. Without robust evaluation then it will be difficult to know whether the Green Deal is delivering carbon reductions in line with policy or whether the health of occupants is being put at risk until too late.
- Older building stock - as already mentioned specialist Green Deal assessors will be needed to deal with traditional homes to combat fears that measures could harm the building. However, we think that this concern may be of less concern for thick-walled solid masonry buildings. We think that concern should centre on historic timber-framed buildings.
- Lack of insurance for solid wall external insulation with a 25 year warranty.

Energy Company Obligation

- ECO is aimed at hard to treat, probably mostly solid masonry wall buildings; i.e., neglecting all the minority forms of system built construction other than cavity and solid masonry. Therefore between the Green Deal and the ECO, there is a gap of unsupported measures, such as roofs, floor insulation and high performance windows.
- Potential moisture problems with internal solid wall insulation solutions if they lack expert advice, e.g. interstitial and/or internal condensation leading to rot, mould, damp and asthma.
- Level of annual subsidy - there are about 7.9 million solid walled dwellings in the UK, so for example, the ECO is targeting these with roughly £1.3 billion/yr - enough to treat 65,000 properties per year at an average level of around £20k per property. That's over 120 yrs to complete all solid wall properties. To contextualise this, we have estimated that in a mature market, £10k would be needed for an urban cavity-walled semi-detached house heated by CHP/DH Heat & Power, whilst at least £30k would be needed for a rural solid-walled detached house heated by oil.
- Affordable Warmth ECO only offers a 'free green deal' of the most basic measures to a small, tightly defined sub–set of the means tested fuel poor. It is based on the inadequate provisions in the Decent Homes standard which can be regarded as the bare minimum and contrasts with the indoor temperatures in the mid 20's °C enjoyed in other parts of northern Europe.
- Provision gap between the fuel-poor eligible for ECO and those who can afford the Green Deal.

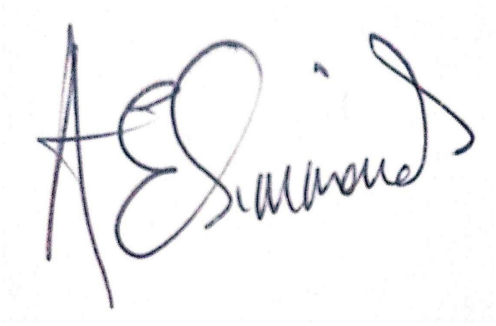
Consultation process

AECB feels that there are fundamental issues with the consultation process as well. In 2008, the government published a Code of Practice on Consultation with seven criteria. We believe that the Green Deal consultation has not implemented two of the key recommendations:

- Criterion 2 - Duration of consultation exercises: consultations should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible. The Green Deal / ECO consultation has been 8 weeks, with Christmas break included. 12 weeks would extend the consultation to 18th February. We would recommend this extension to enable the construction sector to fully respond.
- Criterion 5 - The burden of consultation: keeping the burden of consultation to a minimum is essential if consultations are to be effective and if consultees' buy-in to the process is to be obtained. The Green Deal / ECO consultation is a 239 page document with 63 questions. This is too long for most lay or even professional people to consider the level of complexity and detail in such a brief timeframe.

We would like the opportunity to meet with you to discuss our concerns in more detail and explore opportunities for AECB to contribute to the future success of the Green Deal / ECO in light of our comments. We look forward to hearing from you.

Yours Faithfully,



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