

## Executive Summary

Several drivers exist for the retrofitting the existing building stock: the UK Government's commitment to lower its carbon emissions by 80% in 2050 in comparison to 1990 levels (Climate Change Act, 2008), rising energy prices and the evidence that energy saving improvements can increase the value of a home by 14% on average (DECC, 2013). The UK Government's Green Deal and Energy Company Obligations (ECO) are programmes to implement energy efficiency improvements in the nation's 26 million households and 4.5 million businesses. However, the Green Deal is not delivering at the intended and needed scale. A critique is provided along with positive actions to 'kick start' the uptake of the Green Deal through three key aspects: 'Creating Momentum', 'Delivery on the Ground' and 'Financing'.

Six key recommendations arise:

- Improved dialogue is needed within Government (between DECC and the Treasury) to understand and capture the benefits of an effective retrofit programme.
- Increased initial investment is needed to 'kick start' retrofit generally and to make the Green Deal commercially irresistible to the public. Proven investment models can provide financial incentives for refurbishments. Very low interest loans (~2% interest rate) are a needed stimulus. Other financial incentives include:
  - *Variable stamp duty* for property transactions.
  - *Variable council rates* with high rates for *poorly performing properties* and low rates for high energy efficiency performing properties
- Reduce or remove the reliance on unreliable energy rating schemes (i.e., SAP for homes and SBEM for non-domestic buildings). These models are often inaccurate and unable to both predict and deliver the actual reductions in energy demand. More reliable source of information are available (i.e. a database of actual energy bills) would provide an accurate set of baseline figures.
- Consumer confidence needs boosting: a more robust quality and assurance (Q&A) process is needed. Implementation of Green Deal projects should be subject to prior Building Control approvals and to random LA inspections after plan approval.
- A centralised hub needs to be established for knowledge assimilation, building and sharing.
- An effective, timely and well sponsored promotional campaign needs to understand and target those most likely to implement an energy retrofit: people approaching retirement and younger generations (e.g. under 40)

## Challenges inhibiting the Green Deal:

- The limited public campaign has been insufficient to change public attitudes and actions toward energy efficiency options.
- Homeowners mistrust builders' and other trades' ability to deliver good quality work.
- Homeowners perceive the works as disruptive and inconvenient.
- The anticipated Green Deal interest rate of 7.5% is very unappealing - restricting the scope of potential works to only high yield efficiency measures that assure the Golden Rule and precluding more marginal measures that would otherwise be most economically and conveniently implemented at the same time – aggregating as a major loss of opportunity.
- The use of the word "guarantee" when describing the Golden Rule (i.e. estimated savings are "guaranteed" to be greater than loan repayments), implies a level of trust in building modelling that is inappropriate. (See comments below on SAP/SBEM)
- The general public would be empowered to do something if there were mechanisms in place that would enable them to engage with the green deal through community groups.

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### **Creating momentum**

An effective promotional campaign is needed to create a retrofit market by understanding the demographics of those first adopters and their particular aspirations. The view is that the group could be people approaching retirement (who are prepared to fund works from savings or pension pots to ring-fence their future outgoings) and research suggests younger home owners (e.g. under 40 pre children or young children) in the course of optimising their homes over time and concerned about rising energy costs ( D Hall, Nov 2012).

First movers require messages to a kick start campaign:

- 'good news' stories that resonate with the audience. Many 'unsung' triumphs already exist
- trusted commentators and ambassadors are needed: individuals who have earned the hearts and minds of the public (e.g. Sebastian Coe, Ellen MacArthur, and David Beckham). They must have direct experience and engagement with the scheme.

These 'natural' first-movers may also be receptive to other motivations:

- making a difference for their children now - by explaining how energy price escalation and climate change could impact their progeny
- their contribution to a greater good
- bringing 65,000 construction workers back to work
- creating new skills and technology bases for export
- a quality assurance regime and feedback need to be developed for the wider roll out of Green Deal and other retrofit programmes:
  - ✓ to create consumer confidence in the scheme
  - ✓ to showcase that a credible structure exists to protect consumers

### **Delivery on the Ground**

The green deal assessor currently produces an energy performance certificate (EPC) before a home is being considered for the Green Deal. EPC's are produced using SAP calculations. However, SAP (for homes) and SBEM (for non-domestic buildings) energy & finance modelling are problematic because they are unreliable and often inaccurate (Ingram, V and Jenkins, D.P. (2013). SBEM, for example, was savaged by the Jones Lang LaSalle report, "Tale of two buildings". The SAP model used to verify retrofitting examples of social housing gave an average over-predicted savings of 77% (Affinity Sutton, 2013). Other, better mechanisms can be substituted to provide 'sanity checks', i.e. testing the Green Deal offer and its loan repayment around recorded energy use / bills. This would verify that the modelled predictions are likely to comply with the 'Golden Rules'. Using 'real' data, rather than just the SAP calculation, would reduce the risks of atypical (which are often vulnerable) homes being mis-sold refurbishments. Installers are currently required to keep records of all Green Deal work carried out. This is intended to help protect the property owner from defective works by the installer. Green Deal providers will be the first port of call to a complaint about an installation. They will decide how best to remedy problems.

### **Response:**

1. To build consumer confidence, a more robust quality and assurance (Q&A) process is required. The existing self-certifying regime by installers is insufficient.
2. A proposed regime would have all such retrofit works subject to prior Building Control approvals (as currently done with structural alterations), with Local Authorities (LA) able to sub-contract approvals to third party specialists.
3. The works must be subject to random LA inspections after plan approval.
4. Local authorities need to establish an office responsible (inter alia) for collating retrofit data and outcomes.
5. Homeowners also need to be given the protection of:
  - a. Green deal assessors on a UKAS accredited scheme
  - b. Green deal installers, overseen by bodies such as AKAS and BSI
  - c. Feedback mechanisms for consumer protection.
6. Each LA office will form part of a national hub for the Green Deal to:
  - collect and share successes and failures – to better understand variances in Green Deal assessments, installation methodologies and refine auditing
  - monitor Green Deal players and provide support documentations for providers and wider stakeholders
  - gather and disseminate typical data about the energy consumption on different building types and retrofitting options
  - collate data to prevent 'reinventing' the wheel
  - learn from existing schemes
  - maintain consumer confidence.

The proposed centralised hub could be appended to an existing organisation (like the National House-Building Council or the National Refurbishment Centre), or could be a satellite working with specialised bodies. The hub needs to comprise a group of 'change agents' as individuals committed to the scheme.

## Financing

The existing £3M marketing budget is inadequate to the task. Less complex issues (i.e. the stop-smoking, seatbelt and digital switch-over campaigns) had significantly higher budgets of for example £150 million for the digital switch over. A serious retrofit marketing campaign requires a larger budget.

Increased dialogue and mediation between DECC and the Treasury are needed to articulate and capture the tangible benefits of an effective retrofit programme as:

- creating new jobs, tax revenues & export potential
- raising quality-of-life standards (and reducing fuel poverty)
- saving NHS costs: every £1 invested in keeping homes warm saves the NHS £0.42 in health costs (DECC, 2013)
- providing fuel security
- reducing risks of systemic power outages
- reducing the need for new generation and distribution infrastructure
- reducing the need for energy imports and improving the UK balance of payments
- helping to meet UK's legally-binding 2050 energy target.

Funding is needed for research to trial different Green Deal solutions and to provide guidelines for wider roll out. Increased initial investment is needed to provide a 'kick start' to the retrofit market, and to make the Green Deal commercially irresistible. Lessons can be applied from elsewhere; evidence shows how financial incentives influence uptake: e.g. pay-as-you-save KfW scheme in Germany for refurbishments (~2% interest rate) with a Green Investment Bank delivering the very low interest loan.

Government's first-time homebuyer's scheme provides zero interest loans; so huge incentivisation seems possible if the goal is important enough!

Incentivise refurbishment when a property transaction is carried out.

Consider UK-GBC (2013) recommendations for policy measures:

- *Variable stamp duty* for domestic property transactions: A high rated (inefficient) home carries a higher Stamp Duty. However, a rebate on duty arises with any energy efficiency improvements, carried out within 12 months. This measure is anticipated to provide between 135,000 and 270,000 new retrofit projects and add £400-£800m to GDP at near zero cost to government.
- *Variable council rates*: A gradually introduced discount rate for properties with high energy efficiency and penalties for properties with poor energy efficiency. This could contribute £1.5bn-£4.4bn to GDP with near zero annual cost to government. However, action is needed to ensure that vulnerable households do not miss out as well as harder to treat homes.

## Conclusions

In order to ensure that the Green Deal does not get scrapped prematurely and becomes a more effective mechanism, the conditions for its delivery, funding and targeting need substantial improvement. A range of solutions is offered here which address the stakeholders: local and central government, energy companies, the construction industry and (institutional and individual) building owners. These actions will facilitate an improved take-up of the Green Deal and help start delivering on the required scale.

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**ABOUT THE EDGE** The Edge is a think tank with a multi-disciplinary approach to the built environment. Edge members include many high calibre and very experienced professionals from the built environment such as five presidents and several fellows of professional institutions. The Edge has been described as a virtual organisation. It has created a shared space between the architectural and engineering institutions. The Edge acts as an agent to influence change. <http://www.edgedebate.com/>

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