

Scaling the solid wall

Final Report for Consumer Focus



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Energy

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Summary

The Government wants policies within the 2011 Energy Act, in particular the Energy Company Obligation (ECO), to drive a dramatic increase in the installation of solid wall insulation (SWI). The Government anticipates all social housing with solid walls will have had SWI installed by 2018. It expects relatively high take-up in the social housing sector for several reasons:

- Social housing is more amenable to concentrated delivery of SWI, reducing costs through scale
- The established supply chains and value for money delivery experience of social housing providers, due to Decent Homes and other refurbishment programmes
- The relative ease with which fuel companies can engage with one social housing contact, representing a number of tenants and properties

However, delivery of SWI in social housing will not be straightforward. This report presents the findings of research into the experience of delivering SWI to date, based on interviews with stakeholders and a review of SWI schemes and trials. It highlights a range of issues that will need addressing if SWI installation is to take off.

Issues

Barriers to SWI delivery

- Planning issues: stakeholders reported an inconsistent approach by different planning authorities to SWI installation (page 19)
- SWI systems require bespoke design due to the heterogeneity and complexity of homes (page 19)
- Social housing resident permissions, where households in a block could refuse works or refuse to contribute to the cost of measures (page 20)
- Mixed tenure blocks or terraces where households could block the installation to their property, making the system uneconomical or unfeasible for the remaining properties (page 21)
- Loss of the skills within local authorities and housing associations that are needed to establish partnerships, provide stock information and drive or assist with the delivery of measures on an area basis (page 21)
- Limited supply chain capacity (page 17)

Costs of delivering SWI

The Government expects the **cost** of delivering SWI to reduce over time due to the benefit of delivery at scale in social housing. However, the research found that many expect costs to remain high:

- The fixed costs associated with design specification, logistics, programme set-up, planning process, scaffolding, unexpected works and 'making good' after works are particularly high.
- The design specification for Internal Wall Insulation (IWI) is lower than that for External Wall Insulation (EWI). However, 'making good' costs for IWI are particularly high. For some projects, the fixed and 'making good' costs represented 50% of the project costs (page 12)

- Consumer (both social and private sector) engagement has required significant effort and expenditure (page 12)
- High fixed and consumer engagement costs, together with the financial squeeze on social housing providers and local authorities, has led to CESP projects requiring a high level of subsidy (page 15)
- In private sector housing, CESP and PAYS trial evidence suggests that even greater engagement effort and subsidy are required. Household take up is low and drop out high, with take up levels highly dependent on the level of subsidy offered. (page 15)
- Projects delivering SWI with use of 'Green Deal style' finance has also found that significant subsidies are needed to meet the 'Golden Rule' (page 15).

Policy recommendations

Despite these issues, social housing is likely to remain relatively attractive for delivering SWI with ECO support, when compared with the owner-occupied and privately rented sectors. However, cost is likely to be greater than envisaged. Additional enabling mechanisms or incentives may also be necessary to promote social housing to act as a catalyst for wider roll out in other tenures in neighbouring areas.

This report argues that it is vital SWI is delivered into private as well as social housing, in order to avoid the development of two separate supply chains. It also makes the case for delivering significant levels of ECO support for SWI in low income private housing to reduce the negative distributional impact of the ECO on low income consumers' bills. The report presents policy recommendations to overcome the identified issues, reduce the costs of delivery in social housing, and encourage take up in low income private sector households.

General recommendations:

- **Planning:** The Government should take a more prescriptive approach on planning issues with respect to SWI to ensure consistency. It should provide guidance to planning authorities that encourages positive approval when considering EWI applications. Judgements or indicative statements could be attached to areas containing very similar property types which are made publicly available, providing prospective applicants and scheme managers insight into the appropriateness of proposals. Permissions already granted to one property in a street or designated area could be extended to nearby properties, thus avoiding a full application process for each property (page 27)
- **SWIGA guarantee:** The planned SWIGA guarantee and framework should be implemented at the earliest opportunity to avoid damaging the reputation of IWI and EWI due to poor quality installations (page 27)
- **Innovation:** Investment in product development and innovation is urgently needed in order to reduce costs and improve household acceptance of SWI. The Government should make available the £35m of new funds earmarked to support the development and demonstration of innovative technologies and systems to reduce carbon from buildings (announced by Chris Huhne in September 2011) for SWI (page 28)
- **Complex homes:** Where a combination of EWI, IWI and/or CWI is the most appropriate treatment for a property, it is important that ECO scores are flexible enough to take account of multiple wall insulation products (page 28)

- **Incentives:** To help overcome household hassle and disruption barriers and to attract householders to Green Deal Finance, substantial incentives are needed. In addition, the Government should encourage community participation approaches that incentivise area-based take-up (page 28)

Social housing recommendations:

- **Rights and duties of residents:** Greater clarity is needed on the responsibilities of social housing residents and leaseholders to accept reasonable SWI works, and on the type and magnitude of the costs that can be passed on within rent and service charges. Guidance on a streamlined consultation process for obtaining the relevant consents would also help (page 29)
- **Treatment of voids:** Social housing providers should not be penalised if they take the opportunity presented by vacancies to improve the energy efficiency of properties (page 29)
- **Access to ECO subsidy:** Social housing providers should have direct and transparent access to the ECO subsidy in order to support their works, retaining a practical and cost management role in delivering their service duty to residents (page 30)
- **Green Deal for social housing:** Government should develop a new mechanism within Green Deal that is appropriate for the large scale stock improvement programmes that social housing providers carry out. The current proposed Green Deal finance mechanism is better suited to improve private properties on an individual basis. (page 30)
- **Smaller social housing providers:** Small social housing providers manage around 600,000 homes (in the UK). Given their size, these providers are likely to be less attractive to those providing ECO subsidy, and less engaged with the retrofit agenda. Government should consider how best to enable smaller housing providers to improve the energy efficiency of their stock through attracting ECO subsidy and utilising the Green Deal Finance mechanism (page 31)

Private housing recommendations:

- **Cross-sector delivery:** it is essential that delivery in the private sector is promoted alongside delivery in the social sector to ensure further cost efficiencies, not only when cost effective solutions in the social sector are exhausted
- **ECO subsidy – support low incomes:** The group of households that need ECO support most urgently, and yet least likely to benefit from it, are low income private sector households. Very high subsidy levels will be required to ensure support is provided equitably. A very high proportion of activity under the carbon target must be directed to a low income or vulnerable priority group. A portion of this priority group may need to be ring-fenced for those outside of social housing (page 32)
- **ECO referrals:** When a household is referred for ECO support via the proposed Green Deal Advice Centre, they must be eligible for a minimum response package from energy suppliers that should include SWI where needed. Assistance should be provided for referrals that are made by or channelled through Local Authorities, helping to promote local authorities' role by providing them with a mechanism through which to attract subsidy and direct delivery (page 33)
- **HECA:** The renewal of HECA and its accompanying guidance document provides a key opportunity to provide local authorities with clarity on emerging opportunities, roles and

responsibilities. HECA officers will play an essential role in delivering on climate change and fuel poverty objectives and it is important that Government raises the profile of this role. In addition, the HECA guidance document should provide assistance and direction on such issues as: the level of detail and form of housing stock data required; the need to identify areas of target activity, particularly areas of deprivation and poor quality stock; appropriate Green Deal structures and opportunities for Local Authorities (page 34).

- **Zones:** Zones of concentrated activity have proved effective at achieving cost efficiencies and generating high levels of resident engagement. Zones created around a social housing SWI programme, in areas of high solid wall density and income deprivation, provide significant opportunities. Core funding for approaches that trial the SWI treatment of mixed tenure, mixed ownership neighbourhoods would promote innovation, lesson learning and the development of approaches that could be transferred to local partners in other areas. Part of the £35m innovation fund announced by Chris Huhne should be made available for this (page 35).
- **Driving ECO agents to act:** Government should incentivise ECO agents to deliver SWI to private sector households, particularly low-income households, alongside social housing. Government could consider the following options:
 - using 'uplifts' where an ECO agent delivers SWI into social *and* private homes within an area, with an additional uplift for private homes occupied by low income or vulnerable households
 - Incentivising delivery specifically into low income and vulnerable private sector homes, so that ECO agents focus delivery in areas which combine social housing (providing cost reductions through scale) and low incomes (which provide higher scores) (page 36).

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1 Introduction and context

The Government wants the policies within the 2011 Energy Act, in particular the Energy Company Obligation, to drive a dramatic take-up of solid wall insulation (SWI) through to 2020. Indicative scenarios for the installation of SWI are given in the Impact Assessment for the Act's preceding Energy Bill (DECC, 2011a). Scenarios entitled 'Low', 'High' and 'Maximum Potential' give a range in the number of households receiving SWI by 2020 of between 1.8m and 3.1m. All of the scenarios have one component in common: the delivery of SWI into all 600,000 social homes with solid walls by 2018.

Consumer Focus commissioned ACE to explore this element of the illustrative scenarios to determine its implication, and in particular to address the following questions:

- What evidence is there to support the assumed focus within social housing?
- What issues and barriers may need overcoming if all social housing is to be insulated by 2018?
- Could the social homes receiving SWI catalyse wider delivery of the measure in the surrounding (private tenure) areas?

1.1 Potential for SWI installation and delivery to date

Solid wall insulation, used herein to refer to both external and internal wall insulation, is a key measure that Government intends to incentivise through provisions within the Energy Act.

The reason behind the new policy focus on insulating solid walls is clear. Almost 30% of the housing stock in Great Britain has solid walls. As SWI was not promoted through the main programmes that delivered insulation over the last 15 years (EESoP, EEC and CERT, plus Decent Homes), those living in solid wall homes have not benefitted from support for wall insulation.

The result is that only around 150,000 properties had solid wall insulation at the time of the last English Housing Survey 2008/9. If all of the insulation measures expected in the illustrative mixes for CERT and CESP are installed this figure will rise by the start of 2013 to only 316,000, leaving over 7 million homes in Great Britain still requiring insulation.

Table 1: Solid wall homes in Great Britain

	Private sector	Social sector	Total SW homes
Households in Solid Wall Properties (GB)	6,539,261	926,216	7,466,531
<i>Of those,</i>			
<i>Insulated (as at 2008/09):</i>	<i>114,943</i>	<i>37,917</i>	<i>152,860</i>
<i>Uninsulated (as at 2008/09)</i>	<i>6,424,318</i>	<i>888,299</i>	<i>7,313,671</i>
Properties expected to be insulated through policies (CERT and CESP) April 2009 - end 2012	20,000	163,352	183,352 ¹
Remaining uninsulated solid walled properties in 2013	6,404,318	724,947	7,129,265

Sources: CLG (2011a), DECC (2009a), DECC (2009b)

¹ The number actually delivered through CESP and CERT is likely to be lower. Although CESP is likely to install more than the 42,000 SW measures illustrated in the IA, at current rates the CERT Extension will install fewer measures.

The scale of the challenge in moving from current rates of installation to the rates that the Committee on Climate Change deem necessary for meeting Britain’s carbon targets is therefore considerable. It is these rates that DECC transposed into the Impact Assessment (IA) for the Energy Bill ‘high’ scenario.

2009 saw just 14,000 homes fitted with SWI through the CERT programme. An additional 42,000 homes are expected (in the illustrative mix) to be insulated with SWI under the entire CESP programme, 13,000 a year if spread evenly.

The ‘high’ scenario within the Energy Bill IA illustrates 80,000 installations a year in 2013, rising to 200,000 a year by 2015 and 390,000 by 2018. Though this is the more ambitious of the two scenarios presented, it is the one most in line with the Committee on Climate Change’s analysis of progress required to deliver on the carbon budgets.

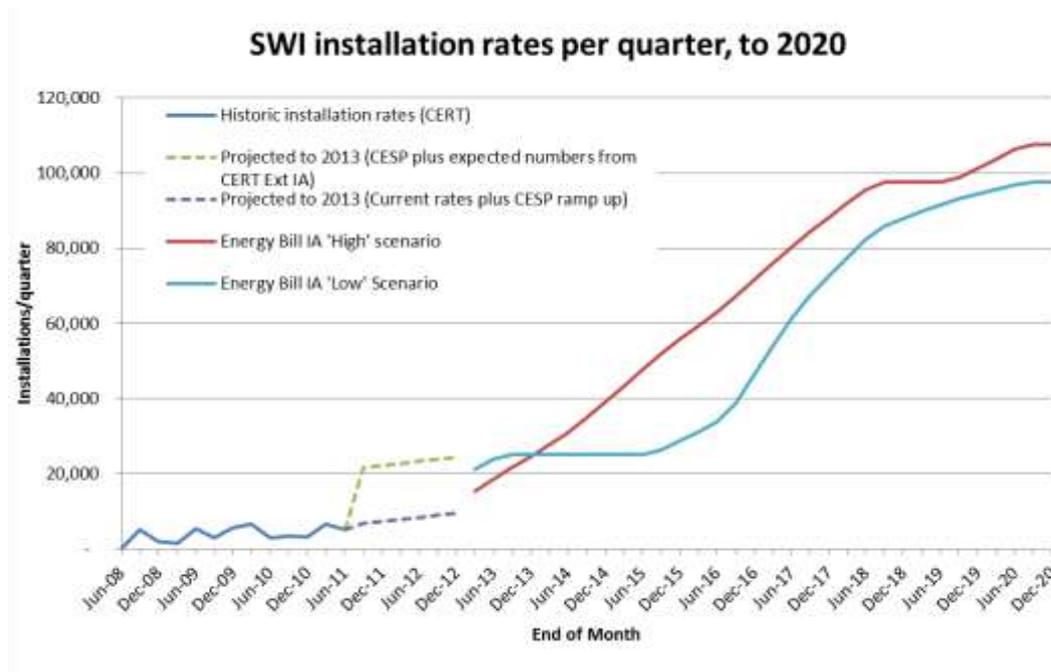
In Figure 1 the **blue line** illustrates the current and historically uncertain delivery of SWI through CERT, delivering on average around 12,000 installations per year.

The **purple line** illustrates the projected numbers if delivery under CERT continues at the present rate and the full number of installations expected under CESP is delivered at a slowly increasing rate until the end of the two programmes in December 2012.

The **green line** indicates the level of delivery expected if the full number of anticipated installations under the CERT Extension is delivered (on top of CESP). A high projection of 115,000 installations of SWI was illustrated in the IA for the CERT Extension period but current rates strongly indicate that this will not be achieved.

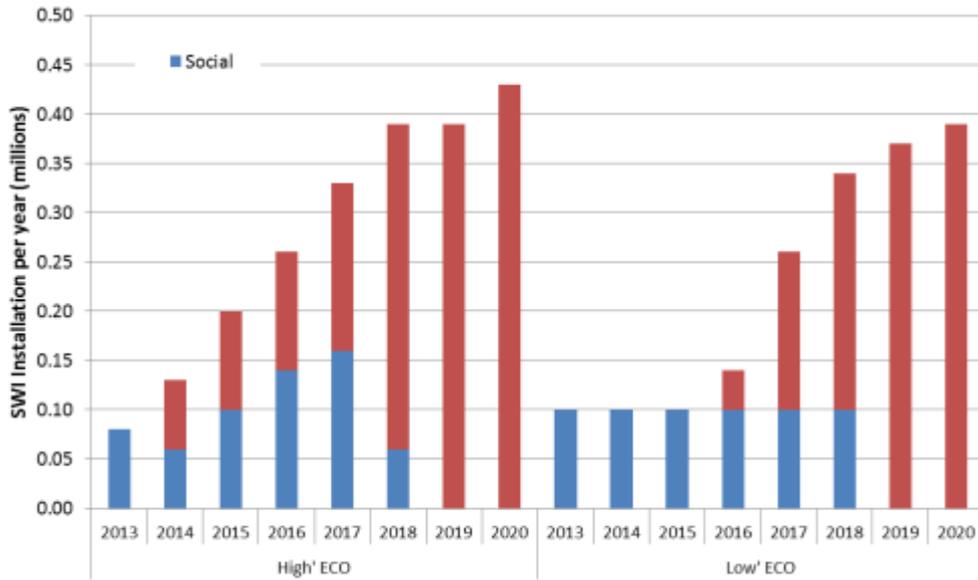
The current (blue) and short term projected (purple) rates are in sharp contrast to the delivery from 2013 that the Energy Bill IA illustrates (red and light blue lines). It is therefore clear that the Government expects the delivery of SWI to make a swift and considerable leap forward.

Figure 1: SWI installation rates



Looking more closely at the illustrations in the Energy Bill IA, it is clear that in the early years of delivery from 2013 both scenarios rely heavily on the social housing sector. Under both scenarios the total technical potential for SWI in the social sector, estimated at 600,000 dwellings, is delivered by the end of 2018. Clearly a central role is envisaged for the social housing sector to bridge the chasm between the current levels of delivery and the aspirations in the (now) Energy Act.

Figure 2: SWI installation rates from Green Deal Impact Assessment



Source: Data from DECC Impact Assessment for the Energy Bill. (Note: illustrates a reduction in the annual rate of SWI in the social sector in 2014, in the high scenario, against trend, but no explanation is given)

2 Research method

This short study is based on desk research and interviews with partners involved in delivery of SWI through recent projects. The timing of this work benefits from the recent release of a number of studies and project reports relevant to the study.

Evidence from CESP projects is included, gained through interviews with energy suppliers, social housing partners, local authorities, intermediary or contracting partners and evaluators, alongside evidence presented by the Energy Retail Association on CERT and CESP. Evidence from the ‘Pay As You Save’ (PAYS) trials, set up by the previous government to trial finance offers to households for packages of measures, was also used. This was based on interviews, the Gentoo and Sutton project reports and the EST’s review of all eight pilots. In addition, evidence was gathered from report and interview sources on a number of other relevant projects including Affinity Sutton’s FutureFit project, IPPR’s evaluation of the British Gas Green Streets competition and CSE’s Freedom from Fuel Poverty project.

Finally, to place the findings on SWI in the context of future delivery, three large scale surveys were reviewed to draw together current knowledge on likely demand for SWI, in particular as offered under the new Green Deal framework.

Table 2: Breakdown of projects and sources

Information source (reports, interviews, survey evidence)	Social Housing	Private Housing
CESP	British Gas; Climate Energy; Southern Housing Group; E.ON; Bristol CC; NHF; ERA, Lessons learned from CERT and CESP; Metropolitan Housing Partnership; NEA and DEMOs evaluation of Walsall and Stafford CESP projects	British Gas; Climate Energy; E.ON; ERA Lessons learned from CERT and CESP; NEA and DEMOs evaluation of Walsall and Stafford CESP projects
PAYS trials and other projects	Gentoo, PAYS project; Bristol CC; Affinity Sutton, FutureFit; Southern Housing; EST/DECC, PAYS pilot review; IPPR, report Green Streets, strong communities; Metropolitan Housing Partnership	Sutton PAYS Pilot; EST/DECC, PAYS pilot review; CSE, Freedom from Fuel Poverty
Green Deal potential	Places for People; Bristol CC; Affinity Sutton, FutureFit; Metropolitan Housing Partnership; Southern Housing Group	Great British Refurb, Green Deal appetite survey; EST, Willingness to Pay survey; DCLG Housing Attitudes Survey

3 Experience of SWI delivery to date

3.1 Costs of SWI, cost reductions - experienced and potential

There are a wide variety of estimates of standard costs for external and internal wall insulation, some of which are summarised below.

Table 3: Published average costs of SWI

		IWI				EWI			
		Social Housing		Private Housing		Social Housing		Private Housing	
Purple market research				£5,500-£8,500		£8,400 (100 properties)		£10,600-£14,600	
Energy Bill Impact Assessment	Installed cost			£5,000		£4,800 (3 bed semi) £3,160 (flat)		£7,600	
	Total costs*			£9,300 (with major renov.) £12,766 (single installation)		£7,164 (3 bed semi) £4,730 (flat)		£9,300 (with major renov.) £12,766 (single installation)	
CERT Ext Impact Assessment	Installed costs	PG £3,656	Non-PG £4,051	PG £10,376	Non PG £11,497	PG £5,906	Non-PG £6,544	PG £11,813	Non PG £13,089
	Incl. admin	£3,915	£4,252	£10,677	£11,727	£6,188	£6,761	£12,117	£13,321
CESP Impact Assessment		£3500				£3,600 (flat) £6,300 (3 bed-semi)			
EST SW training pilot		£120 m ²				£10,000			

*total costs including installed costs, admin, making good, household time costs, disruption and loss of floor space

It is not the intention of this research to provide a precise overview and comparison of the specific costs of solid wall insulation delivered through the projects and programmes that were reviewed or provided input. However comments made by interviewees allow some reflection on the cost assumptions commonly used. Clearly the costs of SWI are of central interest as measure costs translate directly into policy costs.

The evidence from private sector projects indicates costs higher than current upper estimates. The average cost of SWI delivered in the Sutton PAYS pilots was just under £16,300² (although it should be noted that participants in the pilots were found to live in homes larger than the UK average). Similar average costs of £15,750 for EWI (range £12,500 to £19,000) were found in the Warm Streets scheme (average £5,600 for IWI).

In the social sector, PAYS pilot partner Gentoo found costs for EWI of around £6,500 per property. Affinity Sutton’s FutureFit programme found that installed costs of IWI were higher than the EST figures.

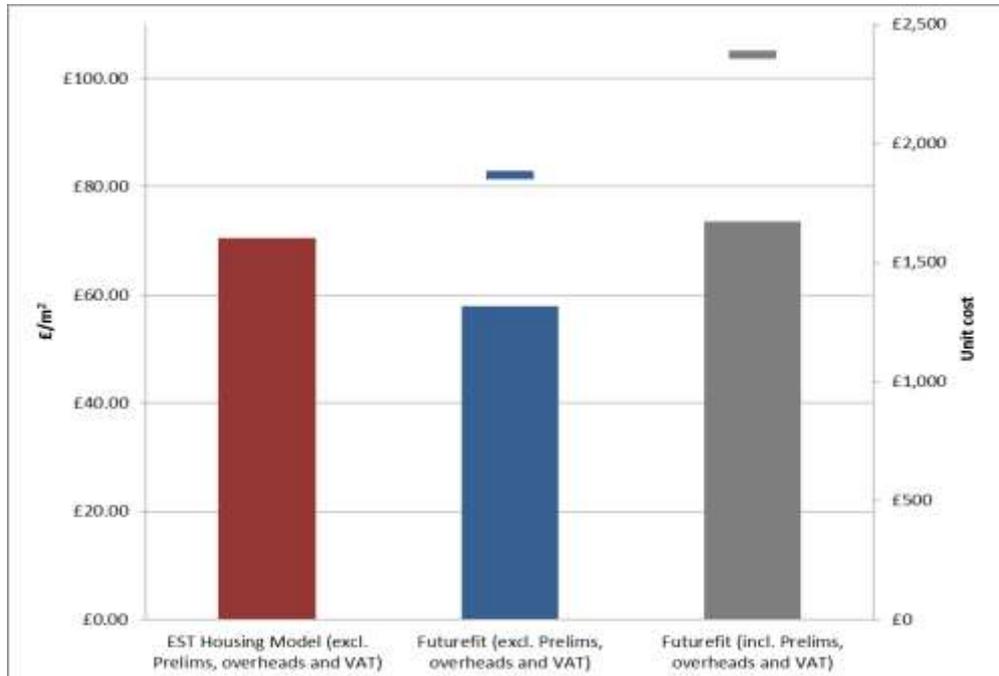
3.1.1 Fixed costs

The breakdown provided by Affinity Sutton illustrates that although the actual measure costs were lower than the EST estimates, the very high fixed costs (preliminary cost, overheads and

² 45% of installations used EWI and 55% IWI, no costs are available for disaggregated measures

VAT) – which are revealed below to account for over 20% of cost per unit insulated – raised the total cost above the EST estimate.

Figure 3: FutureFit vs EST Housing Model: IWI per m² (left axis) and FutureFit IWI unit costs (right axis)



Source: Adapted from Affinity Sutton (2011) Figures 6 and 7

The importance of the fixed costs associated with both IWI and EWI was echoed repeatedly by interviewees. These fixed costs are generated in a number of ways.

EWI

- Programme costs (particularly in the case of CESP), e.g. design specification, logistics, programme set up, scaffolding, planning, contributed to significant fixed costs.
- EWI was found to be a far more technical measure than CWI, necessitating a greater degree of bespoke job specification.
- Length of time on site (from 2-3 weeks for a single property to around 3 months or more for a block) adds significant labour and disruption costs.
- ‘Making good’ works include removal and replacement of external pipes, and possible window sill and roof adjustments adding to measure costs.
- The length of time needed to install EWI and the amount of material needed on site for this period necessitates more burdensome logistical arrangements and use of materials depots.

IWI

Additional costs for IWI are similar to EWI with respect to programme and logistics burden, although design specification costs are lower and planning is less of an issue. Costs associated with IWI include:

- decanting of households, particularly in the case of extensive internal insulation works..

- ‘Making good’ costs are often higher than EWI, due to the need for multiple skilled tradespeople to be onsite to replace electrical fittings such as plug sockets and wall lights; heating components such as radiators; window sills and decorative fixtures such as skirting boards, cornicing and picture rails.
- Redecorating works and rehangng curtains will also carry costs.

The fact that CESP has so far delivered over twenty times more EWI than IWI indicates that, certainly for blocks of flats, when all costs are considered IWI may not be more cost effective than EWI (Ofgem, 2011).

Finally both IWI and EWI works can uncover many possible underlying issues with the walls, electrics, guttering or even roofs which may require addressing at additional cost before the insulation works can be completed.

The Warm Streets project reported non-installation costs as a very high proportion of total costs. For EWI, survey and design costs made up 31% of total costs, with additional works a further 15%, leaving the actual installation works at only 54%. For IWI the relative burdens of survey and design and additional costs were reversed, with 32% of costs spent on additional works (like ‘making good’) and 19% on survey and design leaving 49% of costs on installation.

3.1.2 Household engagement

Pre-project, significant efforts (and expenditure) were invested in household engagement. Affinity Sutton provided a range of costs for household engagement in social housing at between £450 and £1,350, depending on how many visits were carried out (between 6 and 20). Energy suppliers engaging with the private sector households in CESP areas have used multiple methods - standard media, doorstep engagement, engagement with community groups and provision of a community proposition (which may include a financial contribution to a community project) - to recruit households. These led to significant overhead costs.

3.1.3 Changes in costs

Only one reduction in the cost of SWI was reported by the stakeholders interviewed and this related to the cost of materials supplied in one large volume contract. The vast majority of interviewees had not seen any reduction in cost and a number reported that measure and installation costs had not changed in the last 30 years. This finding should be set in the context of a fairly low level of delivery of SWI through CESP³. However, those closely involved in CESP predict possible price *increases* over the next year as CESP activity ramps up, and demand for relatively scarce installer services increases.

Some potential was identified for developments in materials and installation techniques to reduce costs, e.g. the simplification of fixings and the pre-treatment of insulation materials should reduce on-site installation time and therefore labour costs. However, the extent of the cost reductions associated with these developments was not considered by most interviewees to be ‘game changing’. This finding is supported by IPPR’s (2011) findings from interviews with stakeholders involved in retrofit pilots that costs are unlikely to fall significantly in the near future.

³ To end June 2011 (14 months from the end of the 3 year programme) installations of EWI numbered 6,367 and IWI 293.

It is therefore not surprising that the greatest potential for short to medium term cost reductions in the delivery of SWI was seen in the delivery of insulation to greater numbers of units within each programme. A number of specific costs can be eliminated or spread when delivering at scale in one area. These include:

- logistics costs and storage for the large volume of materials needed on site for the long period of installation;
- each individual installation of EWI requires finishing works at both sides which can be avoided for all but the equivalent of one home if a whole terrace is treated;
- design specification costs can be reduced if a number of similar types of properties are treated in one programme.
- the very high fixed costs associated with a programme of SWI mean that the marginal cost of additional units of insulation in an existing programme is relatively low.

3.2 Subsidy levels required

Social housing providers involved in programmes delivering refurbishment works including SWI have found that subsidy is essential.

The current level of subsidy, as reported through CESP projects, is currently very high. Obligated energy suppliers towards the beginning of CESP originally offered around 50% subsidy to social housing projects but these quickly rose to 70%, 85% or even 100% funding of eligible measures, and frequently 100% in any private sector spill over. The increase in the level of supplier obligation subsidy necessary means that it is more expensive to deliver the target. This in turn means that suppliers are likely to pass higher costs back onto the bills of energy customers.

The percentage of funding contributed by the energy suppliers was reported to have increased in response to the lower than expected level of funds available from social housing providers and local authorities. Interviewees attributed this to budget cuts following the 2010 Comprehensive Spending Review.

Different subsidy levels offered to private sector households in CESP 'spill-over' areas have led to vastly different levels of take up. One supplier interviewed made considerable efforts to engage private sector households. Although it is difficult to compare schemes in different areas, the take-up numbers at different levels of household contributions are revealing. At a very low household contribution of £750, 300 residents took up an offering including SWI. However, at £3,000 in a different CESP area, only 30 households took up the offer. Other offers for private sector households commonly asked for a contribution of around £1,000 for SWI and one other measure (usually a boiler). (This level of household contribution would not cover the retail cost of an installed boiler.)

Those involved in the PAYS trials and other Green Deal finance based programmes have similarly found a funding gap that will need filling by subsidy. Gentoo's PAYS pilot included a subsidy of up to 64% to offset the high cost of external wall insulation (EST & DECC, 2011). A 40% subsidy of package costs was offered to participants in the Sutton PAYS pilot, 73% of whom took up SWI (45% EWI, 55% IWI). Along with the 0% interest loan on the remaining 60% of costs, participants were offered a payback of either 10 years or 25 years. Of those who

chose the longer payback, 28% did not see savings that exceeded their repayments (i.e. they breached the Golden Rule in practice, despite the high subsidy and zero interest rate).

Affinity Sutton undertook a modelling exercise to illustrate whole stock improvements (56,000 homes) and test financial viability. The model used 22 home archetypes to reflect the stock, applied packages at three investment levels and financial viability using a Green Deal or PAYS finance package. The packages were restricted by budgets at £6,500, £10,000 and £25,000. The outputs revealed a funding gap of between £2,900 and £10,000 per property. This does not include the costs of resident engagement which could be up to £1,350.

When applied across the whole stock the lowest budget level of refurbishment resulted in a funding gap of 46% of the total budget. The whole stock refurbishment net present costs for these works were estimated at £283m, while the energy savings were valued at £156m. This left a funding gap of £130m of the total net present costs of the works. The funding gap rises with a more ambitious refurbishment package, which is more likely to include solid wall insulation. The relatively high level of energy performance of Affinity Sutton's existing stock, with few remaining low cost opportunities, may have contributed to such an extreme gap.

In conclusion, project experience suggests that subsidy is essential to fund SWI, even with the enabling mechanism of Green Deal Finance, and this subsidy is likely to be higher than expected.

3.3 Household take up and drop out

Project literature on household take up reports significantly different levels of take up between the social housing and private sectors, with take up in the social sector being generally (but not universally) much more positive.

The social sector Gentoo PAYS trial achieved a very successful initial take up for a package of works including SWI from 45 out of 47 residents of one street with the remaining two residents coming on board as the project progressed. Other social housing providers have achieved tenant consent to deliver SWI through CESP using existing consultation protocols. In addition, research carried out by Gentoo indicates that 84% of their tenants would be willing to pay for improvements, if the resulting savings are greater than the charge.

Affinity Sutton had a less encouraging response with a low initial take up of 4.8% of 800 residents sent an invitation and 45% of 294 positively responding to a telephone offer of a free energy upgrade. A high drop-out rate of 23% was also experienced by the programme. Affinity Sutton offered free energy upgrade works to residents in properties appropriate for the programme –rather than focusing on self-selecting residents, or residents in one street – which may account for the lower take up.

To achieve take up, social housing providers and energy suppliers have found that significant engagement work is necessary. Affinity Sutton delivered between 6 and 20 home visits from survey to completion, and engagement costs ranged from £450 to £1,350 per property. Considerable questions in the area of tenant consent still exist (see Section 4.1 section below).

The opportunity to treat homes in the social sector between tenancies was widely recognised. Treating a house when vacant provides an opportunity to circumvent the barriers of household take up and disruption. It also circumvents the need to decant households when installing IWI

and other disruptive works (Affinity Sutton, 2011). Estimates place the number of void properties at around 5% per year. Of a social stock of around 4.5 million in Great Britain, this represents about 225,000 homes a year. It is highly unlikely that this represents unique void properties each year, since many properties repeatedly become void. In addition, the treatment of voids does not obviously lend itself to an area based approach, although less desirable areas of housing often suffer frequent multiple voids and homes stay void for longer periods.

In the private sector, experience of take up is less encouraging. In general the energy suppliers interviewed felt that delivering a CESP project targeted on private sector households alone was “too hard” (although at least one supplier is now attempting this). Lack of household awareness and knowledge of the measure, difficulty in explaining it, and negative pre-conceptions of EWI as cladding and pebble dash contribute to the difficulty in promoting SWI in areas where an existing social housing programme is not present. Intensive programmes of advertisement, engagement and community incentives were carried out by energy suppliers to engage private sector households in areas adjacent to social housing projects. When schemes are promoted to private sector households alongside social housing schemes, take up levels are more commonly in the tens than in the hundreds (with a few exceptions) and at very high subsidy levels (towards 100%) or low household contributions.

Outside of CESP schemes, other programmes reported similarly high investment in engagement, low take up levels (also in the tens rather than hundreds) and high drop-out rates. IPPR’s (2011) evaluation of the British Gas Green Streets initiative found that although 252 properties within the communities taking on the challenge had uninsulated solid walls, only 6 homes installed insulation and none of these were full house treatments, even though the Green Streets initiative offered full grant subsidy.

The review (EST & DECC, 2011) of the PAYS trials (all but one delivered in the private sector) found that delivery partners across the pilots invested more time than expected in customer care, which was estimated to take up to 2-3 days per household (some of this customer care time was associated with explaining the finance package and not the physical measures). Across the pilots, 45% of those who received an energy audit dropped out. The Sutton PAYS pilot (73% of packages included SWI) saw a drop-out rate of 47%. The reasons reported were lower predicted savings than households would have liked, the absence of double glazing from offers and the length of the installation and payback. SWI was seen as unattractive due to the length of payback and disruption.

A number of programmes have found that solar photovoltaic (PV) is a far more appealing measure to households to the extent that funding offers have had to be restricted to avoid support only going to PV. Linked to the evidence from the Sutton PAYS pilot that saw residents disengage with the scheme due to the unavailability of their preferred measure, double glazing, it is clear that customers prefer a number of more popular capital intensive measures than SWI.

3.4 Supply chain capacity

The most significant limitation to achieving the government’s goals for SWI, identified by stakeholders in this research, relates to the capacity of the skilled workforce to install SWI measures, most significantly EWI.

Significant concern was expressed that the number of trained and professional installers is insufficient to deal with the likely demand created in the final year of CESP (which has delivered largely EWI). This will need to expand very rapidly to deliver the number of installations illustrated in the Energy Bill Impact Assessment.

The research identified a knowledge and skill gap in the current supply chain, reliance on a potentially transient skilled installer workforce (non-British nationality) and the need for a four fold increase over a very short time period in the number of professional installers.

The research revealed incidents of poor installation practice and dissatisfaction from residents following works. For example, installers of EWI were reported to have covered ventilation vents and customers receiving IWI needed redress due to the poor quality of work and decorative finishing.

Although the skills shortages associated with the installation of IWI may be less severe, in part as the skills needed are more generalist, the number of different tradespeople needed to complete the incidental or 'making good' works provides its own challenges.

The limitations of the EWI supply chain were linked to the absence of perceptible cost reductions through recent delivery. A number of interviewees speculated that costs may rise in the final stage of CESP as demand for installers to deliver larger volumes increases to meet the target.

3.5 Barriers

Delivery partners reported a long list of barriers:

IWI:

- household disruption due to the invasive nature of the works requiring removal and replacement of all internal elements attached to or abutting the walls to be treated, mess and length of works, requiring at worst decanting
- room size reduction caused by the thickness of the insulation and particularly relevant to small homes
- cost (discussed in section 3.1)
- long payback period
- unexpected additional works and fear of the cost of addressing these works, eg asbestos removal, treatment of existing damp in walls etc
- need to and difficulty associated with organising multiple tradespeople to complete the job without delay
- cost of 'making good', including removal, possible adjustment and replacement electrical and heating system fixtures, architectural fixtures and decorative elements

EWI

Many of the barriers identified for IWI also apply to EWI. Additional barriers include:

- disruption, in particular the presence of scaffolding for long periods
- cost
- long payback period

- unexpected additional works and fear of the costs of addressing these works when uncovered
- lack of household familiarity with the measure
- low demand by households

Plus additional barriers specific to the measure type:

- undesirable aesthetic changes
- high design and specification requirements and costs
- listed building or conservation area restrictions and planning objections
- lack of capacity in the supply chain keeping prices high

The following section gives more details of some of these barriers:

3.5.1 Planning barriers

The most significant barrier facing the installation of EWI, stressed by almost all stakeholders interviewed, is that of planning. Though certainly not an unfamiliar issue, planning objections have prevented the installation of EWI in some projects, and have increased the delivery and set up costs for others.

Stakeholders have reported a vastly inconsistent approach taken across different planning departments. This ranged from different levels of leniency on changing the appearance of a building (not in a conservation area or listed building), to requiring additional aesthetic works, and even the extent to which officers would discuss a potential project before a formal planning application was submitted and paid for. One CESP stakeholder intimated that planning costs could contribute up to 8-9% of the project costs and the Warm Streets project attributed 11% of total EWI costs to building regulations and planning (CSE, 2010).

The issue of planning and the inconsistency with which EWI is treated by planning departments is long recognised. However, little appears to have been done to address the issue.

3.5.2 Technical barriers

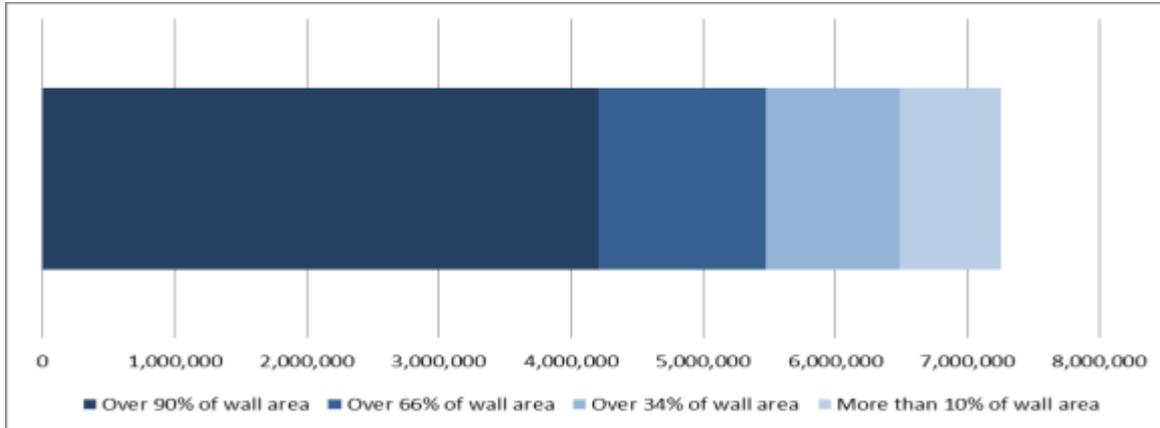
A second set of issues, particularly reported in relation to EWI, are technical in nature. Firstly, experience of installing EWI is revealing that it is a much more technical measure than CWI. The ERA in their summary of lessons from CERT and CESP stated "*installing solid wall insulation ...should be seen more as a building project than simply rolling out a type of insulation*".

Each installation requires a bespoke specification, with a different solution. In many cases, due to aesthetic preferences or planning issues, EWI may not be appropriate for the front of the house. Disruption and room size reduction may mean that full house IWI treatment is not desirable, thus requiring a mixed treatment of IWI to the front and EWI to the rear (and sides). In these cases greater planning and specification is required to combine the two measures, more skilled tradespeople and material types are needed on site and the possible problems and barriers to overcome are doubled.

In treating a number of homes together, the specification for originally similar or identical properties (eg terraced houses) may need adjusting to take account for physical changes made to individual properties.

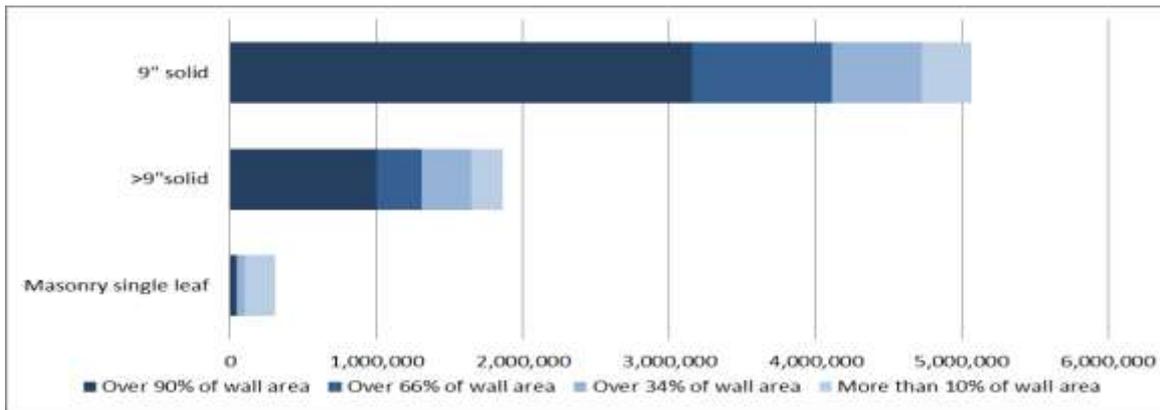
In addition, delivery partners often find that ‘solid wall’ properties often consist of a mixture of cavity, solid and timber structures. Figure 4, containing data from the EHS (2008/9,) confirms that a large proportion of the ‘solid wall’ housing stock includes other types of wall construction.

Figure 4: Proportion of walls that are solid; solid wall homes remaining to be insulated



Source: data from EHS (2008/9)

Figure 5: Solid wall type and proportion of dwelling with wall type; solid wall homes remaining to be insulated



Source: data from EHS (2008/9)

These properties are therefore likely to require a complicated mix of measures. Furthermore, the calculation of carbon scores in both CERT and CESP undermines the cost effective treatment of these properties.

Linked to the highly technical nature of EWI is the need to provide assurance and build household confidence before gaining household approval for installation. A key barrier in this respect is the absence of a national guarantee for solid wall insulation and associated redress system. Although in preparation, the SWIGA guarantee is not yet in place. However, it is essential that this is in place if large scale take up is to take place.

3.5.3 Resident permission

The issue of resident permission to have works carried out was highlighted by social housing providers, with a variety of experiences and approaches taken. Some providers have requested clarity on how far it is acceptable to expect a resident to accept works and what level of consent is required before works can go ahead.

Social housing providers acknowledge that they cannot reject a reasonable request to allow the undertaking of works out when a tenant is made an offer by a Green Deal Provider. They are, however, seeking clarification on the converse responsibilities for tenants. Interviewees reported a range of different approaches to achieving tenant consent, particularly those in blocks that are to be externally insulated. All social housing providers reported significant engagement activities as a matter of course. However, there is lack of clarity around the threshold, if any, of resident approvals needed before works can be undertaken.

With the introduction of Green Deal Finance, social housing providers questioned whether households that do not consent to the EWI on their block can be asked to contribute alongside consenting residents. If works are carried out to their home as part of the block is it acceptable for some residents to benefitting but not contribute?

3.5.4 Mixed tenure blocks or terraces

The issue of resident consent and contribution is equally pertinent but more difficult when related to mixed tenure blocks or terraces. There is anecdotal evidence of the difficulty in obtaining consent from leaseholders in mixed tenure blocks when required fabric or communal area works are to be paid through the service charge. This is clearly an issue that will grow in importance when EWI is rolled out across the social housing stock. Clarity is required around what charges can be included in the service charge for leaseholders and in the rents for social housing tenants and what level of engagement or consent is required before the works and resulted charges are put into effect.

3.5.5 Partner skills barriers

Partners in energy supplier driven programmes have expressed concern about the absence or loss of the relevant individuals within Local Authorities and social housing providers who are experienced and in a position to establish partnerships, provide stock information and assist the delivery of measures on an area basis. Area-based programmes will rely on the presence of skilled individuals in the relevant partnership organisations, particularly local authorities, the absence of which can seriously hinder delivery.

In particular, interviewees referred to issues relating to the level of and suitability of housing stock data and the ability to manipulate it.

This issue of loss of skilled capacity in the project planning and management side is exacerbated by the already noted lack of capacity in the EWI installer market.

4 Understanding the implications for future SWI delivery

4.1 Learning and conclusions on future delivery in social housing

Social housing provides the most promising sector for delivering SWI at increased scale, despite the issues identified above.

Most importantly, given the high fixed costs associated with SWI, the nature of social housing stock - similar housing types, large concentrations, stock management systems etc - mean that it is most amenable to cost effective delivery of SWI. In addition, although not universally positive, tenant take up in the social sector is much higher than take up in the private sector.

The experience summarised in this research does, however, suggest that social housing providers are likely to need a high level of subsidy. CESP schemes have found that contributions from social housing providers were lower than expected, requiring very high subsidy levels from suppliers (between 70% and 100% of measure costs). Similarly, projects such as Gentoo that trialled a Green Deal or 'Pay as you Save' style financing offer to deliver solid wall insulation found that subsidies of up to 64% of installed costs with a 0% interest rate were required.

This provides a clear indication that in order to deliver the Government's projected installation rates of between 80,000 (high scenario) and 100,000 (low scenario) (sic) in social housing by 2013, significant subsidy will be required from the ECO or other sources. Furthermore, the level of subsidy required is likely to substantially exceed the usual 50% subsidy assumed by the Government, for example as stated in the Impact Assessments for CERT. Coupled with high subsidy levels, the higher than estimated measure costs will mean that the promotion of SWI is likely to be very expensive.

4.1.1 Existing access to financial support for social housing providers

Social housing providers have access to a number of finance sources that can help improve the energy efficiency of their stock. These include:

- **European Investment Bank (EIB)**, which lent €2.3bn to energy efficiency projects in 2010, typically providing 50% of the required investment. The bank gives priority to projects that deliver a 20% reduction in energy consumption, and/or where the energy savings account for at least 50% of the investment costs. However, the bank prefers to work with large institutions that can in turn support smaller organisations. With the impending closure of the Regional Development Agencies, social housing providers will need to look to networks of local authorities, or county councils, to provide the scale required to access EIB support.
- **European Regional Development Fund (ERDF)**, which since 2009 has allowed Member States to spend up to 4% of their ERDF allocation on energy efficiency improvements and renewable energy in existing housing. Member States are allowed to define categories of eligible housing, with England choosing to direct measures at social housing⁴ and vulnerable occupants. The sum equates to around £100m of support in England, at a maximum of 40% of the project cost.

⁴ As defined in Articles 68 – 70 of the Housing and Regeneration Act 2008

- The **Enhanced Capital Allowance** scheme for energy-saving products that provides 100% tax relief for spend on qualifying measures. This allows the businesses to write off the investment in energy efficiency against taxable profits.

4.1.2 Green Deal potential

Social housing providers will probably need to raise funds to match subsidy from ECO etc for SWI. A Green Deal Finance type contribution from the tenant benefitting from the measure IS widely promoted. There are, however, considerably differing views on the practicality of this potential.

Social housing providers have made positive comments on the theoretical potential of Green Deal Finance to provide finance. They welcome it as a mechanism to allow the sharing of the costs of improvement works.

One interviewee considered that the introduction of the Green Deal finance mechanism, alongside FIT and RHI tariffs, could potentially trigger a 'revolution in asset management'. The availability of FIT and RHI tariffs⁵ could increase the ability of stock managers to raise revenue from the stocks' assets considerably, thereby providing supplementary income to rents. The potential to improve the stock through Green Deal Finance can raise the asset's value, spreading the capital cost. These elements increase the value of the social housing stock or income from it. In this way improvement works become revenue generating as well as asset investments, potentially allowing budgets to be constructed to favour energy improvements.

Social housing providers also considered that they could potentially become Green Deal Providers, providing another possible income stream. However, they also expressed concerns that it may be difficult to make a business case to carry out this role, when taking into account the pressure on the golden rule from overheads and interest rates.

Social housing providers expressed concern that the individual, customer-led principle intrinsic to the Green Deal was at odds with the way in which social housing providers manage and improve their stock. Stock improvement programmes, particularly those delivered through Decent Homes, are based on an assessment of need within the stock in which the worst is treated first, and on delivering large-scale, standard improvements. The prospect of responding to a potentially large number of disparate individual requests for Green Deal Finance improvements scattered throughout the stock does not fit with, and could impinge upon, the cost efficient delivery of large scale improvements. Therefore, some social housing providers have called for an adaptation to the Green Deal that is specifically designed to mesh with providers' stock improvement programmes.

Further, for those considering becoming Green Deal Providers, open access to the ECO subsidy was raised as a key enabling factor, reinforcing the importance of the subsidy.

4.1.3 Voids

The potential to use the Green Deal Finance mechanism to contribute to the costs of refurbishing void properties to improve energy efficiency is widely recognised. Treating a house when vacant can overcome many of the household barriers already noted, although careful

⁵ However, social housing providers are concerned that DECC's proposed new Feed In Tariffs may cut off this source of revenue to providers – see NHF (2011), *Special briefing on FITS consultation*

stock management and planning would be necessary to take advantage of voids in one area to achieve area-based cost efficiencies.

4.1.4 Risks

Many social housing providers, however, raised serious concerns about Green Deal Finance. The inability to refuse tenants' reasonable requests to have improvements carried out by independent Green Deal Providers has led providers to recognise that they must be able to make their own offers. Alternatively, they should put in place stock plans that can ensure alterations to properties and the resulting maintenance burdens are kept consistent.

A further concern is linked to the attractiveness of the stock when ECO funding is combined with Green Deal Finance. The scale offered by the social stock provides real opportunities for cost efficiencies particularly when delivering more expensive measures. It would therefore appear to be an attractive option for ECO investment. However, when energy suppliers are looking to deliver their ECO objectives in conjunction with Green Deal Finance offerings, social housing tenants may appear less attractive. The poor credit rating, lower fuel consumption of many tenants and more frequent voids and gaps between residency (leading to lapsed payments) could make social housing a less attractive proposition for subsidised offers.

Finally, there is some evidence that social housing providers will find it difficult to obtain permission from residents to undertake works when they result in a charge, either on the energy bill or through increased rent. Social housing providers have reported incidents of tenants either historically or in recent trials refusing energy efficiency works or requesting the removal of measures that result in higher rents.

4.1.5 Confidence and timing

While social housing providers are well placed to deliver improvements using Green Deal Finance and subsidy, the concerns and lack of clarity surrounding the current Green Deal proposition mean that many providers have taken a 'watch and wait' approach. This may mean that they are not in a position to leverage contributions to capital costs from this finance mechanism in 2013 – placing even greater emphasis on subsidy.

It is therefore less than certain that social housing providers will be able to raise the level of contribution quoted in the examples in this study, when delivering on a larger scale. The failure to access this financial contribution will result in an even costlier burden on the ECO.

4.2 Delivery in the private sector

Given the limited experience of major programmes delivering SWI in the private sector, the stakeholder interviews were supplemented with a review of three major surveys (EST, 2009; Great British Refurb Campaign, 2010; DCLG, 2011b). These tested households' responses to offers of improvement works.

The evidence shows that household awareness of SWI as an improvement measure is very limited. Energy suppliers delivering their CESP obligations found that it was very difficult to promote SWI to households in areas where no works of a similar type were being undertaken, in particular because of difficulties in explaining the measure. Similarly, the Sutton PAYS trial had difficulty in finding demonstration homes to show potential participants but felt that this would have been beneficial. The low level of knowledge of the measure is supported by the

Great British Refurb Campaign Green Deal survey (2010) in which 30% of respondents thought they already had SWI. This is substantially above the national average and indicates a misunderstanding by households.

This low level of awareness, coupled with other barriers, translates into low take up. Few respondents to the Great British Refurb Campaign survey indicated an interest in taking up SWI. 1% reported they were likely to take up EWI and a similar proportion IWI (though there may be some overlap). Between 8% and 19% would be interested in taking up IWI or EWI with a range of finance and incentive offerings. These percentages are incidents of reported intention which cannot be translated into actual installation action. The evidence from the PAYS trials indicates that translation rates from interest or intention to action are low. The Sutton PAYS trial generated interest from 400 applicants, only 17% of which went ahead with installations.

The popularity of other measures, particularly solar PV and double glazing, which are preferred over SWI (found in many of the PAYS trials), also poses a risk to SWI take up in a consumer choice driven model.

The lack of awareness of SWI and the low level of demand on delivery leads to increased costs for resident engagement which contribute significantly to programme costs.

Private sector households are unlikely to take up SWI without an incentive or financial benefit. Almost half of those interviewed as part of the Sutton PAYS trial said they would not take up the offer if one bill was simply replaced by another. The financial incentive required by the household, potentially provided in high savings from bill reductions, is unlikely when delivering an expensive measure like SWI through Green Deal Finance. The result is that subsidy levels will need to be very high. In the Sutton PAYS trial 28% of packages receiving a 40% subsidy and a 0% interest rate did not make savings higher than the repayments. Subsidy levels typically reached 100% in CESP programmes for this sector. When household contributions were requested, take up declined very quickly with rising levels of householder contribution.

Finally, the costs for delivering SWI to an individual property in a customer driven model may well be, at least in the short to medium term, prohibitively high. Reported per property costs were higher than those estimated by the EST or those outlined in the Government's Energy Bill Impact Assessment.

Delivery of SWI to private households therefore appears to be a difficult and expensive proposition. Policies to drive take up of SWI must ensure delivery is cost effective. High installed costs and low consumer interest will result in very high subsidy levels in individual private sector households. These will need mitigating to avoid unacceptably high policy costs.

The significant additional costs for treating a single dwelling compared to one unit in a large programme and the lessons from the CESP programmes that have achieved private sector spill over indicate that delivery in the private sector is most cost effective when coupled with a social housing programme in the vicinity. There is an opportunity, as revealed by the CESP projects, for private sector housing to benefit from SWI investment while contributing to improving the economies of scale of social housing projects. Significant co-benefits can be achieved from this integrated approach in terms of cohesive street scene improvement and increased community well-being, particularly if coordinated with other local community initiatives.

This would require the delivery of the measure to both social housing and private sector housing within the same policy period.

The need to promote delivery in both social and private sectors concurrently was posed by stakeholders in this study in order not only to reduce costs, but also to enable appropriate supply chains to develop. A key risk to delivery in the private sector was identified if early delivery from 2013 focuses solely on social housing. The risk is that a supply chain will be established that is relevant to the social housing sector only (business to business) and is not suitable for private sector delivery (business to consumer). The loss of efficiencies created by the development and maturity of a supply chain that is not easily transferable from one sector to another must be avoided to secure the essential cost reductions for the private sector.

The key aim for delivery of solid wall insulation in the private sector must be the reduction of costs and ultimately of the subsidy to households required, particularly able to pay households. The substantial subsidy required by SWI measures (15 times more expensive than previously subsidised measures) through a programme that passes these costs back to consumers through regressive 'levies' on bills will require considerable scrutiny.

5 Requirements of the enabling policy framework

This study suggests that the policy framework for delivering SWI must address three key requirements:

1. Reduce the costs of installed measures (measure costs and all associated engagement and delivery costs)
2. Reduce the level of subsidy required, particularly in the able to pay market
3. Reduce carbon and policy costs, particularly for delivery in the private sector

5.1 General policy recommendations

The non-sector specific barriers identified by this and other research studies need to be urgently addressed to ensure the delivery of SWI is achieved at lower cost than at present and to a much larger number of households.

5.1.1 Clarification on planning permission for external insulation

The first and most often cited barrier for the installation of EWI relates to planning. It is clear that planning departments have highly variable attitudes to and treatment of EWI. A programme of educational outreach for local authority planning officers is needed to address the problem. This should stress the importance of sustainability, in particular energy saving, to planning policy.

The different approaches of planning authorities to SWI can lead to major variations in which communities benefit from SWI measures and which do not. This dictates where the available subsidy is spent and thus the geographical impact of policies.

A more prescriptive approach is needed to ensure a more homogeneous treatment of the stock. Guidance should be provided to Local Authority planning departments to take a positive assumption to considering SWI applications. Judgements or indicative statements could be attached to areas containing very similar property types. If publicly available, these would provide prospective applicants and scheme managers insight into the appropriateness of their proposals and potentially reduce planning costs. In addition, permissions already granted to one property in a street or designated area could be extended to nearby properties, avoiding a full application process for each property.

5.1.2 SWIGA guarantee and supply chain measures

Since SWI is a less familiar insulation measure for most households it is important that confidence is instilled in the product. This requires robust guarantees and assurances. Stakeholders have called for the introduction of the planned SWIGA guarantee and framework at the earliest opportunity. A rapid increase in installation rates of IWI and EWI could significantly damage the reputation of the product if installations by inexperienced or unaccredited installers result in dampness or other property damage. The availability and use of an accreditation, guarantee and customer redress framework is essential to mitigate this risk and make amends should issues arise.

In addition, intensive promotion of capacity and training within the EWI installer industry is necessary. Only through an increased number of installers and installer capacity will competition in this market begin to drive down costs. The current lack of capacity in the

installer market is keeping costs high. An intensive process of investment in training to up-skill existing installers of cavity wall and loft insulation and other contractors is needed to create a robust industry.

The cavity wall industry, essential for investment in re-skilling, is at present seriously suffering from the much reduced delivery of cavity wall insulation through CERT⁶. As a result the industry is losing installer jobs and is less able to invest in training. If the industry is going to finance the re-skilling of a considerable part of the workforce to deliver SWI in a professional and accredited fashion it will need a more stable CWI market to do so.

5.1.3 Investment in SWI materials innovation

There is considerable potential to reduce the costs associated with installing SWI through the development of closer to finished state materials. In addition, product innovation has the potential to alleviate the barrier of household acceptance of SWI by reducing the thickness of the material (particularly for IWI where floor areas are reduced). Investment in product development and innovation is urgently needed in order that policies in place from 2013 do not promote sub-optimal or more costly treatments.

A number of organisations have called for the government to promote innovation and product development in the SWI industry. For example, the IPPR have called for a national SWI innovation competition to bring about a step change in materials. The £35m of new funds earmarked to support the development and demonstration of innovative technologies and systems to reduce carbon from buildings announced by Chris Huhne at the Liberal Democrat Party Conference in September 2011 (DECC, 2011b) should be made available for this.

5.1.4 Enabling the treatment of mixed wall type homes in the supplier obligation

Section 3.5.2 referred to the fact that a large number of homes identified as having solid wall construction will in fact require a combination of insulation measures. For many homes a combination of EWI and IWI is required to account for planning, cost, access, space, aesthetic and a number of other factors. In addition, there are a large number of individual dwellings made up of a combination of wall types, requiring different treatments.

In attempting to insulate these homes under the current CERT or CESP programmes energy suppliers have found the scoring system lacks the flexibility to credit the treatment of different parts of the dwelling, with the combined costs of the technical treatments not rewarded by the carbon score. This limitation must be addressed in the structure of the new ECO. Significant costs may be incurred, raising the overall costs of the ECO, if households engaged and homes surveyed cannot be insulated due to inflexibility of the support mechanism.

5.1.5 Overcoming household hassle and disruption barriers

Financial support through a combination of Green Deal, ECO and housing association funds must be sufficient to enable the installation of measures to make financial sense for the household (i.e. the 'Golden Rule' is met in practice). However, in itself this is not likely to be

⁶ Q13 to June 2011 delivered 92,043 CWI compared to the previous Q12 figures of 170,088. Although the second quarter in the year has historically seen lower levels of delivery Q13 saw slightly lower rates than the same quarter in 2010 even though delivery of insulation is supposed to increase in the CERT Extension.

sufficiently attractive to drive take up and overcome the additional barriers identified in this report, particularly around the hassle and disruption involved with the installation of measures.

These barriers could be mitigated or circumvented through a combination of three approaches:

1. Technological innovation in both product type and installation process, reducing the installation time and amount of disruption caused (see Section 5.1.3)
2. Incentives that attract households to the finance offer, and are sufficient to overcome hassle and disruption barriers
3. Exploration of community participation approaches that incentivise area-based take-up, create community buy-in, and, using the power of social norms, put pressure on households that are reluctant to participate. Offers to communities that illustrate costs rapidly falling as a greater proportion of resident take-up may be successful.

5.2 Social housing sector specific

It is clear that the social housing sector holds the greatest short-term potential for cost effective delivery of SWI after 2013. There are however some key recommendations emerging from this research that would help to remove barriers and reduce the cost of delivery in the sector.

5.2.1 Rights and duties of residents and resident consultation

As identified in Sections 3.5.3 and 3.5.4, clarity is needed on the responsibilities of social housing residents and leaseholders to accept reasonable proposals for works.

This issue relates to blocks that are entirely occupied by social housing tenants as these have largely been the subject of the projects delivered to date. As we move to treating the more complex mixed tenancy stock, in line with the ambition to insulate the whole of the solid wall social housing stock, the need for clarity and certainty becomes even more important.

Guidance on a streamlined consultation process for the obtaining the relevant consents would also help. Ultimately, stakeholders called for clear guidance on the responsibilities held by tenants and leaseholders, alongside their rights in relation to their housing provider, Management Company or freeholder.

In addition, clarity is also needed on the type and magnitude of the costs that can be passed on within rents and service charges. Rent cap restrictions mean that many social housing providers cannot share the costs of energy efficiency works with tenants, even though the increase in rent is likely to be offset by the reduction in energy bills. Social housing providers would like to be able to increase rents above the rent cap for specific energy efficiency works that can reduce bills. This would give providers more flexibility in planning finance for works.

5.2.2 Removing barriers to the treatment of voids

The insulation of void social housing properties represents a significant opportunity to circumvent the barriers that come with occupant households. Careful stock management and planning could provide an opportunity for small scale area-based work on void properties. The improvement of void properties provides an opportunity to develop a supply chain (Affinity Sutton, 2011).

The speed of treatment of void properties is a key performance indicator (KPI) for assessing social housing providers. The indicator relates to the length of time a void property is left

empty. Delays due to improvement works, particularly solid wall insulation, can mean installations take from two to three weeks to several months to fully complete. This can appear to reflect poor performance by the social housing provider against the 'void KPI'. The indicator needs amending to reflect the longer periods required for substantial energy efficiency upgrades.

Given the opportunity to deliver SWI in void properties without disrupting tenants, Government should consider what additional mechanisms are required to ensure the work is undertaken.

In the absence of a tenant, it may be that some social housing providers find it difficult to deliver the available improvements. There are questions over the availability or attractiveness of Green Deal Finance if there is no tenant in place.

5.2.3 Open access to ECO subsidy

This research has restated the central importance of subsidy (most likely through the ECO) in delivering SWI in the social sector, and the potential of social housing to deliver cost reductions. In order to plan stock improvement programmes and devise Green Deal finance packages to deliver SWI, social housing providers have made it clear that they will need **direct and transparent** access to ECO subsidy.

Numerous reports and organisations (e.g. Kingfisher et al., 2011) have called for the ECO subsidy to be made available to a large number of delivery agents and green deal providers, not just through the delivery arms or partners of the energy suppliers. A transparent and equitable system is needed by which social housing providers can access the subsidy for carrying out works. They should also retain the cost management role which allows them to deliver their service duty to residents.

It is essential that the carbon saved through the delivery of carbon saving measures, in particular expensive SWI, is the cheapest possible. As this research has shown, social housing holds some of the greatest potential to deliver least cost carbon saving through delivery of SWI, and easy access to this subsidy will be essential in realising this.

5.2.4 Social housing relevant green deal finance

Social housing providers have called for an adaptation to Green Deal Finance that is more in line with the stock improvement model used by providers. Delivering SWI on a per property basis, following the customer-led approach envisaged for the Green Deal, might fail to capture the greatest potential cost reductions. Social housing providers are therefore calling for a mechanism to access Green Deal Finance on a stock basis.

The current approach envisaged for Green Deal Finance entails repeat visits to assess identical homes. This raises costs and is arguably unnecessary. Government should therefore develop a different approach to the Green Deal that works for social housing providers.

Suggestions made by social housing providers include the ability to undertake desk based rather than in home surveys of similar properties and to offer measures at standard periodic charges.

As noted in Section 5.2.2, there are questions over the availability of Green Deal Finance if there is no tenant in place, ie between tenancies. The turnover of tenancies, which can be high in some

social housing properties, raises the wider question about the relevance or appropriateness of a Green Deal Finance package that is based on the actual energy use of one tenant which may be inappropriate for the next tenant. This is a further element of the Green Deal Finance framework that housing providers may find it difficult to square with their duty of care to all tenants, present and future.

5.2.5 Smaller social housing providers

Small social housing providers manage around 600,000 homes in the UK (Blooming Green & Impetus, forthcoming). Given their size (controlling under 1000 units), these providers are likely to be less attractive to those providing ECO subsidy, and hence may be less engaged with the retrofit agenda. In the absence of targeted assistance through an ECO priority group that includes social housing these housing providers may find it very hard to attract subsidy.

It is important that those living in these homes do not miss out on the opportunities afforded to tenants of the larger, often more engaged providers. To ensure that the ambition of the smaller providers approaches that of the larger, Government should consider how best to enable smaller housing providers to improve the energy efficiency of their stock through attracting ECO subsidy and utilising the Green Deal Finance mechanism. It is important that solutions should be reliant on the very important condition that the improvements can be delivered under a combination of Green Deal, ECO or other social housing finance mechanism (noted in Section 4.1.1) at no upfront cost to the provider.

5.3 Private sector specific

The prospects for large scale delivery of SWI in the private sector are far less certain or positive. The uncertainty is due to the lack of evidence on delivering SWI in the sector, with a small number of programmes delivering a small number of installations. The bleak outlook is based on evidence that household awareness and demand is extremely low. Most households prefer alternative high cost measures, such as photovoltaics, single measure costs are higher than expected and numerous non-financial barriers deter potentially interested households.

The headline finding is that delivery in this sector is likely to be very expensive, due to both technical and household costs. There is potential to mitigate some of these costs and ensure that costs and benefits are equitably distributed.

Potential was identified (and practically illustrated through the CESP programmes) to reduce costs and raise household awareness through demonstration and neighbour influence by delivering in areas of existing social housing activity. However, there is little in the policy framework to encourage this.

Spill-over activity within CESP is driven by the area-penetration uplifts. Significantly higher scores are awarded if a penetration rate of 25% of the eligible area is achieved. With no known plan to include this kind of area-based uplift in the ECO, it is unlikely that this activity will continue.

Historically through CERT and more recently through CESP some Local Authorities and delivery bodies have had success in making agreements with obligated energy companies to funnel support into area-based programmes, eg Warm Zones. The extension of this type of activity to encourage private sector SWI on the back of social housing schemes would require more

complex interactions and joint planning by key partners. Partners might include a social housing provider, a local authority or other local organisation and one or more energy supplier.

The current policy framework lacks any clear incentive for any of the main partners to act in partnership. The removal of the National Indicators of carbon reduction and fuel poverty alleviation from Local Authorities leave few concrete incentives for even the most proactive authorities to incentivise action across their stock. Competition between energy suppliers to deliver the largest part of their target in the most cost effective way will lead to delivery of all cost-effective solutions in social housing and individual able to pay households before addressing the private stock on an area basis. Coupled with the difficulty already experienced by energy suppliers in delivering SWI in the private sector, this provides little incentive for energy suppliers to drive spill over activity. Social housing providers will need to develop strong business plans that provide attractive returns for delivering SWI to the surrounding private sector stock. Without this, there will be little incentive for providers to act unilaterally.

DECC is minded to allow community involvement to happen naturally rather than to legislate for it.⁷ The danger in this approach is that for a large number of local authorities this agenda is not a priority. The Green Deal is complex and poorly understood, and the lessons from those organisations that do act early have no formal structures through which to promote scaled up activity, time and cost savings on the part of other partnerships.

There are a number of initiatives that could incentivise this essential cost saving activity:

5.3.1 Targeting of the ECO carbon activity

Given the very high subsidy levels and incentives that appear necessary to encourage private sector households to take up SWI, there is a very strong social equity argument for this subsidy, paid for by all, to be made available to those who need it most first.

The subsidy level necessary to encourage take up in private sector able to pay households is extremely high, up to 100% in many cases and at least 40-64% to use Green Deal Finance.

The subsidies required to enable Green Deal style finance were high even though the projects used a 0% interest rate. Post 2012, Green Deal Finance will be offered with a commercial interest rate, of perhaps 7-8%, which will add to the measures costs and therefore raise the subsidy necessary to meet the golden rule. Existing evidence tells us that a further incentive for the household, so that one bill is not simply replaced by another but a benefit is accrued, is necessary to encourage take up. Surveys have shown that interest rates have a significant impact on attitudes to a Green Deal package. For example at a 2% interest, 23% of respondents in the Great British Refurb Campaign's survey (2010) were very or fairly likely to take up the package. At 4% this fell to 11% and at 6% this fell further to 7%. High interest rates are therefore likely to entail further subsidy incentives to ensure consumer interest.

Because all of the evidence points to very high subsidy levels to convince households to take up expensive measures, subsidy must be equitably and economically spent on delivering a very high proportion of the insulation measures to low income or vulnerable households. The economic benefits of reduced health expenditure should also be taken into account.

⁷ Reported by Steve Ives, DECC at NEA/Demos workshop on the evaluation of two CESP projects DEMOS, 23rd Sept 2011

DECC has indicated⁸ that it does not intend to shape the ECO carbon target in such a way that it redresses the regressive funding of the supplier obligation, much less provide positive assistance to the fuel poor.

The affordable warmth part of the ECO is likely to be tightly targeted on a sub-group of low income and vulnerable consumers. It has been likened to Warm Front support in England, due to end in Spring 2013. There are concerns that the market driven nature of the supplier obligation and the wider set of eligible measures available will lead to a very different form of support to that offered through Warm Front. This ensured a set of key measures were delivered to eligible households.

In addition to the support under affordable warmth, the high levels of subsidy delivered through the carbon target must be targeted to a large degree at some form of low income or vulnerable priority group. Proportional spending on assistance to low income and vulnerable households must be significantly raised, not reduced, particularly at a time of rising fuel poverty.

Private sector low income and vulnerable households appear least attractive to ECO subsidy. Self-selecting able to pay private sector households have the potential to provide household contributions and/or have higher energy use, thus enabling the Green Deal Finance Golden Rule to be met. Social housing also holds some appeal with its large localised stock and ability to deliver economies of scale. It is therefore clear that in order for low income and vulnerable households living in owner-occupied or privately rented solid wall homes to benefit from ECO assistance, specific measures are required to ensure they benefit. This is particularly important given that they have contributed towards the costs of supplier obligation schemes since 1994 but have largely not benefited from them.

In setting a very high priority group allocation, ECO could incentivise obligated suppliers to work with local authorities to identify eligible households in areas nearby social housing, thus encouraging cost effective delivery of SWI. A portion of this priority group may need to be ring-fenced for low income private households. This will ensure delivery to vulnerable households at the same time as social housing, rather than after opportunities in social housing are exhausted.

5.3.2 Use of ECO referrals mechanism

It is understood that DECC and UKBCSE are currently developing a minimum response package (to include advice and at least one major measure) that energy suppliers will offer to households referred via the Green Deal advice centre.

This referral mechanism must be applied to both the Carbon target of the ECO as well as the Affordable Warmth target, meaning that SWI is available as a 'major measure'.

Extending the referral mechanism to Local Authorities and related agencies would promote local authorities' role in targeting the ECO assistance, help energy suppliers reduce targeting costs and provide authorities with a mechanism through which to attract subsidy.

⁸ Presentation by Charles Phillips, DECC at the Green Deal Forum: Maximising energy efficiency in buildings meeting on 26th September 2011

There is significant potential through this referral mechanism for Local Authorities to attract assistance not only for individual households, but to enable the cost effective delivery of assistance to streets or neighbourhoods of eligible households.

5.3.3 HECA Guidance

The Government's intention to re-launch HECA is very welcome. There are opportunities to use HECA to promote action across the stock in a local authority's area, in particular focusing on attracting ECO funding and synchronising delivery of SWI.

The Government envisages Local Authorities will play a key role in Green Deal. However, many local authorities are unclear about their role within the localisation agenda and how this relates to carbon reduction, energy efficiency in the housing stock and the Green Deal. HECA and the accompanying Guidance provide a valuable opportunity to make local authorities aware of their responsibilities (e.g. enforcement of PRS legislation), the opportunities through ECO and other finance mechanisms, and the potential for becoming Green Deal providers.

HECA in its existing form has been criticised for a number of shortcomings: that it was a reporting mechanism only, unsupported by statutory targets; that the function was under-budgeted and resultantly HECA posts were under-resourced; and that the requirements of HECA duplicated those of the national reporting framework for councils selecting the former carbon and fuel poverty indicators (NI186 and NI187).

Following the abolition of the National Indicators, HECA will clearly have a revitalised role.

The role of the HECA officer is therefore essential. The recommendations made in the response by the UK HECA network (2008) (now the Carbon Action Network) to the 2007 DEFRA consultation on the future of HECA are perhaps particularly relevant today: that the profile of the role of the HECA officer in delivering on climate change and fuel poverty is raised by Government and that training and events are provided to support officers. With the introduction of the Green Deal, Local Authorities will need not only to retain officers with experience in energy efficiency but also an aptitude for creating partnerships and establishing innovative structures. Essentially, the importance of HECA and associated activities needs to be signalled with the allocation of funding and secure budgets for councils.

A number of further amendments and additions to the guidance around HECA would help local authorities prepare themselves to take an active role in SWI and Green Deal delivery:

- Guidance on the level of detail needed for stock data and the structure/type of data useful to both energy supplier funders and central databases such as HEED.
- Require an identification of areas of target activity, particularly areas of deprivation and poor stock. This mapping should be expanded to identify the housing stock types and tenancy (in particular the presence of SH).
- Guidance on mapping of active organisations working locally on such issues as energy efficiency, energy bill reduction, advice and fuel poverty. Facilitation of coordinated/compatible activities on the part of these organisations.
- More focus on fuel poverty and the case for coordinated efforts with diverse partners (as requested by 82% of HECA officers in consultation 1994 [UK HECA Forum, 1994])

- Guidance on new structures to deliver the Green Deal. Local Authorities may choose to work unilaterally on their Green Deal propositions, but a number of examples are emerging of authorities working in sub-regional groupings or at a County level. In addition they may choose to pursue a number of different types of structures through which to enable the Green Deal – for example Community Interest Company or a local enterprise partnership. Guidance on these structures, their applications and limitations is needed.
- Guidance on the need to raise awareness and familiarity amongst all residents of home energy efficiency, including the less familiar measures, and the introduction of the Green Deal. This information serves the dual purpose of increasing awareness and acceptability of Green Deal offers and informing residents of the principles of the Green Deal to protect them against unattractive offers and undesirable selling techniques from commercial providers.
- Under the restructuring of the health service, Local Authorities are to take on new public health responsibilities from April 2013, including activities to reduce excess deaths as a result of seasonal mortality. They will be responsible for the Directors of Public Health, and for the statutory health and well-being boards. HECA presents an opportunity to deliver on two areas of concern for local authorities, with the opportunities to explicitly draw together the energy efficiency and public health agendas.

Finally, but perhaps most importantly, it is essential that Local Authorities share information on their approaches, activities and experiences to promote confident action in other authorities.

5.3.4 Improve Local Authority skills and stock data

CESP projects found that the variable level, accuracy and form of stock data held by local authorities was a major barrier to delivery. If local authorities are to have a stronger role as project partners in delivering cost effective area-based SWI programmes, it is essential that capacity is built within individual authorities to improve stock data.

A further key risk identified through this research is the loss of skilled local authority and social housing provider staff as a result of the Comprehensive Spending Review funding cuts. Local authorities need to be given a clear indication that staff and skills will be needed in the very near future to manage the carbon reduction and energy efficiency agenda. The responsibilities enshrined under HECA generated a network of key staff in local authorities. The reinvigoration of HECA has the potential to revive these skills. Swift and definite messages need to be delivered, along with an indication of where additional resources are to come from, to assure that no further skilled post holders and further capacity is lost.

5.3.5 Zones

For local authorities the extension of the successful area-based initiatives, low carbon zones or warm zones (see Boardman 2010) can play a key role in delivering deep home refurbishment in solid wall areas. For example, in London the low carbon zones and RE:NEW areas established as partnerships between the Greater London Authority, regional authorities and Borough Councils could play a central role in delivering SWI.

The creation of zones of concentrated activity have proved effective at achieving cost efficiencies and generating high levels of resident engagement (for example the London RE:NEW projects). Zones created around a social housing SWI programme and in areas of high

solid wall density and income deprivation provide significant opportunities. This would clearly require, on the part of the Local Authority, detailed stock data and knowledge of social deprivation and fuel poverty (see Section 5.3.3).

Funding is of course essential. Both RE:NEW projects and Low Carbon Zones have benefitted from public funds for their establishment. Warm Zones aim to draw in multiple sources of funding from Local Authority contributions to European Structural funds and supplier obligation funds.

Core funding, similar to that available in London for area-based projects (RE:NEW and Low Carbon Zones), for trials of SWI treatment of mixed tenure and mixed ownership neighbourhoods would promote innovation and lessons for transferring to local partners in other areas. Made available at County level or to groupings of Authorities with a responsibility to share lessons locally, this funding could enable the development of relevant solutions and essential capacity. Part of the £35m innovation fund announced by Chris Huhne should be made available for this use.

5.3.6 Driving ECO delivery agents to act

This research has outlined the benefit of delivering SWI into private as well as social housing, in order to avoid the development of two separate supply chains. It has also shown the benefit of delivering SWI into low income private housing to reduce the distributional impact of the ECO. Social housing could play a key role in encouraging delivery of SWI into neighbouring low income private sector housing, making best use of the economies of scale.

However, it is doubtful that such an approach would take place without significant incentives for the ECO delivery agents. HECA guidance may encourage Local Authorities to drive their own initiatives or use the Guidance to steer agents in this direction. However, more tangible drivers are likely to be necessary. The most likely and familiar approach would be to use the ECO structure, for example by tweaking the scoring mechanism to encourage this social-private delivery.

The Government should consider:

- Using 'uplifts' where an ECO agent delivers SWI into social and private homes within an area. An additional uplift could be granted if the private homes were occupied by low income or vulnerable households.
- Incentivising delivery into low income and vulnerable private sector homes, so that ECO agents are more attracted to delivery in areas which combine social housing and low incomes.

6 Further questions

- How can we ensure that void solid walled properties get insulated under GD and ECO?
- What is the role for HECA? How far will HECA's coverage stretch? What power will sit behind it?
- What is the role for Public Health?
- How does the introduction of GD Finance driven by commercial providers into the ECO market, designed to work alongside ECO subsidy, affect the cost effectiveness principle we assume for supplier obligations?
- What impact would including/excluding social housing from the affordable warmth part of the ECO and establishing/excluding a priority group for the carbon part of the ECO mean for delivery in both social housing and the low income private sector?
- What is the potential for reducing future costs through increased demand – what factors will drive or restrict this?
- Can we quantify the skills capacity in the market to meet rising demand (what will the impact be on cost in the short term)?

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