LENDERS – Project Update Seminar
Future Inns, Cardiff

27th October 2016

supported by Innovate UK

Anne Sharp

Project Manager
Constructing Excellence in Wales

supported by Innovate UK

ADEILADU ARBENIGRWYDD YNG NGHYMRU
CONSTRUCTING EXCELLENCE IN WALES

LENDERS

Levering Economics for New Drivers to Energy Reduction & Sustainability

Project Summary

Andy Sutton, BRE

Part funded by Innovate UK

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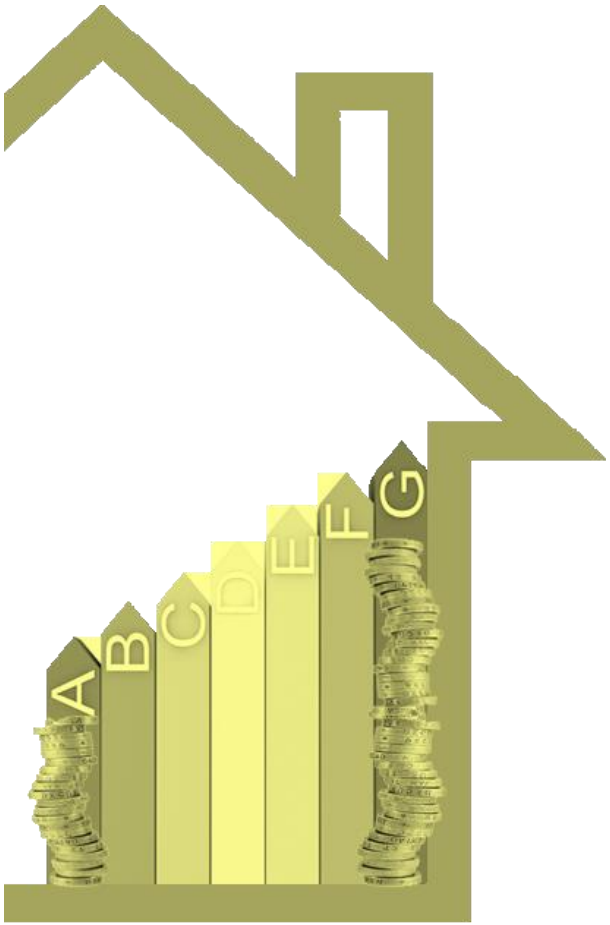

- "*Levering Economics for New Directions in Energy Reduction and Sustainability*" = LENDERS
- Research Project part-funded by Innovate UK (UK Government)
- Eight partners led by Nationwide Building Society and run by BRE
- Project runs to Summer 2017
- Project cost c.£427k in 18 months
- Intended outcome strongly supported by ~~DECC~~ BEIS & others

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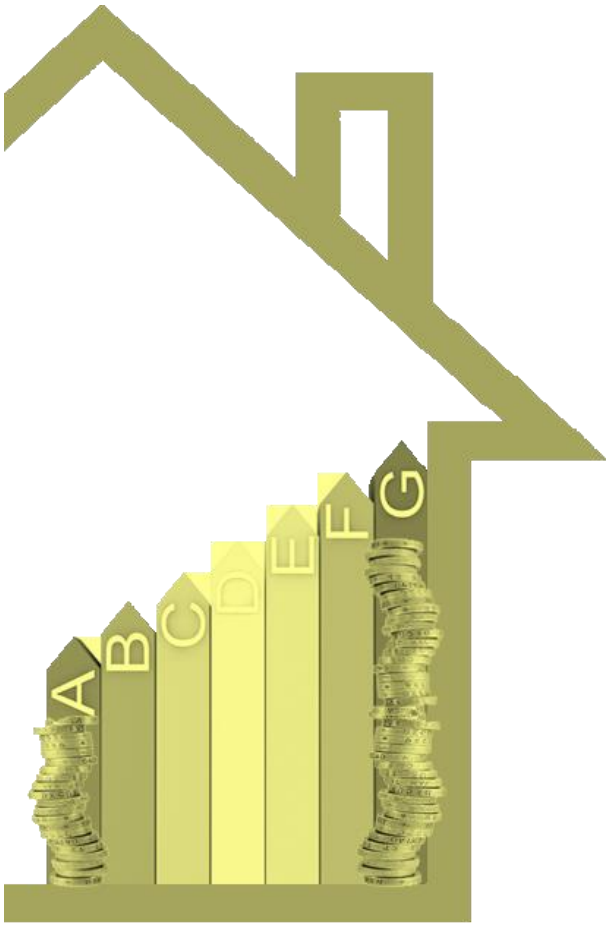

Project Goal

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Project Goal

- To improve the accuracy of predictions used to estimate home owners fuel/energy costs when calculating mortgage “affordability”
- To give this improved method to the mortgage industry (free of charge), such that they can “swap out” their current method for this one
- To provide sufficiently robust supporting evidence to the industry to allow them to be confident in switching methods

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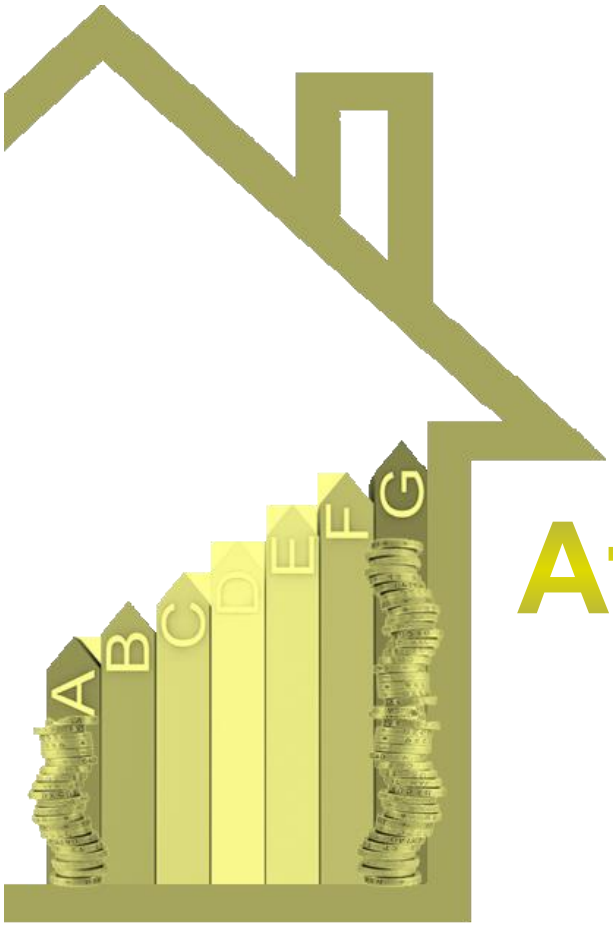

Existing Mortgage Affordability Method

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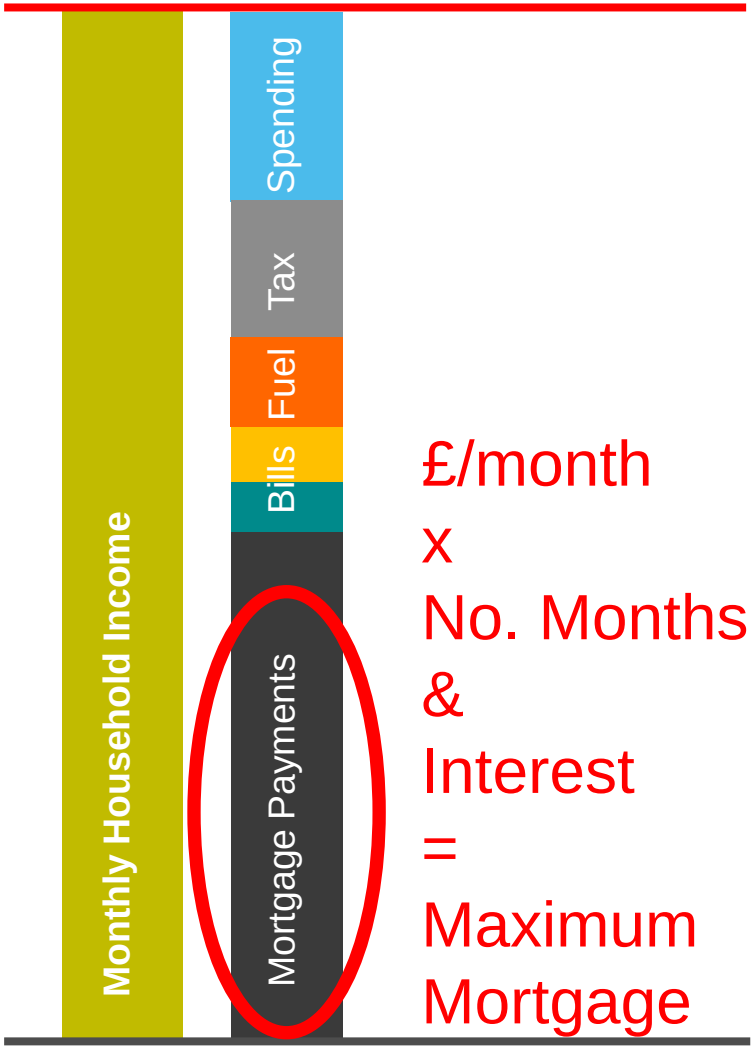
Current Mortgage Affordability Method



£/month
x
No. Months
&
Interest
=
Maximum
Mortgage

- Mortgages are given based on the ability to repay the loan; checked via an “affordability calculation”
- Affordability is monthly income minus monthly outgoings, with many provisions for lifestyle, loans as well as fuel costs
- These costs are generally split into essential (i.e. unavoidable) and non-essential (i.e. avoidable if necessary to pay the mortgage)
- Fuel costs are the largest ‘essential’ costs considered in this calculation

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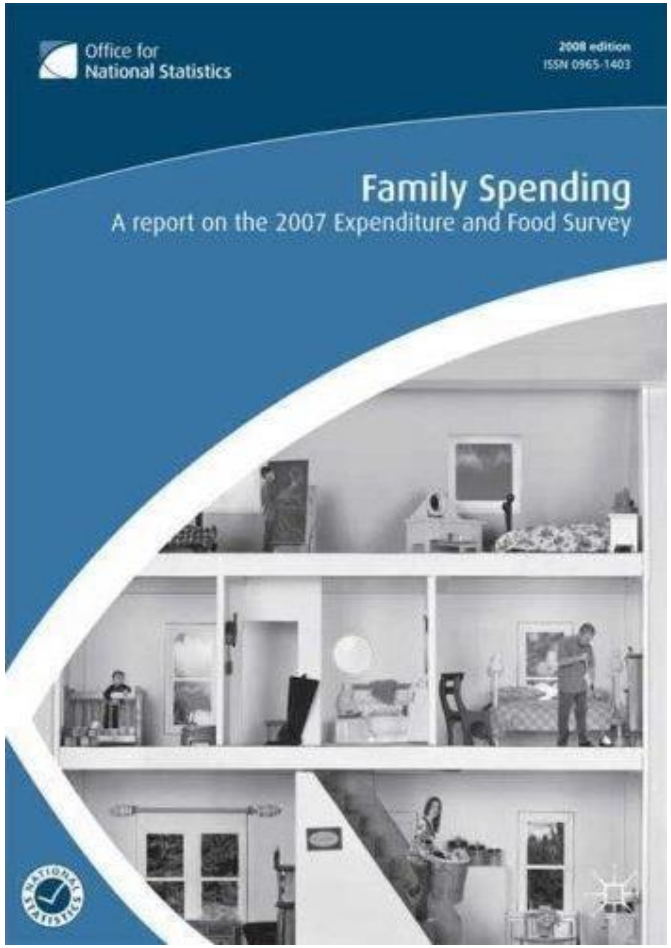
Current Mortgage Affordability Method



- Fuel costs are generally taken from Office of National Statistics (ONS) “Family Spending Report” data
- The ONS fuel costs are modified for occupancy and overall income, but the band width is >£25pm variance
- Some lenders also ask customers their energy costs (of course, these are in their existing property) and use the higher of the two figures

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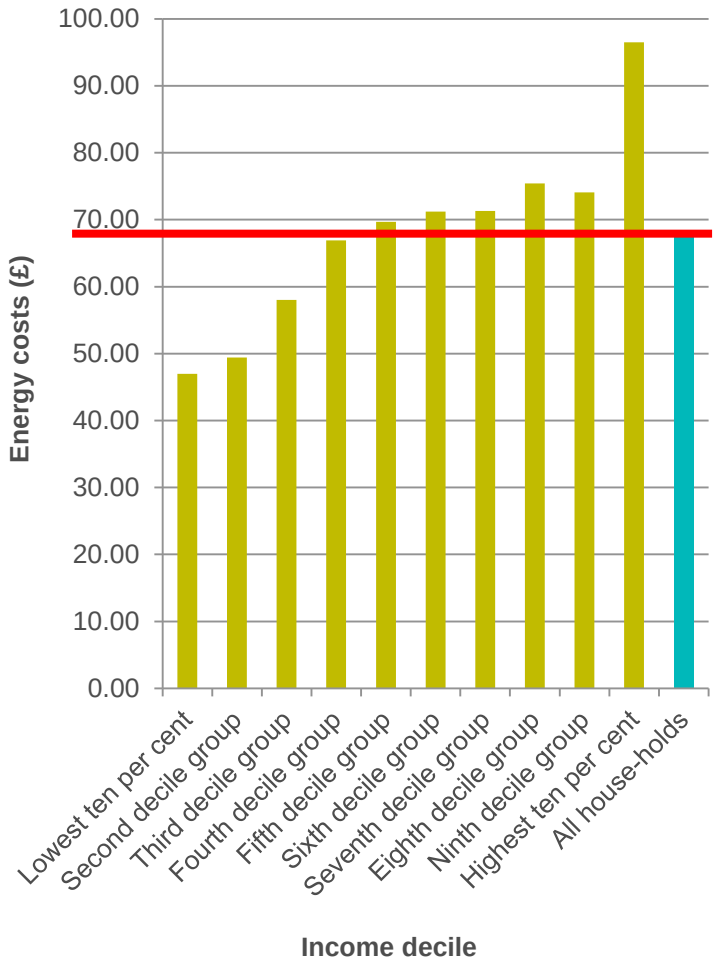
Current Mortgage Affordability Method



- Therefore, fuel costs tend towards £60-70pm with little variation.
- Especially for lenders using existing customer bills, no-one can be below average
- In short, "*the current mortgage affordability process does not directly nor indirectly use energy cost data as a variable within the mortgage calculation process*"

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Current Mortgage Affordability Method

- Current method predicts fuel costs at around £60-70pm ±c.£12pm
- Current method takes **no** account of the property's energy performance rating (required at point of sale)
- Improved method could predict fuel costs below £23 to above £115 (EPC "B" and "E" respectively)
- Impacts on 'unavoidable costs' in Affordability, changing the amount which can be repaid and therefore the Capital Loan amount offered by £10,000 (or potentially even more)

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New Mortgage Affordability Element

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Proposed Mortgage Affordability Element for Energy

Input x Input = Output

[EPC] x [Occupancy] = £ Energy

- The intended LENDERS method will use information from the EPC data and home occupancy to predict fuel costs for that property
- Effectively, we creating a new element of the Affordability calculation something like this;

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Proposed Mortgage Affordability Element for Energy

Input x Input = Output

[EPC] x [Occupancy] = £ Energy

- Mortgage lenders already ask "Occupancy" questions to their customers as part of the process
- "EPC" data is legally required to be available at point of sale, and can be automatically collected from the holding companies (i.e. Landmark)
- Fuel costs are the output of the equation; the result, rather than a data input requirement

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Proposed Mortgage Affordability Element for Energy

Input x Input = Output

[EPC] x [Occupancy] = £ Energy

- Therefore we know “in use” the data is available for this equation to work
- And we know from the earlier proof of concept it should generate economically meaningful values

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Proposed Mortgage Affordability Element Challenge

Input x Input = Input

[EPC] x [Occupancy] = £ Energy

However…

- To generate the equation in the first instance, we need all three types of data to establish the relationship between them
- And we need large enough data sets to demonstrate that the equation works robustly

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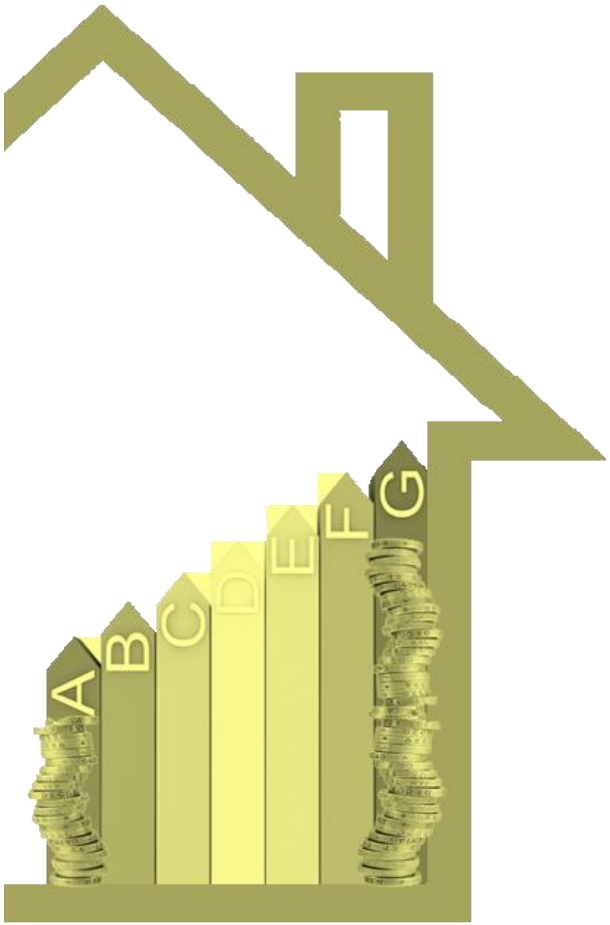

A word (or two) on Data Protection

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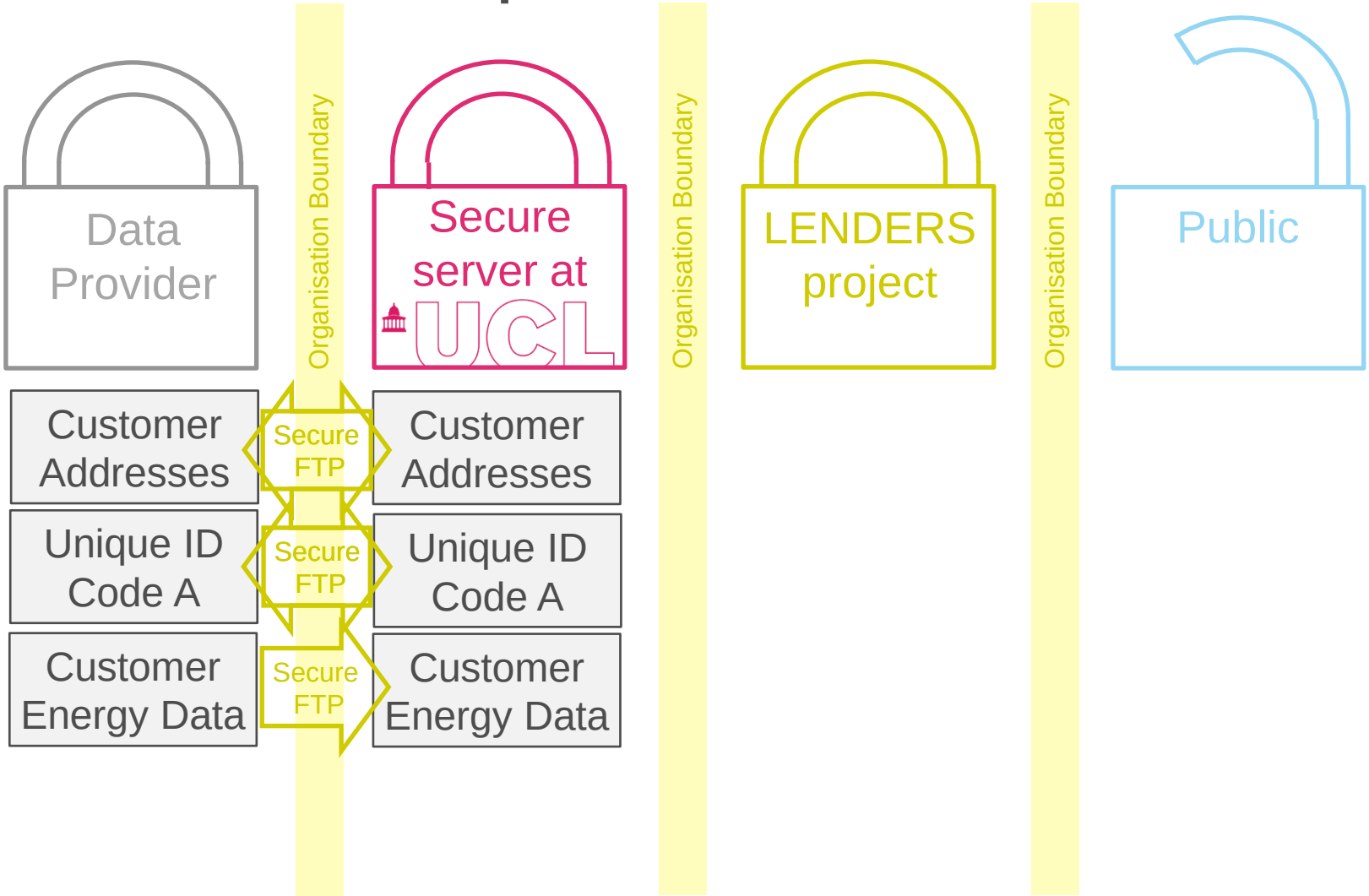
Data Protection – Acquisition from Provider A



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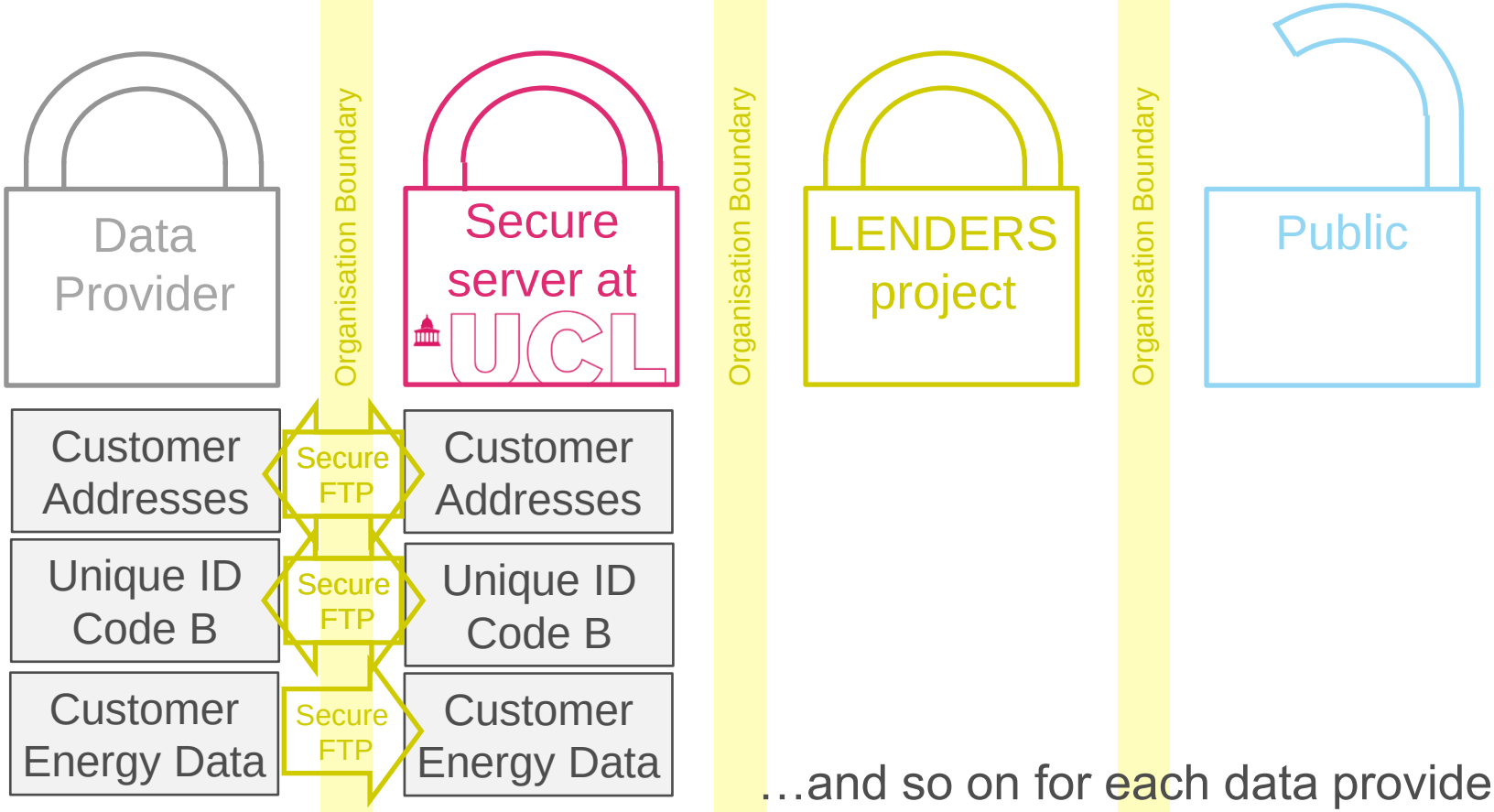
Data Protection – Acquisition from Provider B



…and so on for each data provider

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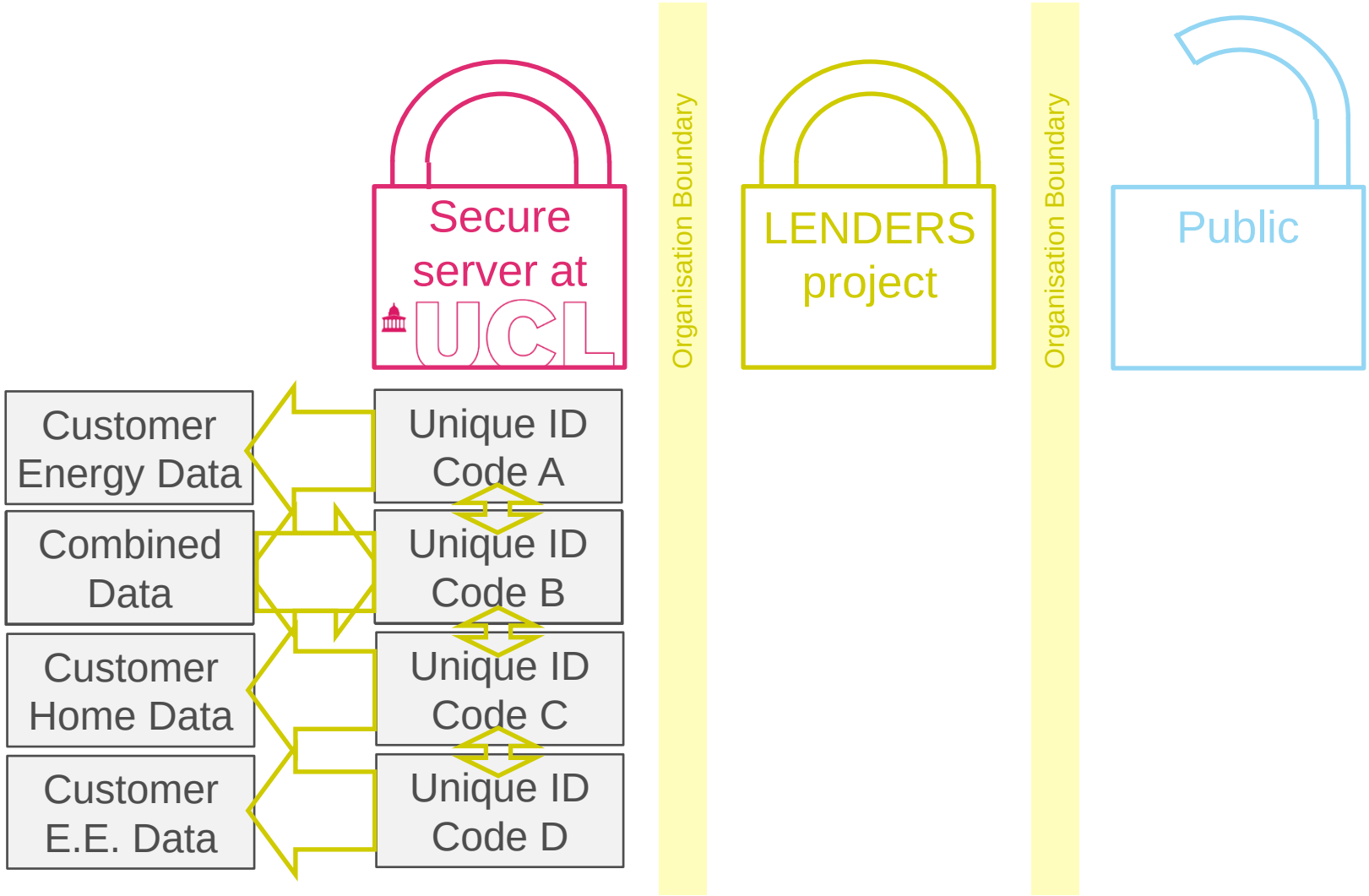
Data Protection – Data Collation



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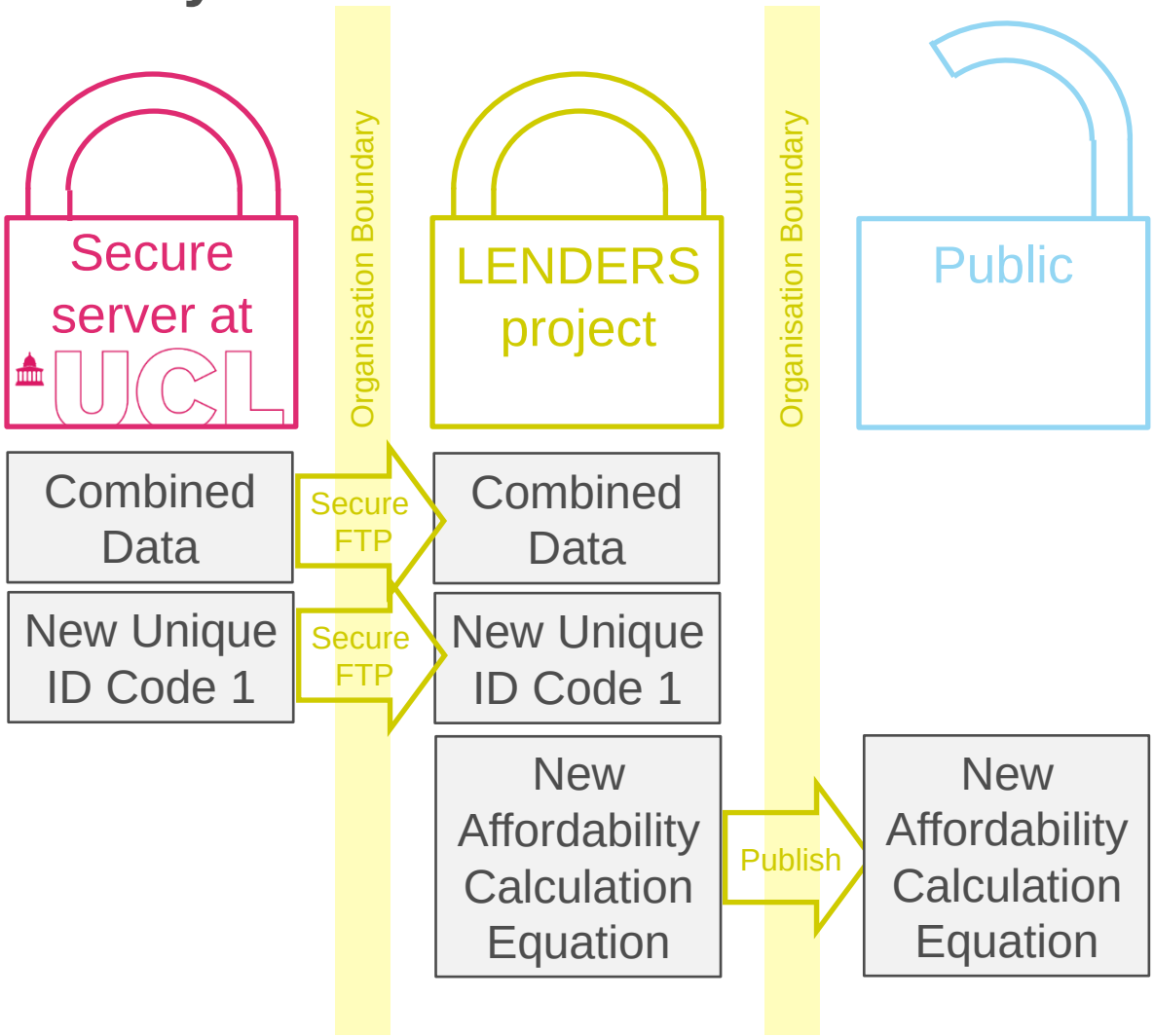
Data Protection – Analysis & Publication



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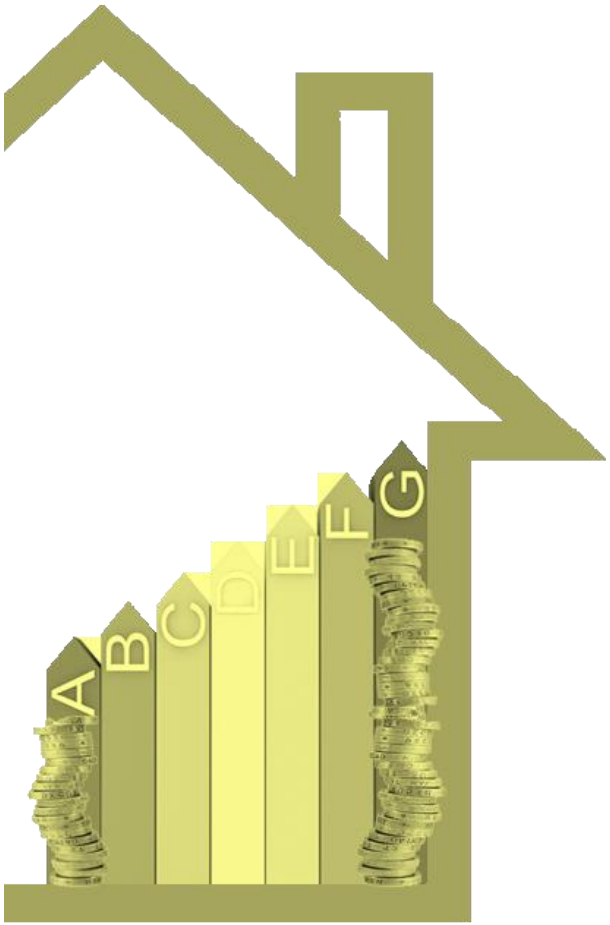

Prior Research

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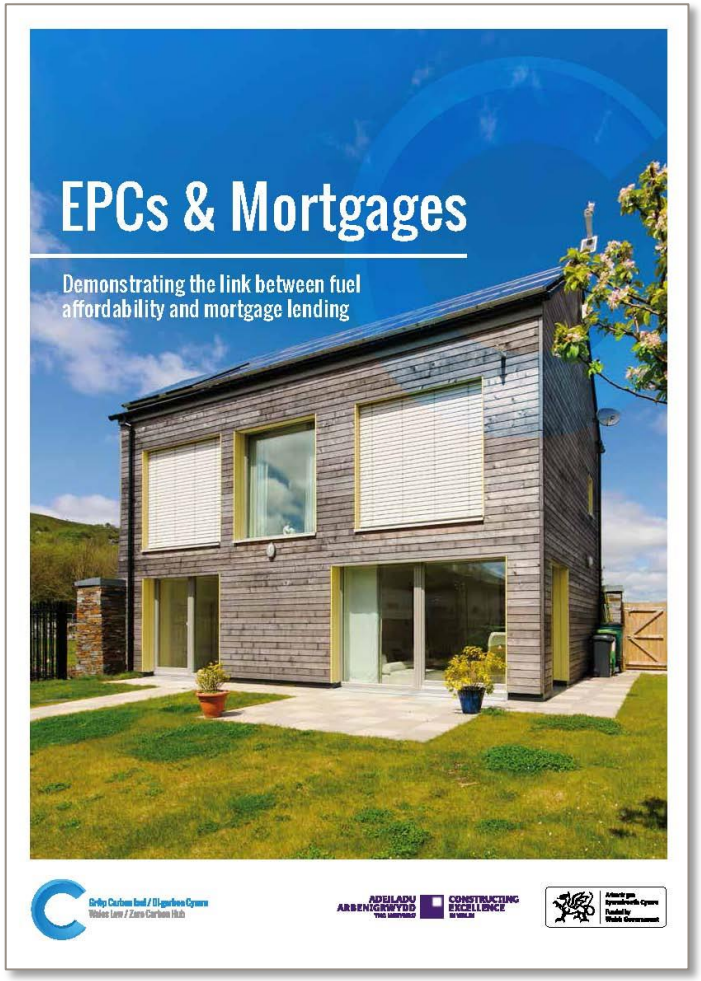
Prior Research *(or "why we're sure it will work")*



- Replacement of fuel estimation in mortgage affordability calculation conceived by BRE in 2010
- Small (125 property) "proof of concept" commissioned in 2013 by Constructing Excellence
- First report published early 2015: http://www.cewales.org.uk/zero-low-carbon-hub/
- Demonstrates principle of link between data available from EPC certificates & property types and actual fuel bills of real homes

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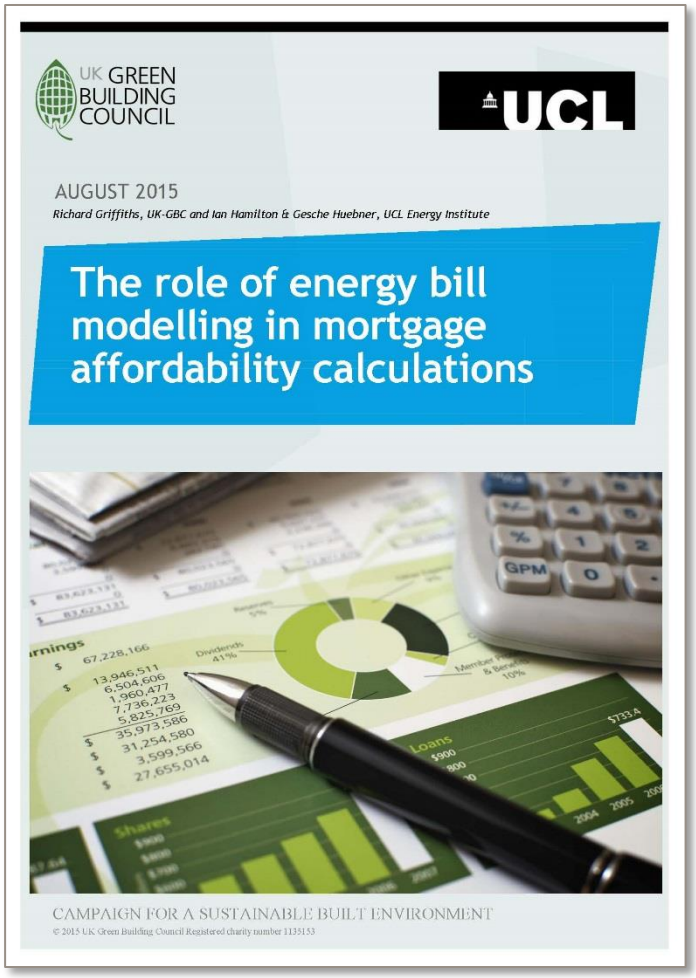
Prior Research *(or "why we're sure it will work")*



- Fuel bills can vary by £50/month or significantly more between high and low energy homes
- Estimates this monthly amount could repay a capital loan of c.£10,000 over 25 years at 5%
- Observes this level of lending would cover notable energy enhancement works that could generate the initial saving
- Aligns with later findings of the UKGBC & UCL larger similar study

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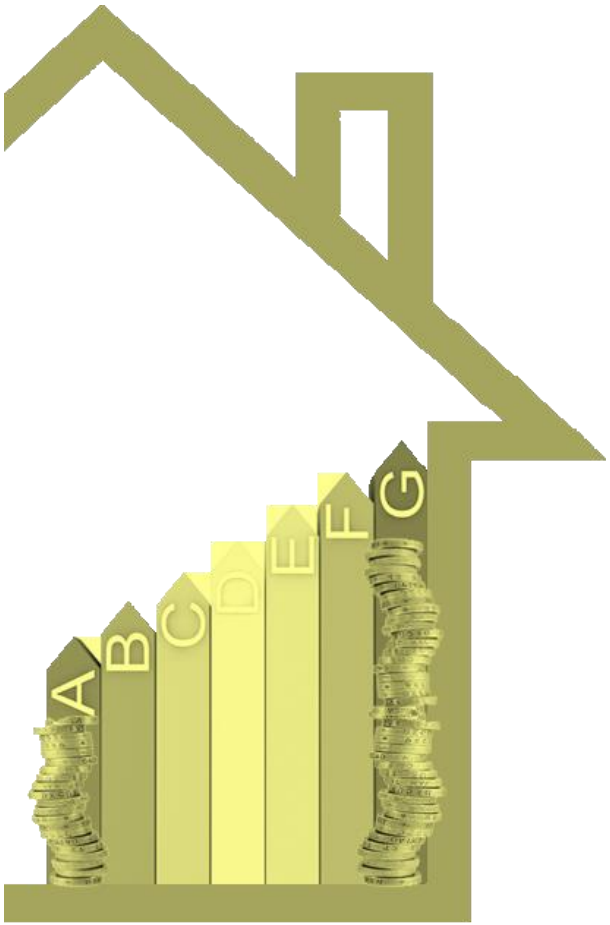

Potential Impacts

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Potential Impacts

Clever Money PLC
Your high street
UK

Mr Jones,

Your Mortgage Offer

We are pleased to offer you a mortgage based on what you can afford to repay each month. Our offer is dependant on the EPC rating of the property you wish to buy or re-mortgage, and is as follows:

EPC "A", we will lend you **£200,000**
EPC "B", we will lend you **£195,000**
EPC "C", we will lend you **£190,000**
EPC "D", we will lend you **£185,000**
EPC "E", we will lend you **£180,000**
EPC "F", we will lend you **£175,000**
EPC "G", we will lend you **£170,000**

Should you wish to buy a lower EPC rated property and wish to undertake energy efficiency improvement works, we will normally lend you the difference between the above amounts as additional borrowing in accordance with the EPC improvement achieved.

Yours sincerely,
Clever Money PLC

- If adopted, mortgage companies start using information taken from EPCs when considering customers apply for mortgages or re-mortgages
- Customers' mortgage offers will vary based on this information, with higher mortgage offers for homes that have lower energy bills
- The theoretical "energy bills + mortgage" amount remains the same, the balance is just shifted between the two factors

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Potential Impacts

- Major works to home typically around point of sale
- Home buyers driven to consider energy performance as part of “long term” planning when buying/selling
- Lenders more likely to support as they have mechanism to ‘value’
- House builders have an incentive to lower energy as house values are modestly skewed to reflect energy
- EPC data in mortgage lending may push the “quality” of EPC’s

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Principality Building Society

Mike Pollitt

Part funded by Innovate UK

LENDERS

Overview

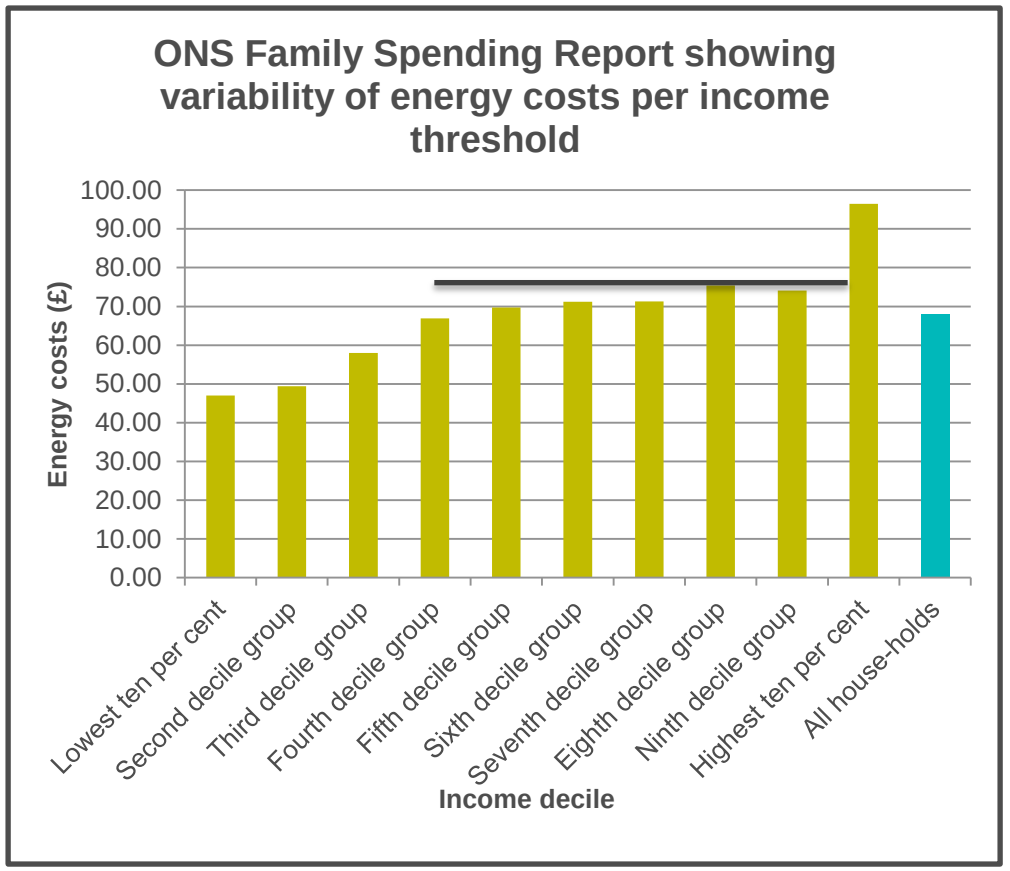
- Innovate UK Funded
- November 2015 – April 2017
- 9 partners

- Key elements
  - Theoretical Research
  - EPC and fuel cost data collection and collation
  - Implementation Research
  - Market Testing
  - Calculation Research
  - Practical Implementation
  - Events & Circulation
  - Project Management

Project Start:- November 2015 → Mid-Project Update Event:- October 2016 → Industry Briefing 2:- January 2017 → Project finish:- Q2/Q3 2017

Current approach

- Energy costs are the largest element of household cost after the mortgage / rent.
- Lenders generally use ONS data rather than actual expected energy costs.
- While this may result in similar costs independent of the property, recent review by the Financial Conduct Authority however indicates a discrepancy across organisations in affordability calculations.



- Borrowers faced with a choice between a bigger home or a more energy efficient home will typically opt for size.

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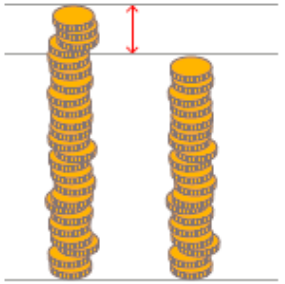
The LENDERS project linking home energy performance to mortgages

1 The LENDERS project is undertaking large scale data research and analysis to establish if there is a reliable link between the energy efficiency information available about homes and the actual fuel costs that those homes incur.

2 The goal is to allow a more reliable and accurate prediction of the fuel costs part of a home owners monthly outgoings.

3 Predicting this more accurately would allow mortgage lenders to better estimate how much a home owner would be able to afford to repay each month on their mortgage.

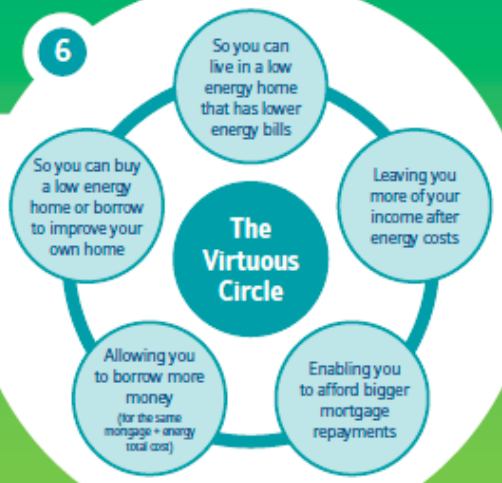
4 That means mortgage lenders can justify higher lending to low energy properties.



5 In turn, this creates a virtuous circle of borrowing that both supports energy home improvement and lends new borrowers more money if they buy low energy homes.

Nett monthly costs for home owners won't increase, but energy efficiency can improve.

6



7 Which might lead to house buyers actively looking for low energy homes, driving the market value of low energy homes upwards.

8 Which will probably drive those selling homes, building homes or just improving them, to use the additional capacity to borrow through fuel savings to improve their energy performance.

The LENDERS project is a collaboration of these organisations, who are part funded by Innovate UK on behalf of UK government.

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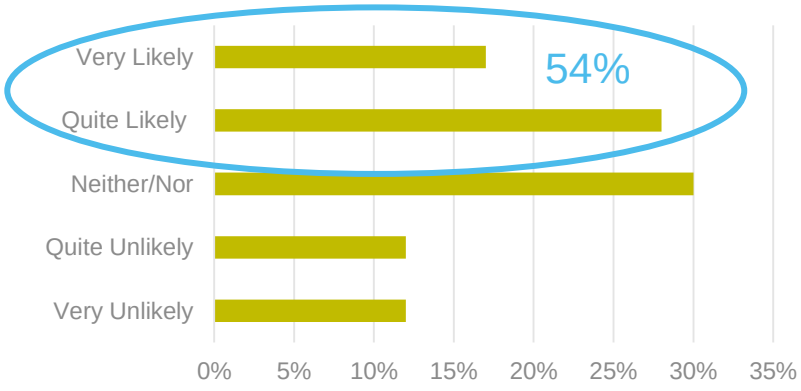
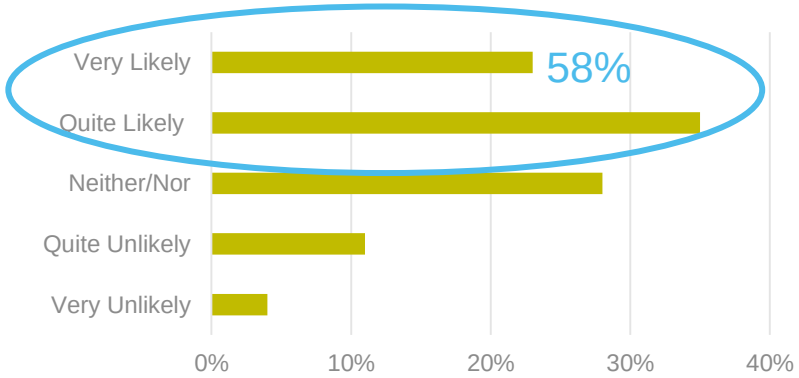
Customer Insight

- Methodology - Online survey live between 26 August 2016 – 4 September 2016
- Sample – Mortgage and Savings customers on PBS customer panel
- Over 50% of customers are interested in the idea of energy efficiency being linked to affordability calculations.
- Nearly 60% of customers are interested in a loan to help bring a property up to a more energy efficient standard. 28% are indifferent towards the idea.

If you were in the market for a mortgage, how likely would you be to go for a mortgage that meant you could potentially borrow more money if the home you were buying was more energy efficient?



How likely would you be to go for a mortgage that offered a 'green loan' to bring the property you are looking to buy up to a better standard of energy efficiency?



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Customer Insight – feedback

"Good idea, means the mortgage is more tailored to the individual property not just a generic assumption".

"Utility costs are such a small part of the overall affordability question that it would have little bearing on the amount an individual could borrow".

"It is unlikely that energy costs will fall in the near future so to protect your investment, minimising your energy costs would always be a prudent measure".

"The greener the better".

"I doubt whether it would make a significant impact on the potential level of borrowing".

"Great - it rewards energy efficiency".

"A good idea in principle, but how can you compare the energy consumption of a 3 bed house with only 2 people living it and the same house with 4 people living in it? It could give a false impression".

"From an investment perspective it makes sense for future re-sale of the property".

"Energy efficient homes are usually new build which are affordable if you're already on the property ladder. Most first time buyers have to save hard just to buy an older property that may need a lot of work doing to it. First time buyers need more help".

"I like anything that helps save the planet!"

"Sound good in principle but could put people off buying older homes".

Customer Insight – Summary

- In theory the idea of more accurate calculations appeals.
- The potential to borrow more and feel like they are doing something good for the environment creates a strong pulls towards this idea.
- However, calculations are considered potentially unreliable due to differing levels of household usage.
- It is assumed that energy costs are a small proportion of outgoings and therefore the effects on affordability calculations will be insignificant.
- Interest in a ‘Green Loan’ is slightly higher than interest in the energy efficiency affordability calculations with many finding the potential for long term savings and possible increased value to the property appealing.
- Ultimately with ‘Green Loans’ it comes down to interest rate and, therefore, customers feel that, whilst it has potential to increase energy awareness and efficiency, competitive interest rate would be the determining factor.

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Three Key Tests

Is the correlation robust?	Can we effectively anticipate actual fuel cost from combined EPC & property information?
Is the cost variation significant?	Is their enough difference for a large enough number of properties?
Can the mortgage process be re-engineered?	Can we effectively and efficiently incorporate any change into the mortgage process?

Unintended consequences

Chris Jofeh, Arup

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Solid wall heat losses and the potential for energy saving

Consequences for consideration to maximise SWI benefits: A route-map for change

Prepared for: Dr Elizabeth Milsom

Date: 02 Mar 2016

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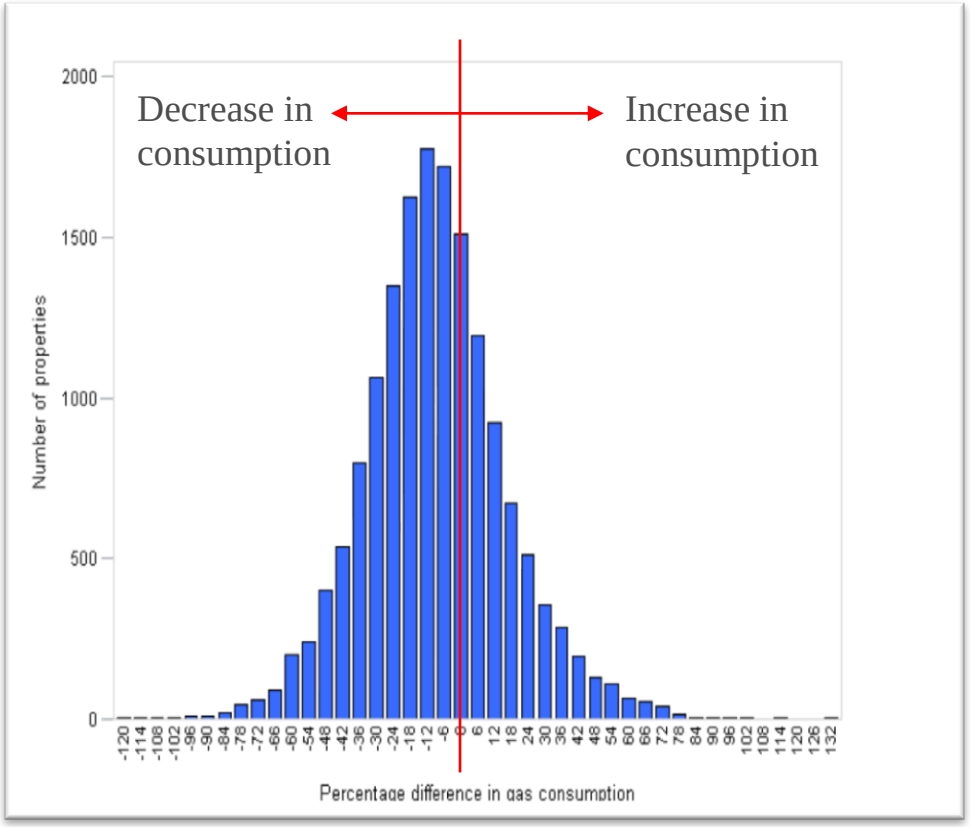

Distribution of savings for properties having cavity wall insulation installed in 2010.
Source: DECC, 2013

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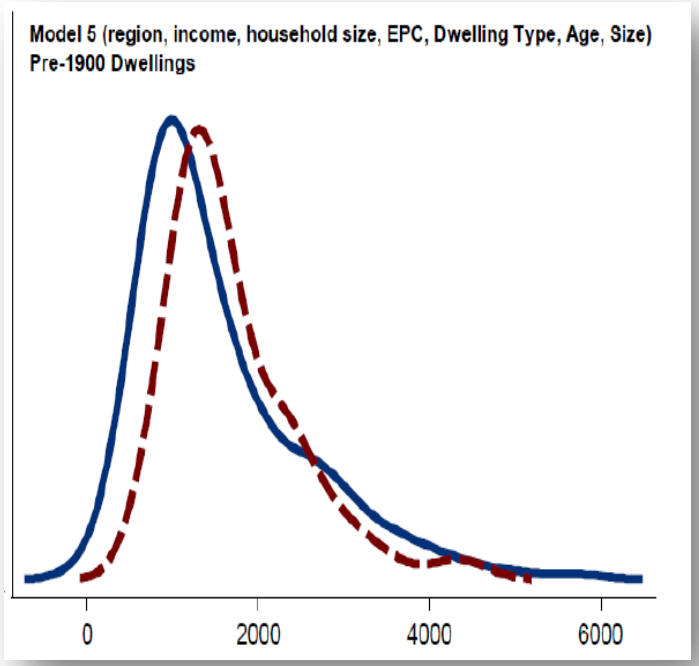


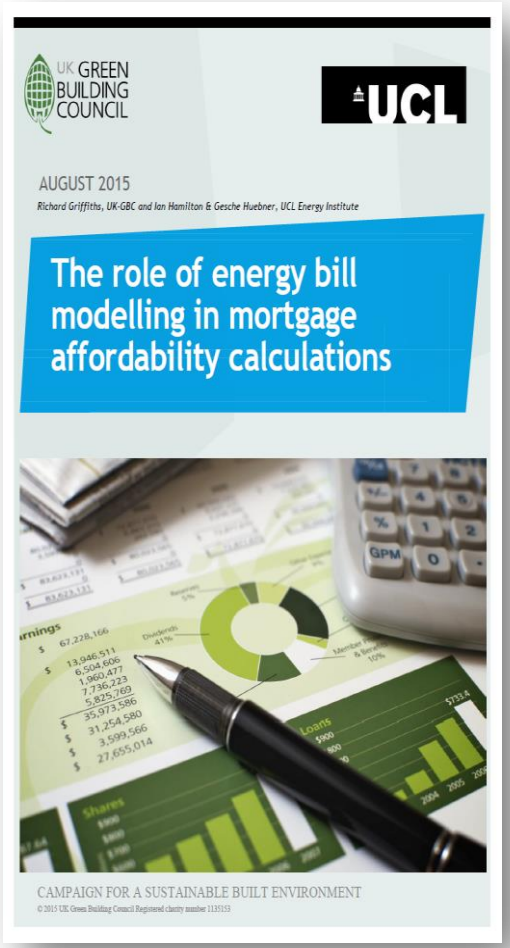
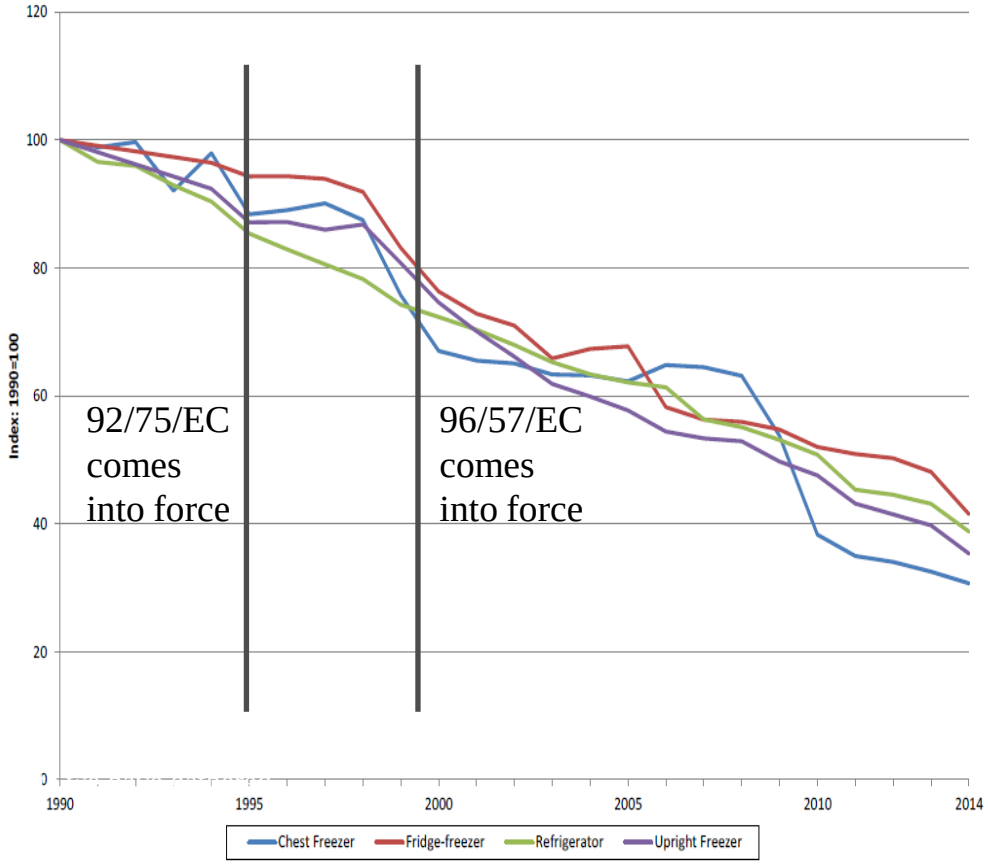


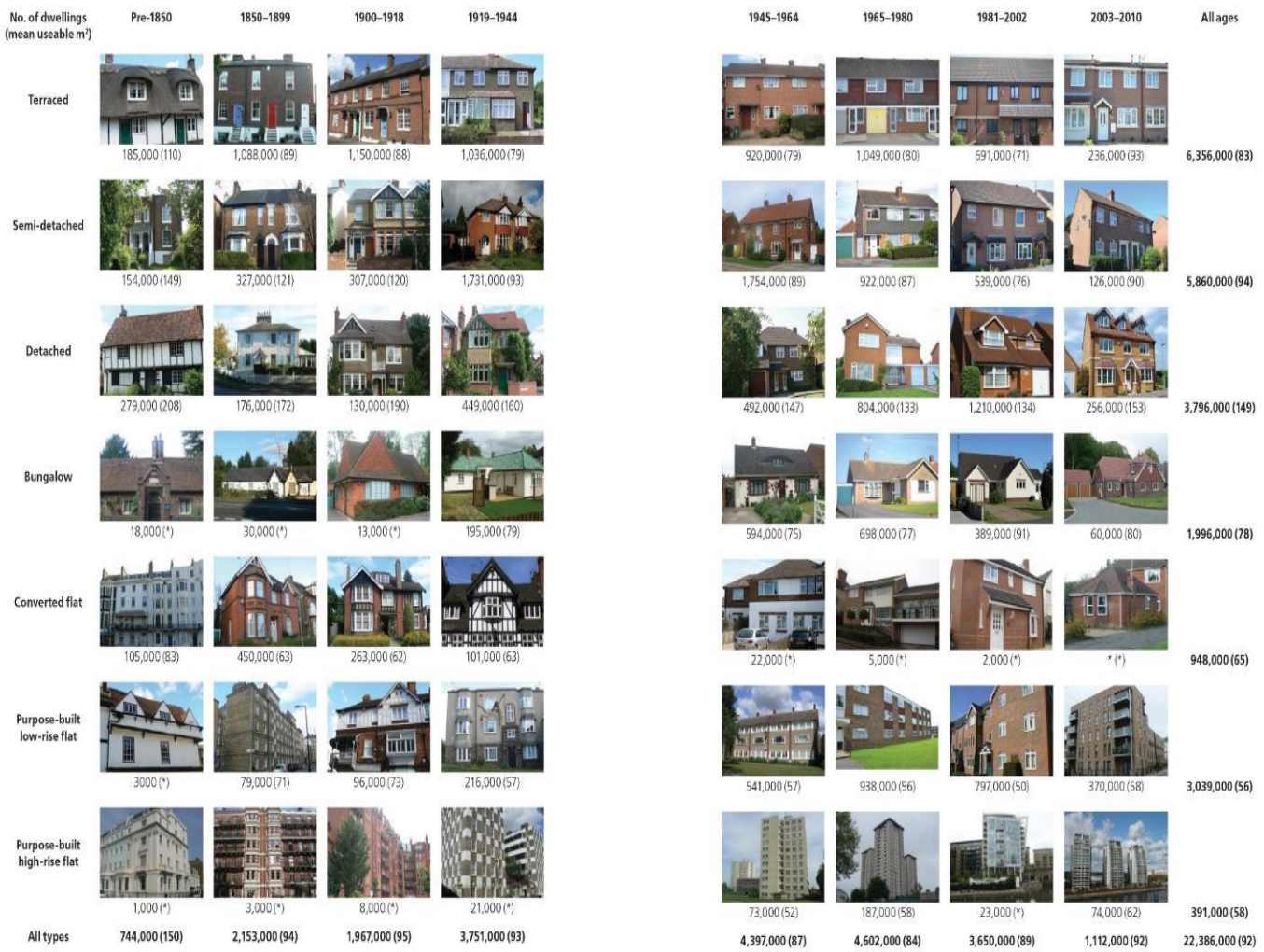
Chart 6 Average energy consumption of new cold appliances, UK (1990 to 2014)



Source: DECC, ECUK (2015) Chapter 3

System	Annual cost of service or maintenance	Required or recommended
PV	£100 per year	Recommended
Solar thermal	£75-150 per year	Recommended
Voltage Optimisers	N/A	N/A
Wind Turbine	£200-400 per year	Required
Biomass boilers	£400-600 per year	Required
Solid Fuel Fire	£40 per year	Required
Ground source and air source heat pumps	£300-400 per year	Required
MVHR	TBA	

Not included – insurance and scaffolding for access



No. of dwellings (mean useable m²)	Pre-1850	1850–1899	1900–1918	1919–1944	1945–1964	1965–1980	1981–2002	2003–2010	All ages
Terraced	185,000 (110)	1,088,000 (89)	1,150,000 (88)	1,036,000 (79)	920,000 (79)	1,049,000 (80)	691,000 (71)	236,000 (93)	**6,356,000 (83)**
Semi-detached	154,000 (149)	327,000 (121)	307,000 (120)	1,731,000 (93)	1,754,000 (89)	922,000 (87)	539,000 (76)	126,000 (90)	**5,860,000 (94)**
Detached	279,000 (208)	176,000 (172)	130,000 (190)	449,000 (160)	492,000 (147)	804,000 (133)	1,210,000 (134)	256,000 (153)	**3,796,000 (149)**
Bungalow	18,000 (*)	30,000 (*)	13,000 (*)	195,000 (79)	594,000 (75)	698,000 (77)	389,000 (91)	60,000 (80)	**1,996,000 (78)**
Converted flat	105,000 (83)	450,000 (63)	263,000 (62)	101,000 (63)	22,000 (*)	5,000 (*)	2,000 (*)	* (*)	**948,000 (65)**
Purpose-built low-rise flat	3000 (*)	79,000 (71)	96,000 (73)	216,000 (57)	541,000 (57)	938,000 (56)	797,000 (50)	370,000 (58)	**3,039,000 (56)**
Purpose-built high-rise flat	1,000 (*)	3,000 (*)	8,000 (*)	21,000 (*)	73,000 (52)	187,000 (58)	23,000 (*)	74,000 (62)	**391,000 (58)**
All types	**744,000 (150)**	**2,153,000 (94)**	**1,967,000 (95)**	**3,751,000 (93)**	**4,397,000 (87)**	**4,602,000 (84)**	**3,650,000 (89)**	**1,112,000 (92)**	**22,386,000 (92)**

Residential typologies by BRE © IHS, reproduced with permission from BRE FB 71, The age and construction of English homes

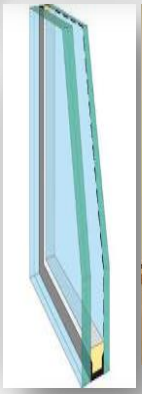
What shall we install next?





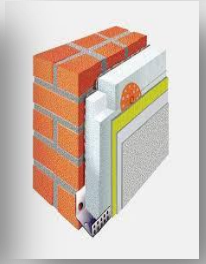













Discussion & Q&A

Andy Sutton
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Closing Remarks

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