Ensuring the Sustainability of Retrofits

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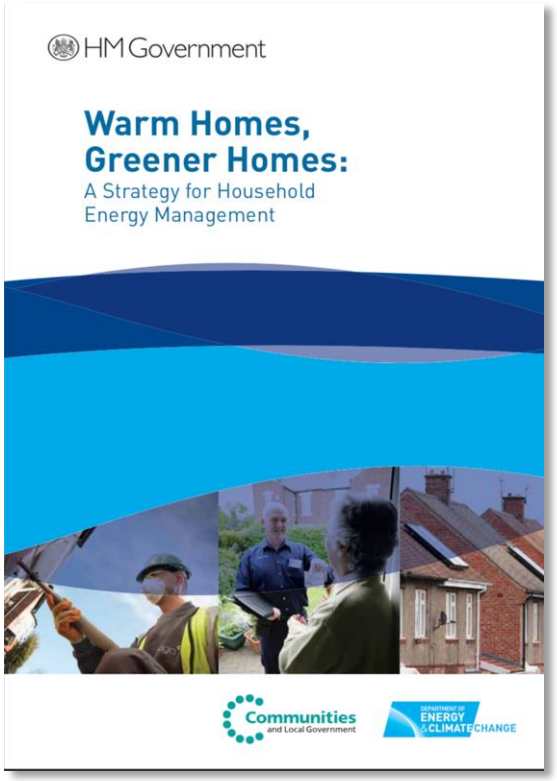
Introduction

- About Energy House Labs
- Retrofitting for Energy Efficiency
- Energy Transitions
- Risks and opportunities
- Conclusions

Labs

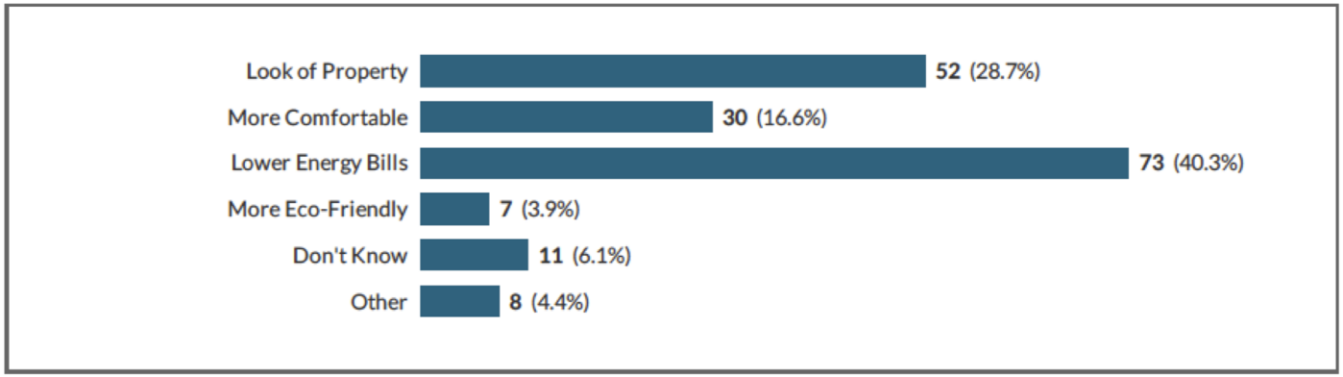
What is retrofit and has it changed

- Warm Homes, Greener Homes
- Low Carbon Innovation Report
- CERT, CESP
- Green Deal
- Building Regs - Consequential Improvements
- GDHIF
- ECO



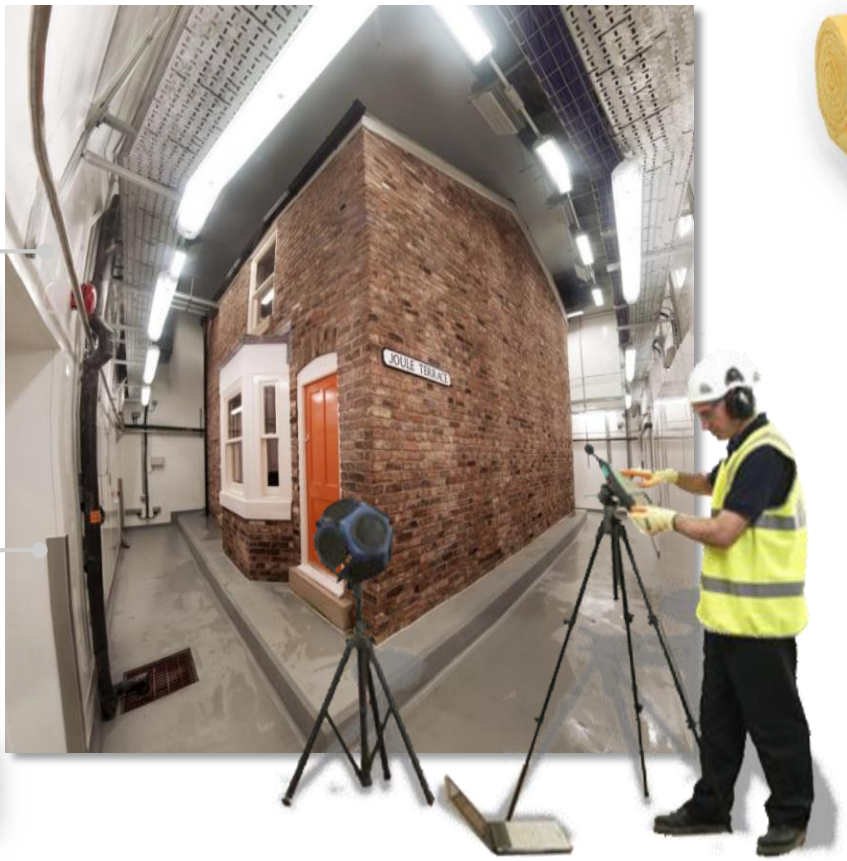
But still remains…

- Fabric, systems, controls improvements – behaviour Carbon Emissions
- Fuel Poverty
- Energy System Security and Resilience



Energy Efficiency – Saint Gobain (2013-4)

- Full Retrofit
- Full Retrofit without Floor Insulation
- Solid Wall Insulation
- Performance Glazing
- Loft Insulation
- Reference
- Acoustic Test



Discussions around…

- Quality and standards (PAS2030/ 2035)
- Supply chains – install and O&M
- **Financing**
- Warranties, liabilities, planning, charges etc.
- Occupants and handover
- Technological choices and building pathology
- Ever shifting policy
- Differences in tenure – OO/ PR

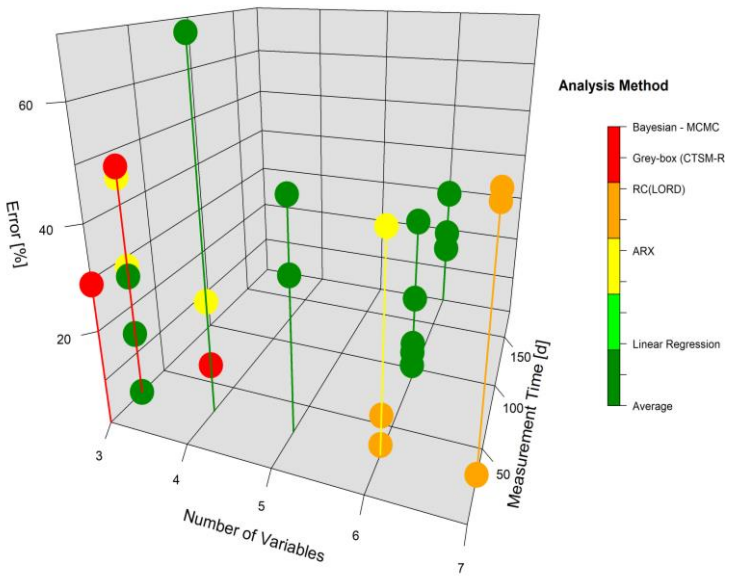
…however there are changes

- Energy efficiency
- Storage and renewables
- Smart systems
- Electrification – heat and transport

- There are new issues that retrofit needs to take account of the energy transition

Measuring vs modelling

- Assessing properties using smart meter data – how do we know how things are really performing?
- Rather than relying on EPC data, could use real performance data
- Surveying still needs to be done



Smart Energy Systems – HAVEN (2019)

- Smart Energy System within the Energy House
- Multiple assets under control
- Generating, storing, and consuming energy

This might mean…

- Possible income streams through…

- Demand Side Response
- Trading
- Virtual Power Plants

- Could this be a way to plug a retrofit funding gap?
- NEDO/ Homes as Energy Systems

Energy House 2

- New facility
- 2 large scale chambers
- Weather conditions covering 95% of world's population
- Multiple building types
- New energy vectors

Conclusions

- Old truths of good retrofit still hold true – energy efficiency is still best practice
- Fast changing energy system is creating new risks and opportunities
- New systems, new business models
- Data is useful, but still needs interpretation
- However, we need to think carefully about impact on occupant

Questions?

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