Evaluating the multiple benefits of energy efficiency: Experience and ambition.

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Overview

- Awareness and evaluation to date
- Methodology
    - Employment focus
- Barriers
- Ambition and area of interest

Awareness …

- Traditionally energy (GWh) and CO_2 savings
  - firmer focus on € value
- Business competitiveness
  - message clear e.g. Large Industry Energy Network
- Recent CBAs bringing *noting* the potential for multiple benefits
  - increased comfort, well-being, health, employment, competitiveness
- Since recession - Ireland unemployment rate over 14%
  - All about jobs..

Awareness …

Press releases …

"This scheme will help Ireland meet our climate change targets …
assist the householder with energy costs …
increase the re-sale value on their homes." (**April, 2008)**

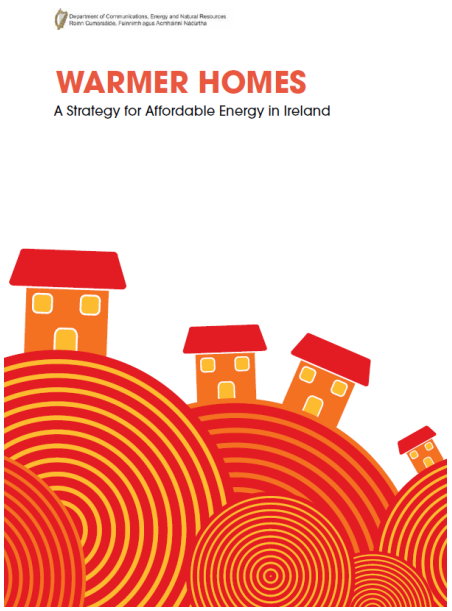
"Insulation makes homes warmer and more comfortable ...
Householders can expect (bill) reductions of €700 per annum …
Construction workers will benefit from the thousands of jobs."
(February, 2009)

"Over 5,800 jobs supported in 2011 ...
Reduced energy use of 8,000 GWh by 2020 (1 million buildings) …
Warmer homes with increased health and comfort …
Net societal benefit of €6 billion."
(May, 2011)

Awareness …

Latest Affordable Energy Strategy (82 pages) has:

- >25 separate references to **‘health’**
- 8 references to **‘comfort’**
- 6 references to **‘wellbeing’**
- 4 references to **‘energy savings’**



“The Better Energy Homes scheme provides assistance to homeowners to reduce energy use, costs and greenhouse gas emissions and **improve the comfort levels** within their home.”

Evaluation example: Employment

1. Linked to programme expenditure
   - Government grants of €x leveraging €x from private sector, supporting xx jobs in 2012
2. Linked to competitiveness (reduced fuel bills)
3. Linked to companies interacting in programmes
   - 'SEAI worked with 1500 SME's, employing over 130,000 full time employees'

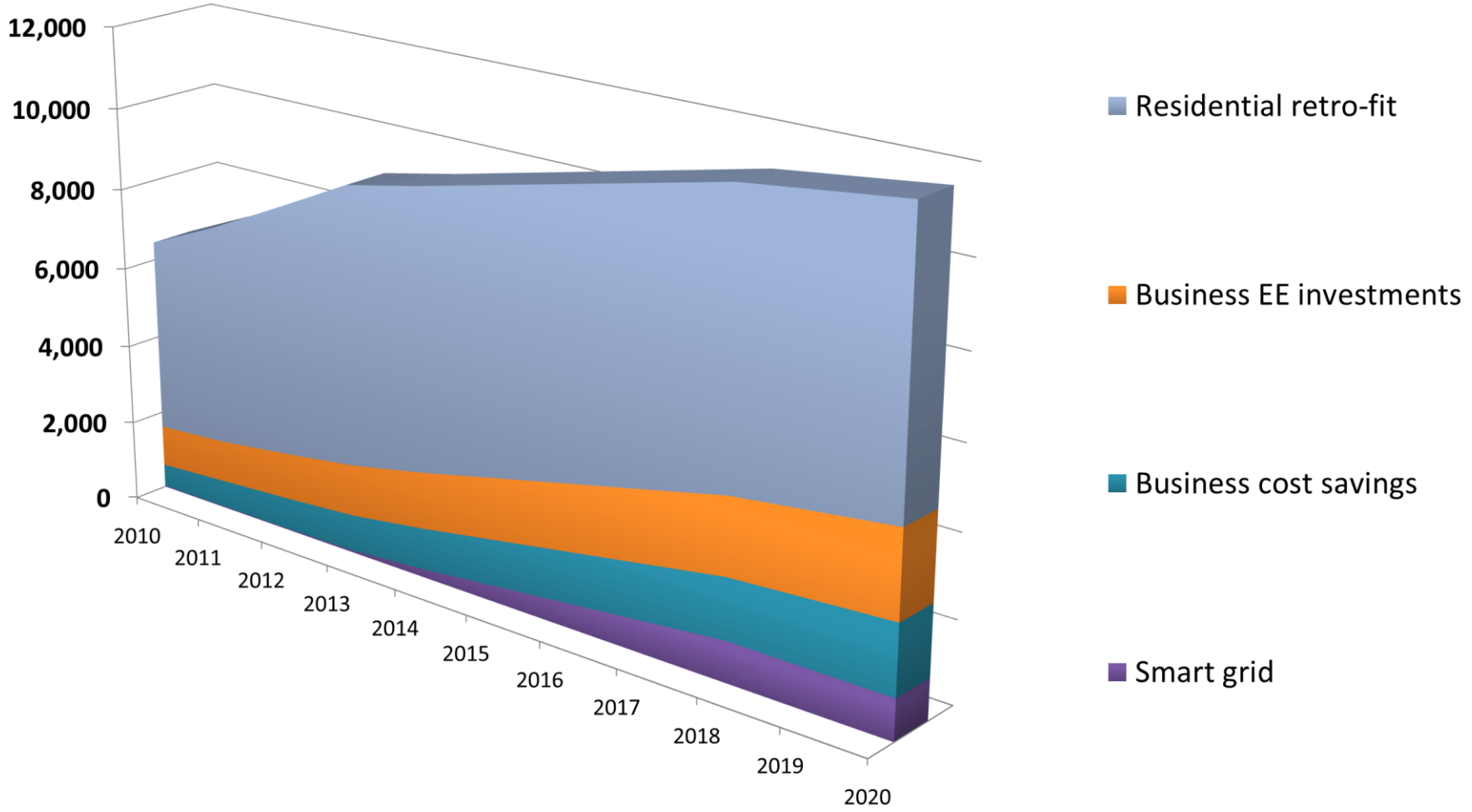
Methodology: Jobs

Based on increased investment in energy efficiency technologies

- Illustrative example

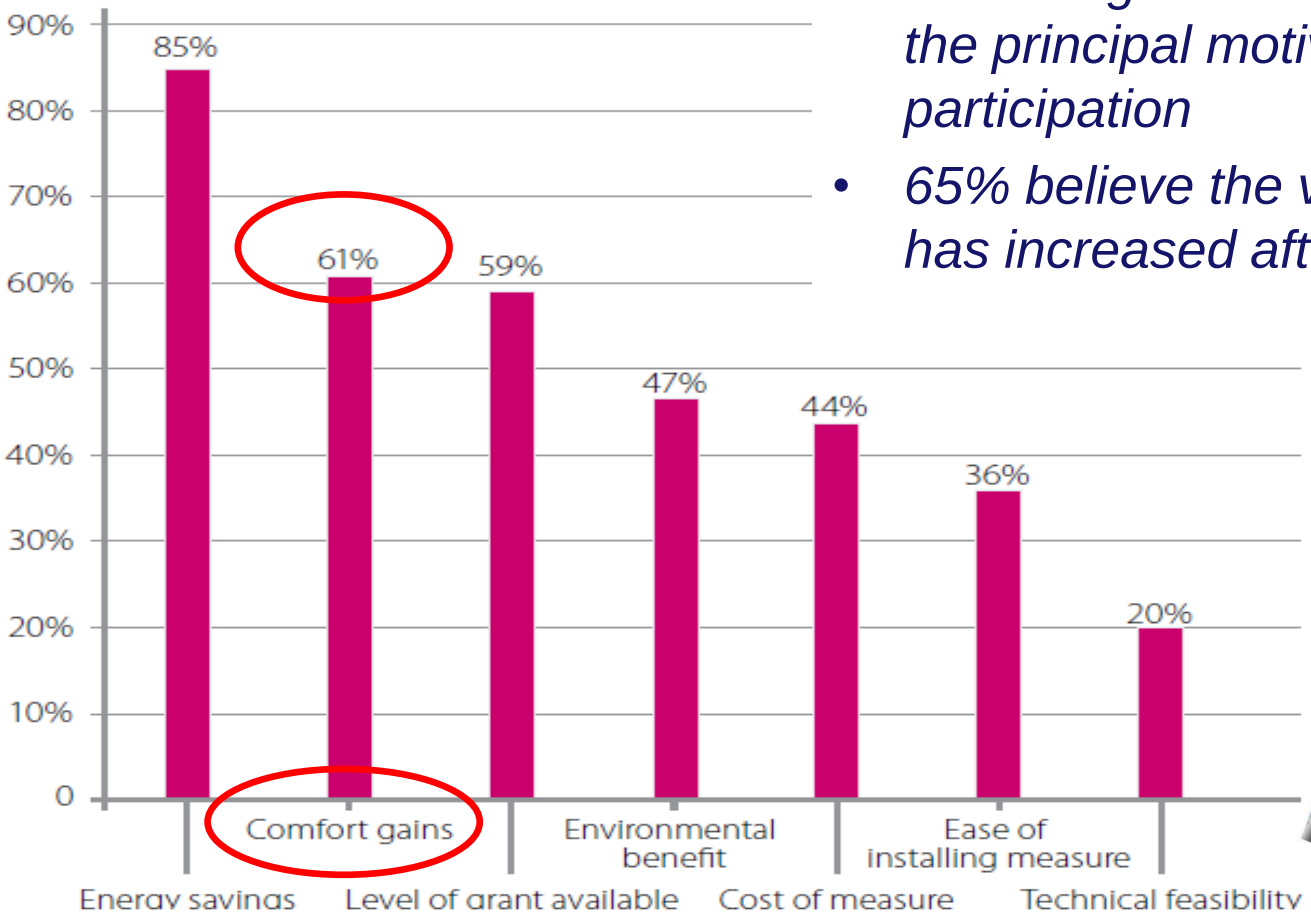
Total spend (public + private spend)	€100 million	e.g. SEAI programme data
Labour spend	€65 million (65%)	Data from receipts/invoices
Average wage (construction)	€39,990	Central Statistics Office
Direct jobs supported	*1,625*	
Indirect multiplier	1.5	(various)
"Jobs supported in construction and related sectors"	**~2,440**	Direct and indirect - can also include induced

Employment potential



Ex-post: a survey

KEY FACTORS INFLUENCING INVESTMENT IN ENERGY EFFICIENCY



- *Comfort gains and energy savings are the principal motivators for participation*
- *65% believe the value of their home has increased after the upgrade*

Barriers

- Need for further ex-post assessment
  - Economic events have motivated the need for estimates of multiple benefits … now need to shift to evaluative model

- Barriers
  - Resources: Time and funding / priorities
  - Collecting the right data from the start … making policies measurable

- Need
  - Practical case studies that we can apply
  - Guidance on what data to collect (indices for jobs, heath spend?, survey format?)

Ambition and areas of interest

- Valuing comfort and health (mortality and morbidity) for low income/fuel poverty programmes
- Recognition of multiple benefits in models and investment decisions
  - least cost modelling (system costs) often not good at accounting for co-benefits
- Data collection – M&V required as condition of funding support – expand to data collection for multiple benefits (examples?)
- Getting the message through – from research/energy experts to policy makers
  - Developing literature on health benefits (valuation) … acceptability?
  - Thirst for more ‘feathers in the cap’ … often linked to political focus of the day
  - Taking care in early evaluation presentation … credibility
  - Interaction of multiple benefits … double counting comfort/health/well-being?

Thank you.

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Selected references

Reports mentioned in this presentation

Department of Communications, Energy and Natural Resources. (2011). Warmer Homes: A Strategy for Affordable Energy in Ireland. Dublin: DCENR.

Sustainable Energy Authority of Ireland (2011). J. Scheer and B. Motherway. Economic Analysis of Residential and Small-Business Energy Efficiency Improvements.

SEAI. (2010). Bringing Energy Home - Understanding how people think about energy in their homes. Dublin: Sustainable Energy Authority of Ireland.

Health/EE link

Ezratty, V. and Ormandy, D. (2011), "The Health Benefits of Energy Efficiency", presented at the IEA workshop on evaluating the co-benefits of low-income weatherisation, 27-28 January 2011, Dublin.

Clinch, J. P., & Healy, J. D. (2000, September). Housing Standards and Excess Winter Mortality. *Journal of Epidemiology & Community Health, 54*(9), 719-720.

Chapman R, Howden-Chapman P, Viggers H, O'Dea D, Kennedy M. Retrofitting housing with insulation: a cost-benefit analysis of a randomised community trial. Journal of Epidemiology and Community Health 2009;63:271– 277.

Green, G., & Gilbertson, J. (2008). *Warm Front Better Health: Health impact evaluation.* Sheffield Hallam University, Centre for Regional, Economic and Social Research.

Cost benefit including health and others

Clinch, J. P., & Healy, J. D. (2001). Cost-benefit analysis of domestic energy efficiency. *Energy Policy, 29*, 113 - 124.

Valuing comfort

Clinch, J. P., & Healy, J. D. (2003). Valuing improvements in comfort from domestic energy-efficiency retrofits using a trade-off simulation model. *Energy Economics, 25*, 565 - 583.