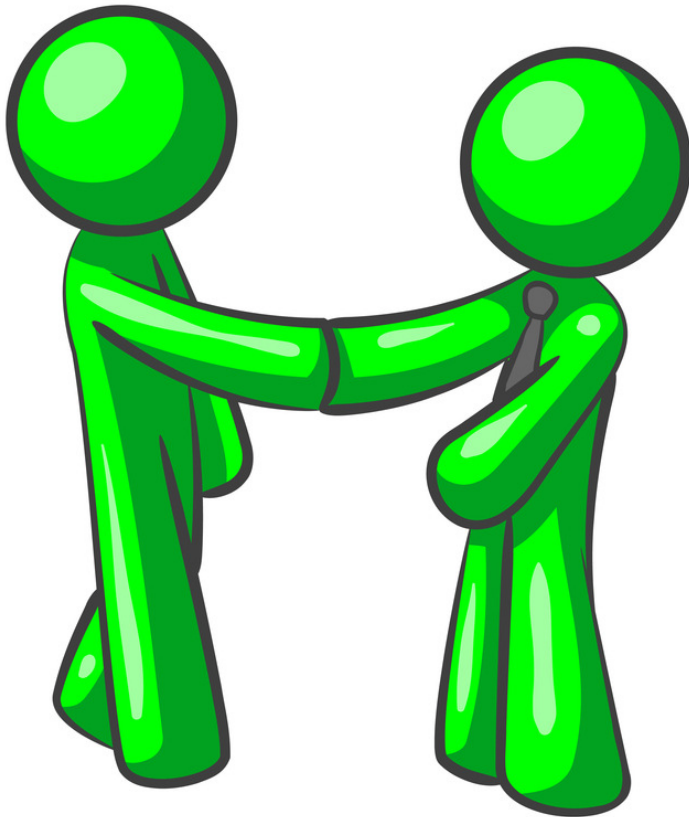


# Green Deal or No Deal?

*Will the Green Deal lead to sustainable solutions to the retrofit challenge?*



David White  
AECB Conference  
29 June 2012

# Sustainability in this context

- Will the Green Deal deliver in terms of
  - Carbon reduction
  - Customer experience
  - SME access to Green Deal works/finance
- Who will benefit from Green Deal works?
  - Customers? Large companies? SMEs?  
Communities?
- How good will the specification of measures be?
  - Particularly in relation to SWI

# Contents

- Some background
- The Green Deal
  - Summary of scheme
  - Update following consultation response
  - Focus on ECO, initial market and SWI
- Technical issues
  - SWI specification
  - Ventilation
- Community Green Deal Provider model
- Conclusions

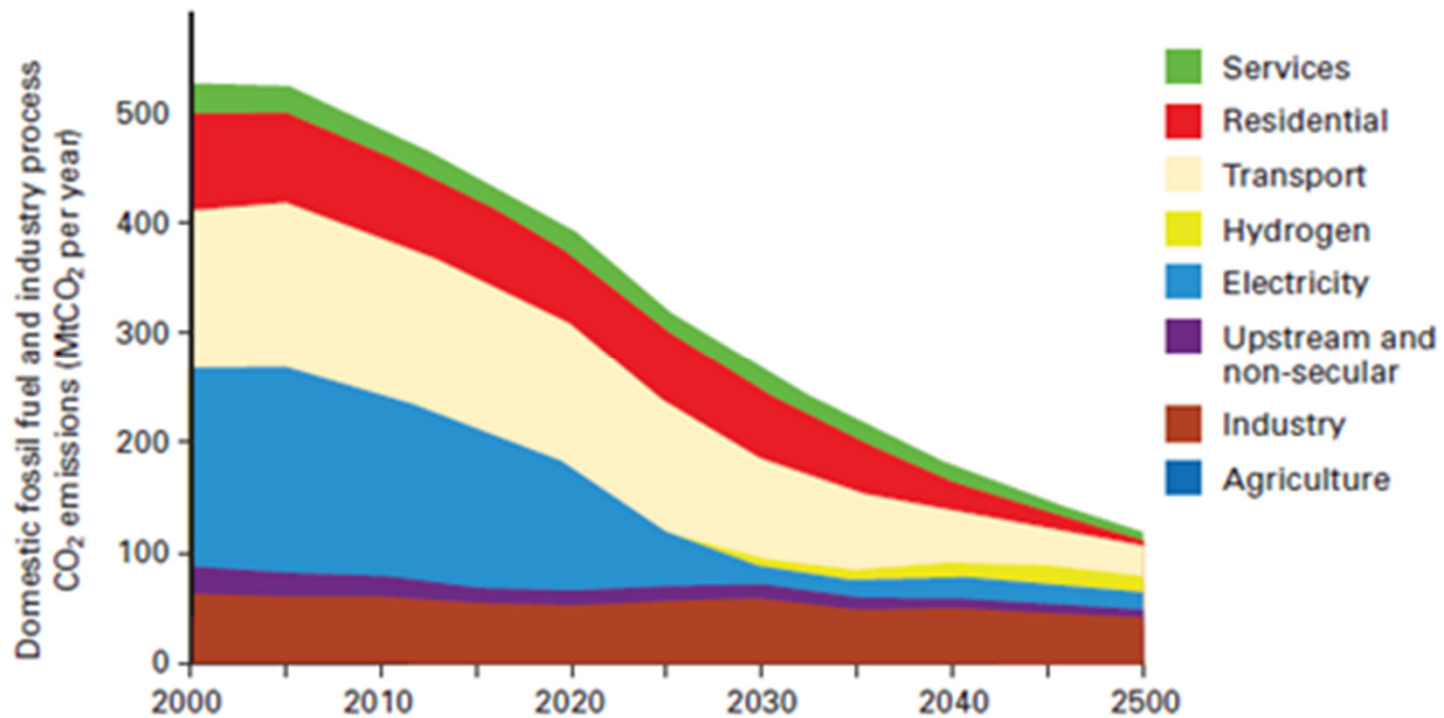


# Will the Green Deal deliver the thermal efficiency improvements needed in the UK's existing housing stock?



David White  
CAT REBE – Building Related Issues  
October 2010

# Scale of the challenge



Source – DECC (2009), *Heat and Energy Saving Strategy*

# MSc thesis

What level of CO<sub>2</sub> emissions reduction is technically and financially feasible in solid wall Victorian terraced properties in the social housing sector?

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- Examined a housing association in Liverpool
- 1,500 properties of this archetype
- Properties in some of the most deprived communities in the UK
- Largely completed Decent Homes programme:
  - Condensing boilers
  - Loft insulation
  - Double glazing
- Looked at what measures were needed, but also which of these were financially feasible



# Main findings

- Whole house approach needed
  - SWI, LI, heating, glazing, air tightness, ventilation, lighting, water
  - Behavioural change needed to deliver expected savings
  - Although properties suitable for PV, not economic following FIT cut
  - Delivery at scale to reduce costs
  - Without renewable heat (ASHP) could only achieve c65% CO<sub>2</sub> reduction
  - Improved CoP and Grid decarbonisation needed to meet 80% CO<sub>2</sub> reduction
- Financing identified as the major barrier
  - Social housing excluded from Affordable Warmth ECO (at the time of writing)
  - Very unlikely that landlord would be able to fund SWI itself
  - Green Deal unlikely to be a major influence, as tenants used to landlord paying for improvements

# Plus Dane's EnergyFit project



- Plus Dane Group
- RSL working across Merseyside and Cheshire
- 18,000 properties
- Five pilot retrofit/renewables projects, of which Elaine Street is one
- (About to go) onsite with three



# Background to Elaine Street project

- 35 solid wall, Victorian terraced properties
- Have typically received loft insulation, new boilers and double glazing over the last decade
- Will receive external wall insulation, PV and energy saving advice as part of project
- Monitoring of energy consumption for 12 months following installation
- Comparison to neighbouring streets
- Housing Forum Demonstration Project

# Results of resident interviews

- Households typically have low income
- 28 of 35 properties thought to be in fuel poverty
- Estimated annual energy spend ranges from £400 through to £2,500
- Majority had cut back on energy use due to concerns over size of bills
- Most residents thought they were the most important factor in terms of saving energy in their home
- Measures being installed could save around 1/3<sup>rd</sup> off the average energy bill (SAP estimate)
- 100% of residents expressed a preference for EWI over IWI due to disruption involved with IWI – no offer to decant

# Aims of the Green Deal

- reduced GHG emissions
- improve security of energy supply
- reduce fuel poverty
- reduce health issues arising from cold homes
- reduce costs of meeting renewable energy targets
- create jobs



# The Green Deal summarised

## PAYS scheme

- Private firms finance upfront cost via loan
- Recover loan + interest via electricity bill
- Loan remains with property

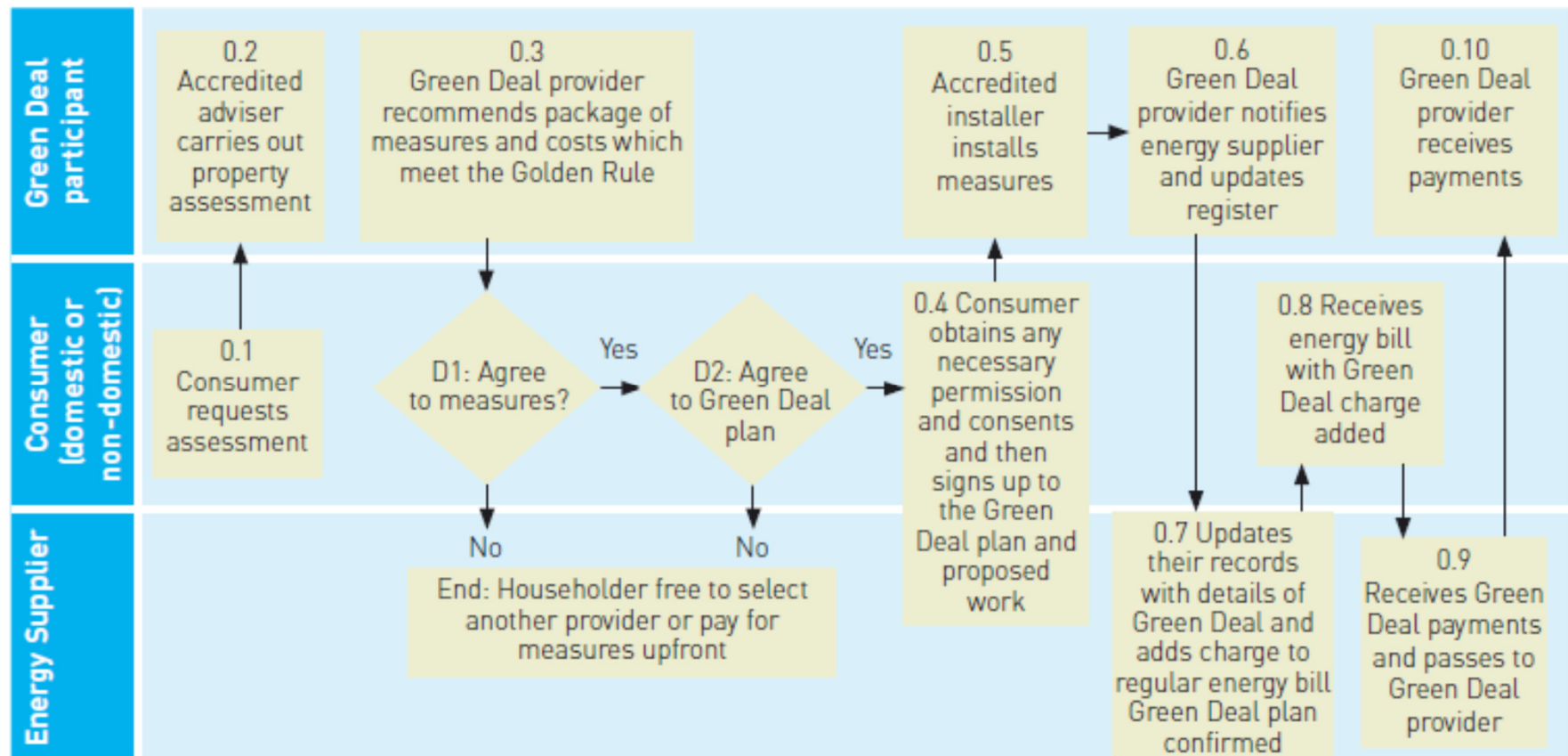
## Key points

- Fabric and occupancy assessment (RdSAP+)
- Measures 'should' meet the 'Golden Rule'
- ECO subsidy for SWI and HTT CWI (mainly)

## Timetable

- Consultation – 600 pages
- Consultation response – 300 pages
- Domestic Green Deal starts Autumn 2012

# 'Simplified' Green Deal process



Source: Green Deal Opportunities for Business (EEPB + CPA, 2012)

# Main changes following consultation

- More eligible measures – see later slide
- Consumer protection
  - In-use factors to be applied to GD measures – see later slide
  - Fixed interest rate loans
  - GDP can offer option to increase charge by 2%pa – see later slide
- Reduce industry burdens
  - e.g. less onerous extended warranties, no surety bonds for GDPs
- ECO – see later slide
  - New Carbon Saving Communities element
  - Easy CWI and loft insulation eligible (only as part of package with SWI/HTT CWI under Carbon Reduction ECO)
- Improving behind the scenes operations
- See Exec Summary of Consultation Response for further details



# Eligible measures

- Eligible measures increased from 30 to 45
  - Original measures were mainly focused on insulation, glazing, heating systems and renewables
  - New measures mainly relate to water, lighting, ventilation and shading devices
  - Process in place to add further measures
- Renewables are confirmed as being eligible
  - But the amount of GD finance they attract will be small (PV/solar thermal)/nil (e.g. biomass, heat pumps)
  - Householders will need to pay balance upfront
  - Personal loan taken out against FIT/RHI income?
- No funding for behavioural change activities
- MVHR for non-domestic properties only

# In-use factors

Measure	Reduction in SAP estimate
<b>SWI</b>	25%
<b>CWI</b>	35%
<b>Loft insulation</b>	35%
<b>Replacement boiler (non-condensing to condensing)</b>	25%
<b>Heating controls</b>	50%
<b>Biomass boilers</b>	25%

*Source: How the Green Deal will reflect the in-situ performance of energy efficiency measures*

# Impact of in-use factors on availability of Green Deal finance

Table 30 Energy savings from different measures for a 3 bed semi detached house

Measure	Savings SAP (kWh)	Inaccessibility factor	In use factor	Energy saving before comfort taking (kWh)	Bill saving before comfort taking (£) <sup>110</sup>	Comfort factor	Energy saving after comfort taking (kWh)
SWI: Type 1	9,111	10%	25%	6150	£306	15%	5,227
SWI: Type 2	9,111		25% + 8%	5,494	£274		4,670
SWI: Type 3	5,614		25%	3,789	£190		3,221
CWI	4,569		35%	2,673	£134		2,272
Loft top up	845 <sup>111</sup>	41%		499	£25		424



Green Deal finance will be based on this figure

Source: Final Stage Impact Assessment for the Green Deal and ECO



# Further example

Table 50 Green Deal finance contribution from BAU boilers in 2013

		Boiler rating			
		D	E	F	G
Total number of condensing replacing non-condensing	975k				
Percent of total installations taking Green Deal finance	6%				
kWh per year		1,485	2,344	3,299	5,253
kWh after 25% in use factor		1,114	1,758	2,474	3,940
Green Deal Finance per boiler (£)		451	712	1,002	1,595

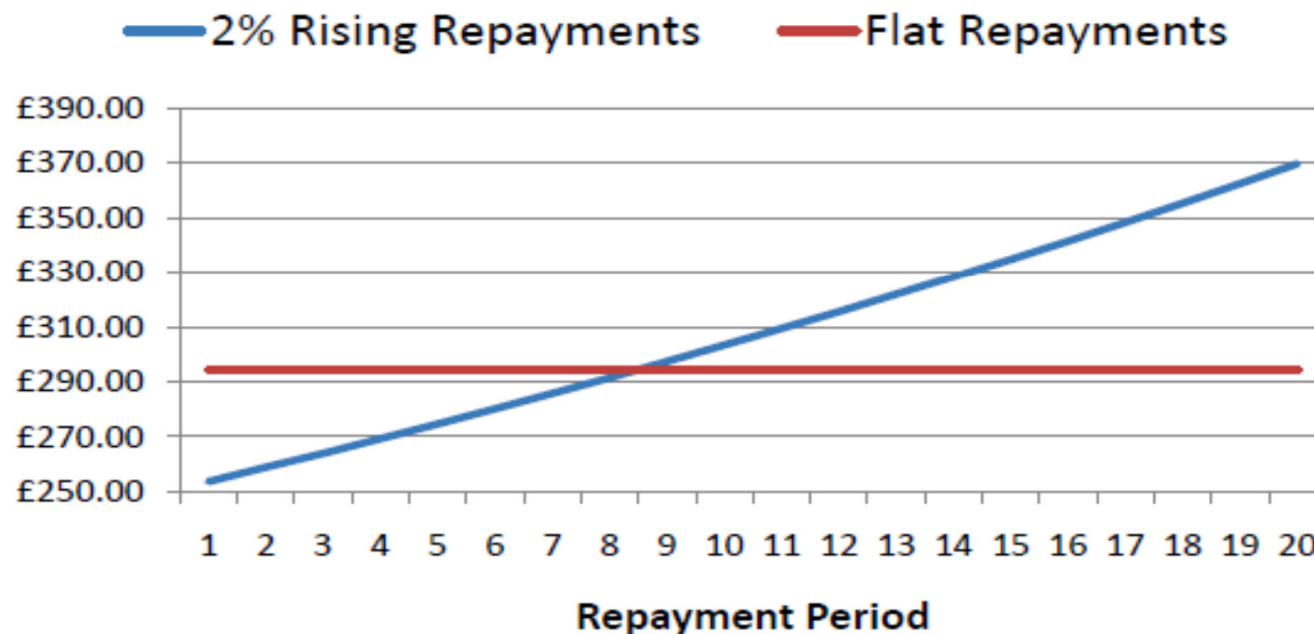
Source: Final Stage Impact Assessment for the Green Deal and ECO

## Implications of in-use factors

- A good thing! Higher confidence that savings will cover loan repayments
- But, increases amount of ECO subsidy needed for SWI/HTT Cavity, and
- Reduces the amount of Green Deal finance available (increasing customer contribution or reducing ability to cross-subsidise)

# Rising charge option

Figure 40 Chart showing the difference between flat and 2% rising repayments



Source: Final Stage Impact Assessment for the Green Deal and ECO

- Offsets impact of in-use factors?
- Customer ends up paying more under rising repayments
- Impact on future saleability of property?

# ECO

	Carbon Reduction	Affordable Warmth	Carbon Saving Communities
Targeted at	HTT properties (Solid wall and HTT cavity)	Low income households on qualifying benefits	Lowest 15% of LSOAs + low income rural households
Tenure	Tenure blind	Private only	Tenure blind
Annual spend	£760m	£350m	£190m
Measures	SWI and HTT cavity + insulation measures (as part of package only)	Green Deal eligible measures that reduce heating bills	As for Carbon Reduction (not necessarily in packages)
Level of subsidy	To meet Golden Rule	100%	100%

Brokerage system for ECO out for consultation over the summer



# Where will the initial market be?

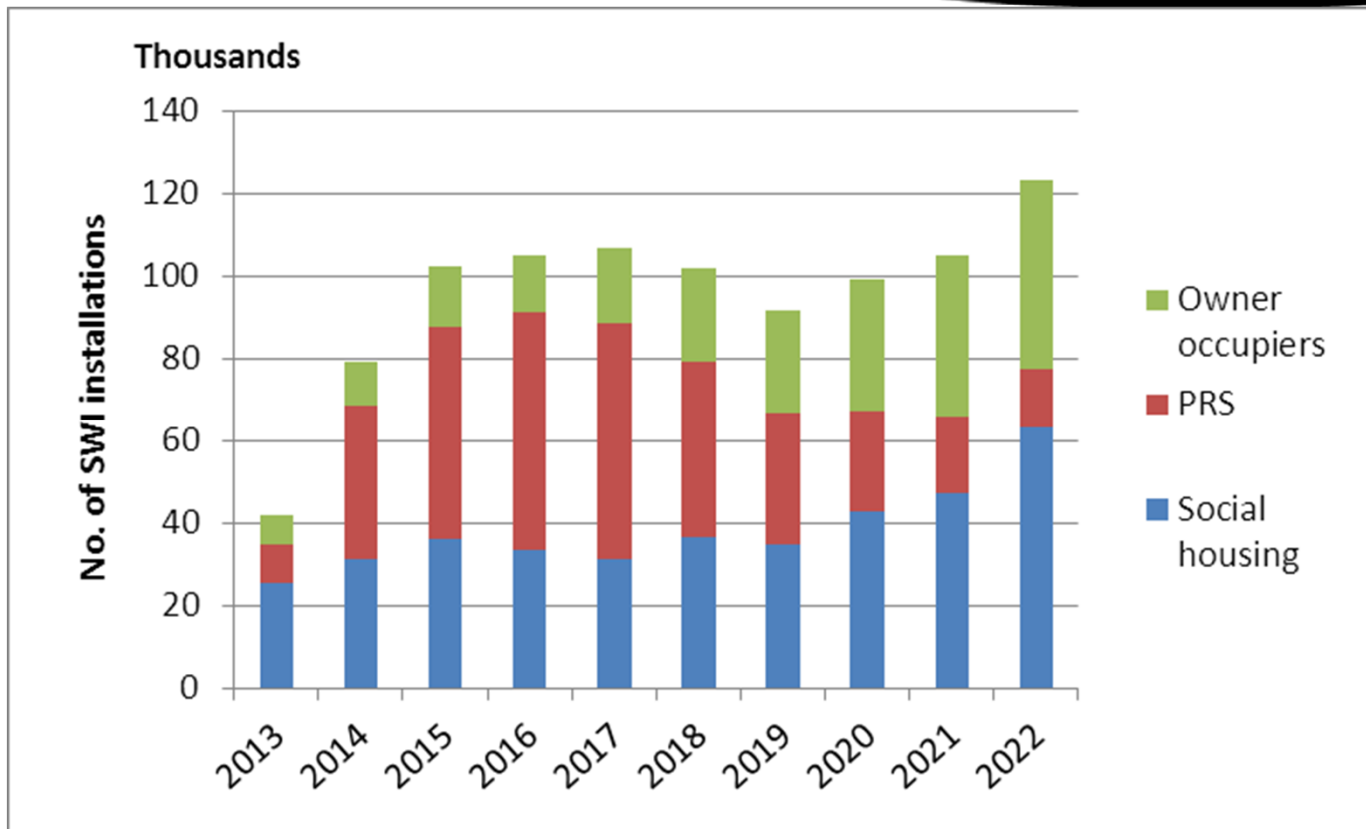
- Social housing
  - Limited opportunities for low cost measures following Decent Homes
  - Lots of SWI in LSOAs qualifying for CSC ECO
- PRS
  - Mandated minimum energy efficiency standard from 2018?
  - Landlord cannot refuse 'reasonable' requests from tenants from 2016
  - Will apply to non-domestic sector as well
- Owner occupiers
  - Solid wall properties in LSOAs qualifying for CSC ECO – as part of schemes in areas with high concentrations of social housing, i.e. RSL-led
  - Affordable Warmth ECO for low income households
  - Carbon Saving ECO will subsidise remainder down to Golden Rule
  - The rest will need Green Deal finance + upfront payment, but interest of 7.5%?!
  - Larger/uninsulated properties will attract the most finance/subsidy

# What's left to do?

Measures	Potential (no. of installs)	Potential (CO <sub>2</sub> %)
<b>SWI</b>	6.9m	60%
<b>CWI – easy to treat</b>	2.6m	12%
<b>CWI – hard to treat</b>	3.2m	16%
<b>Top-up loft insulation (&lt;150mm existing)</b>	5.7m (0.2m virgin lofts)	12%
<b>Floor insulation</b>	3.0m	?
<b>Condensing gas boilers</b>	12m (replacing non-condensing)	?
<b>Glazing</b>	2m (single glazed only)	?

*Source: Final Stage Impact Assessment for the Green Deal and ECO*

# SWI installations through to 2022

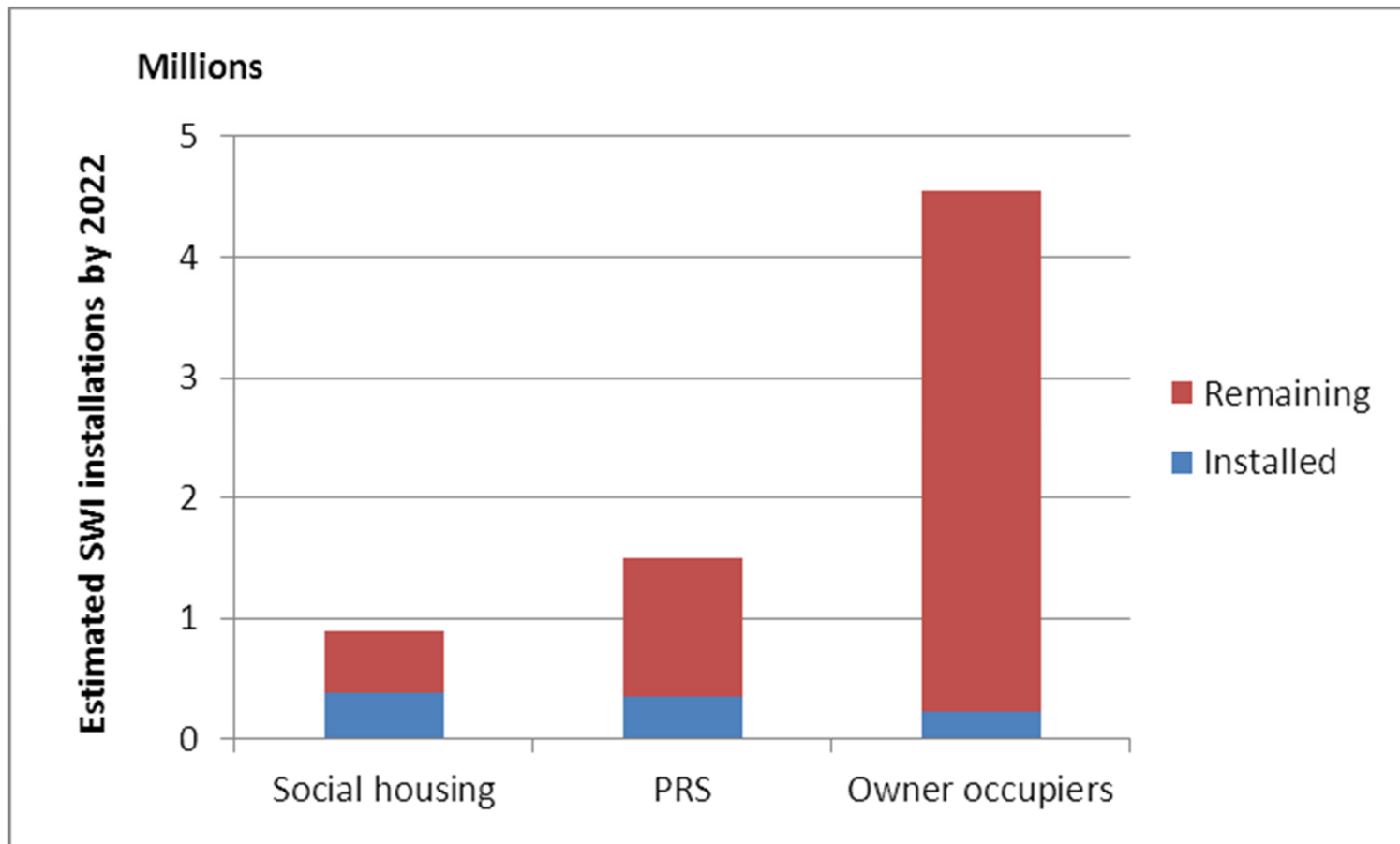


Central estimate is for just under 1m SWI installation by 2022, of which around 75% will be IWI...

*Source: Final Stage Impact Assessment for the Green Deal and ECO*



# What will have been achieved by 2022?



*Source: Final Stage Impact Assessment for the Green Deal and ECO*

# EWI Specification issues



## Key considerations

- SWI material?
- Detailing:
  - Eaves – brickwork and cross-ventilation
  - Ground level
  - Reveals
  - Cill, lintel and arch features
  - Gable end – roofline?
  - Finish
- Planning permission?
- Ventilation post installation
  - Airbricks left open?!
  - SRHR in thesis
  - Trialling PIV at Elaine Street

# What specification will we end up with?

We're about to conduct a mass field trial of SWI... results TBC!



Proposed ECO brokerage system could encourage low quality specification...

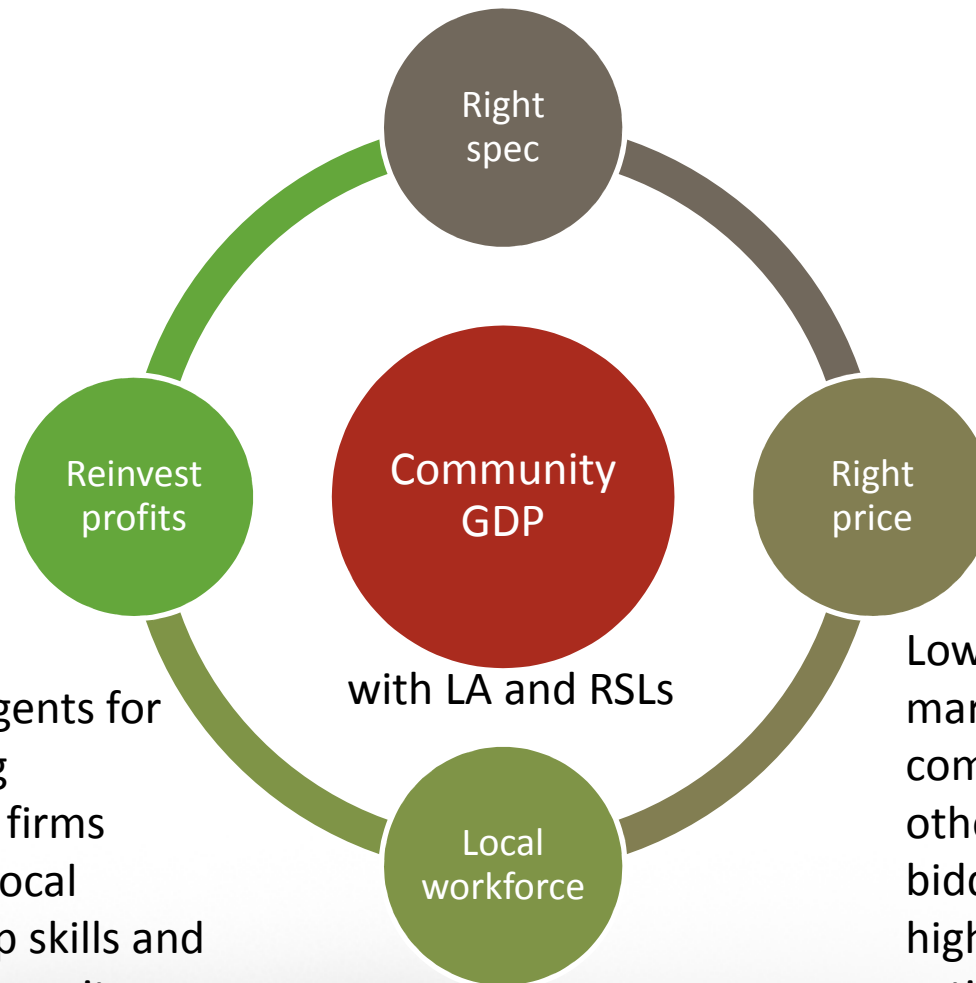
Leading to a 'race for the bottom'?



# Potential for communities to benefit

Any profits  
reinvested back  
into the  
community,  
e.g. community  
renewables,  
behavioural  
advice

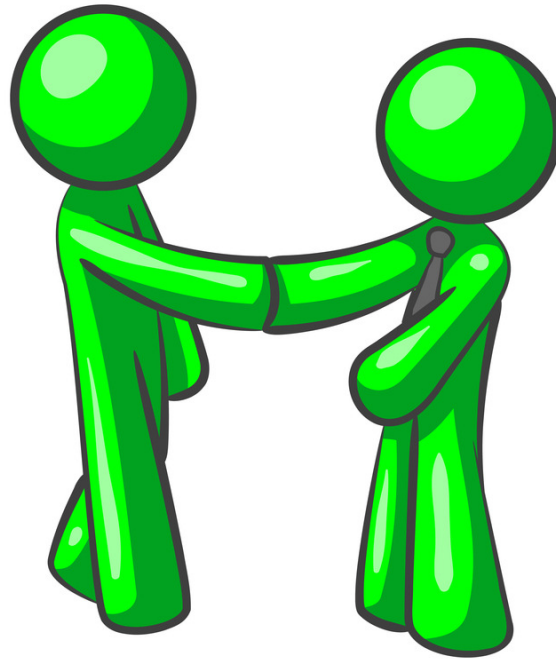
Use procurement agents for  
tenders, with strong  
preference for local firms  
and/or training for local  
workforce – build up skills and  
local supply chain capacity



Focus on large  
scale cross-tenure  
AF and CSC ECO  
eligible projects  
initially to deliver  
funding stream

Low required profit  
margin – makes offer  
competitive against  
other GDPs and when  
bidding for ECO despite  
higher spec + additional  
activities

# So, Green Deal or No Deal?



# Sustainability in this context

- Will the Green Deal deliver on its aims?
  - Carbon reduction
  - Customer experience
  - SME access to Green Deal works/finance
- Who will benefit from Green Deal works?
  - Customers? Large companies? SMEs?  
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- How good will the specification of measures be?
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# Conclusions

- Unambitious in terms of number of SWI installs
- New, complicated process to explain to customers
  - potential for mis-selling what is essentially a financial product?
- Will it be dominated by a few big players?
  - Equitable access to ECO for Green Deal Providers still TBC
  - Alternative models coming through, e.g. URBED/Carbon Co-op, Worcester CC
- About to embark on a mass field trial of SWI:
  - Known issues around IWI and condensation
  - No consensus around ventilation strategy for either EWI or IWI
  - ‘Race for the bottom’ in terms of SWI spec?
  - Will only cheapest SWI materials get ECO, excluding more sustainable products?
- Initial market:
  - Households eligible for AW and CSC ECO will benefit
  - Large properties will attract GD finance, as will uninsulated properties
  - Will householders be interested in taking out loans with 7%+ interest rates?
  - ‘Squeezed middle’ will have to find a lot of upfront money to pay for measures



Any questions?

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