

Leading Examples of Energy Efficiency in  
Buildings & Industry

**Achieving an 80%  
carbon reduction in the  
home: experiences from  
Retrofit for the Future  
projects**



Iris Inspiration

# What will be covered...

- UK policy context
- The RFF and our evaluation
- Key findings and implications to date



# Current UK energy policy

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- Government climate change targets:
  - 30% of electricity from renewable sources by 2020
  - cut greenhouse gas emissions by 50% on 1990 levels by 2025 (80% on 1990 levels by 2050)
- Targets enshrined in the Energy White Paper (May 2007) and Low Carbon Transition Plan (July 2009); updated in the 2012 Energy Bill.
- Primary responsibility lies with the Department of Energy and Climate Change (DECC)



# Retrofit for the Future

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- **Multi-million pound competition organised by the Technology Strategy Board**
- **Enables building and renovation companies to retrofit and refurbish social housing. Grants of up to £150k per property.**
- Aims are to:
  - Demonstrate how far whole-house retrofit can contribute to CO<sub>2</sub> emissions reduction targets.
  - Provide evidence of actual in-use performance benefits and costs.
  - Kick start for the retrofit market and prepare UK business for the opportunity (including skills development).
  - Find innovative and cost effective solutions and evaluate them for future procurement.



# The evaluation

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- Home visits, walkthroughs and 'a week in the life' energy use diaries with households.
- Interviews with project managers, architects and installers.
- Aims are to:
  - Explore occupant experience and interaction with measures.
  - Help to explain physical monitoring data and variance from 'as designed' performance.
  - **Ultimately, shape future schemes**



# Caveats in extrapolating findings from the project

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- Little commercial risk (funding was from TSB)
- Participants were not paying customers
- Participants were sometimes not in situ



# Designing the retrofit: things to consider

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- Plan ahead and secure supply
- Level of contractor skills / experience of technologies
- Cost of purchase and installation complexity; few cost models for pioneering whole house retrofit
- Need for planning permission



# Selecting and engaging households

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- Mixture of approaches to household selection – competition or convenience.
- Pioneering nature of the works not always sold (but it could make people more grateful / understanding of issues).
- Easier and more efficient to work on an empty property?





# Installation

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- Expect the unexpected e.g. asbestos.
- Incentives allay a lot of reservations.
- Need to manage expectations - dissatisfaction with level of disruption to lives and length of time taken to complete the works
- Multiple contractors must be carefully managed and coordinated.



# Occupant experience and understanding

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- Some controls difficult to use
- Some occupants not given adequate instruction

Leads to risks of:

**-going to sources providing the wrong information**

**-people being scared of the measures and so not setting them to achieve optimal (or even improved) performance**

**-resorting to quick fixes that negate benefits**



# Outcomes and customer satisfaction

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- Increased warmth / comfort tangible for almost all (excessive air tightness an issue for a minority)
- Additional benefits: health, security, financial. No energy use monitoring data yet to verify.
- 86% prefer the property as it is now. Most very proud of the property – a definite 'envy factor' from family, friends and neighbours.
- People will affect performance and this should be factored in.



# Value of the program

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- Savings can be achieved, but 80% is very challenging and to achieve it can affect occupants adversely
- Pioneering retrofit measures can be delivered, can be palatable and even desirable
- There are opportunities – through pilots - of driving sector excellence and building skills



# Key lessons for project design

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- Build construction and architecture expertise to ensure the industry can deliver (scheme can act as an incentive for this)
- Good to be ambitious – but better to do less well than lots badly?
- Recommend occupant handover and measure guidance approaches and give partners clear responsibility for this
- Establish aftercare and monitoring.



Thank you.

Any questions...?

