

Evaluation of Home Energy Efficiency Schemes in Ireland

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Overview

The programme/s so far



Evaluations to date



CBA and the billing analysis



Benefits of the evaluation and next steps



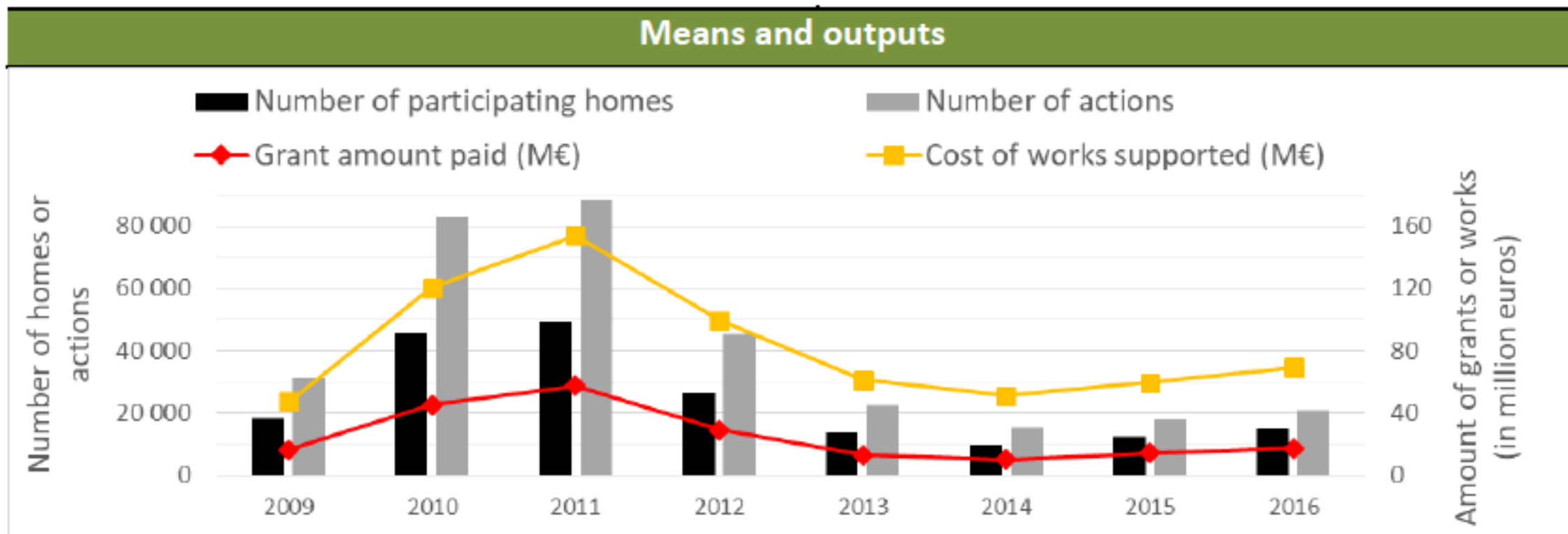
The programme/s so far



Residential grant schemes in Ireland

- Better Energy Warmer Homes (2001 – ongoing)
- Greener Homes Scheme (2009 – 2011)
- Better Energy Homes (2008 – ongoing)
- Better Energy Communities (2012 – ongoing)
- *(Supplier obligations) Underpin and deliver via programmes above*
- *(Home renovation tax incentive (2013 - ...))*

Funding and homes per annum – Better Energy Homes Scheme



Source: data from the Better Energy Homes Activity Report (provided by SEAI)

Evaluation to date



Evaluation timeline

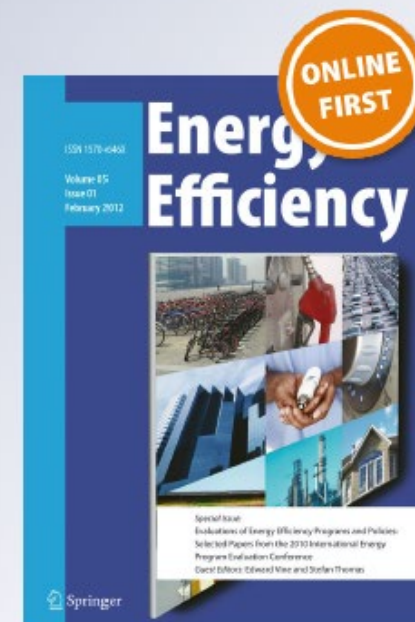
1. Modelled estimated savings – engineering calculation, u-value, typical measure (2008)
2. Modelled using Building Energy Rating Software. Adjustments factors (comfort etc.) from literature (2009/2010)
3. Cost benefit analysis – important for ongoing enrollment of policy funders (September, 2011)
4. Billing analysis (July, 2012)
5. Consumer surveys – attitudes to investment, perception of the scheme and benefits (2013, 2015, 2017)



Quantification of energy savings from Ireland's Home Energy Saving scheme: an ex post billing analysis

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The CBA and the billing analysis



CBA

Figure 1: NPV per annum for lifetime of technologies installed

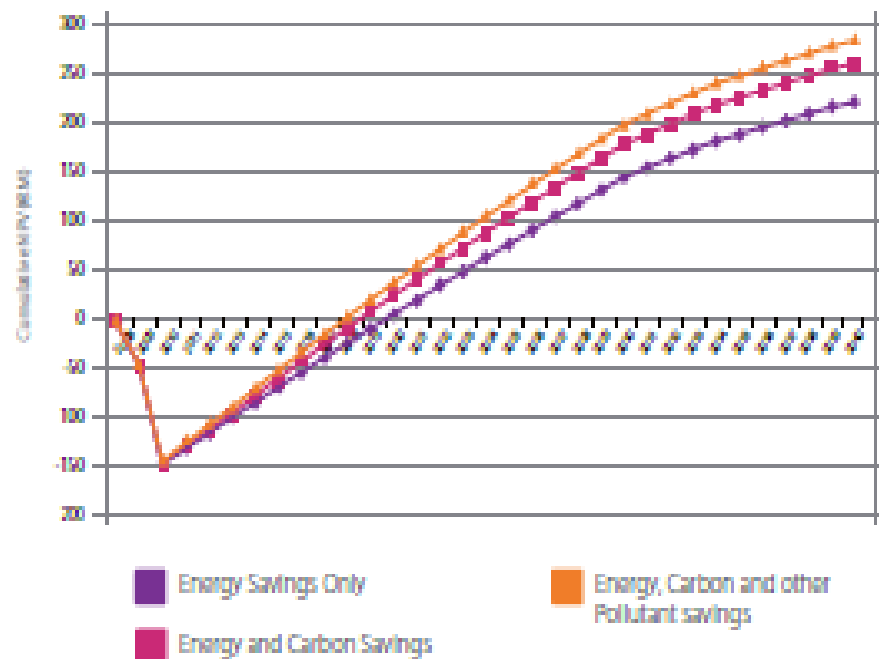
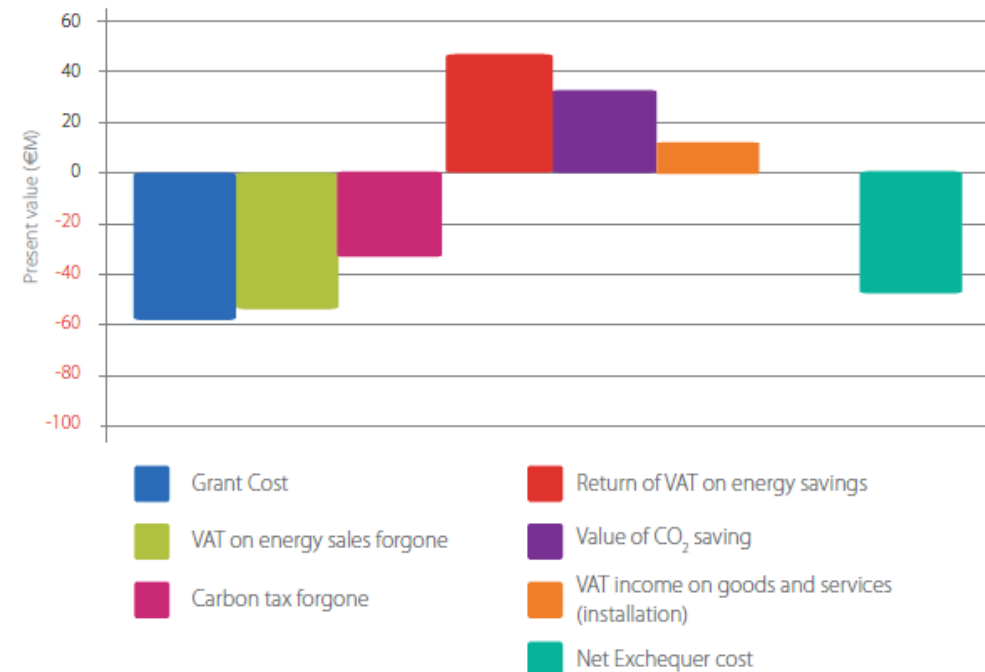


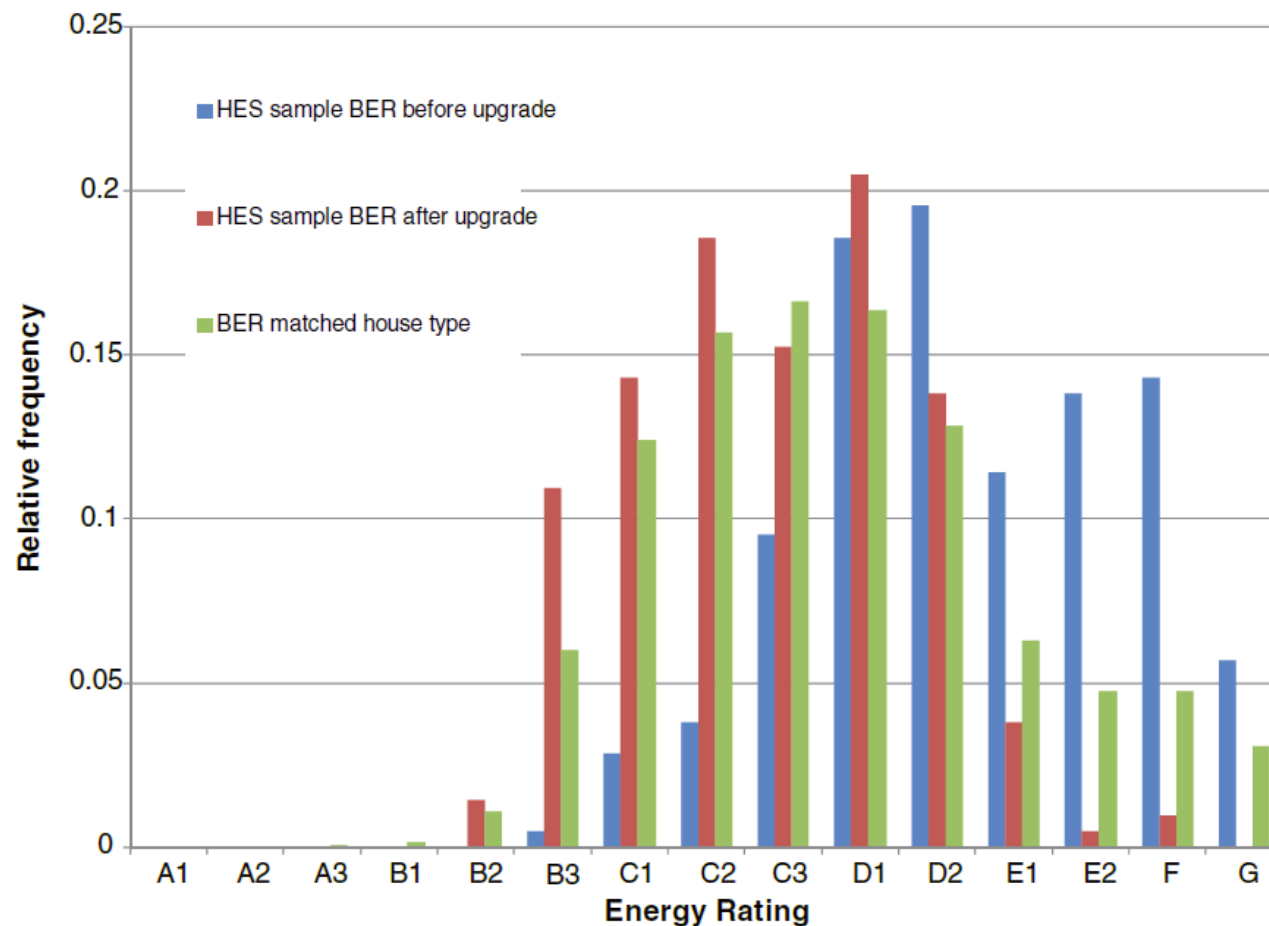
Figure 2: Exchequer flows – HES scheme



<https://www.seai.ie/resources/publications/Economic-Analysis-of-Residential-and-Small-Business-Energy-Efficiency-Improvements.pdf>

Billing analysis

- Metered data for 210 (gas) homes
- Difference in difference approach (sample change in demand versus population change)
- Measures gas savings 3,660 kWh per dwelling (average)
- Comparison with engineering estimate - 'adjustment' factor
- Used to re-estimate the standard 'average house' savings figure applied to number of dwellings to get scheme impacts
- Non-random sample / biased – some comparison of sample with population (postulate if under or over estimate)



Challenges and benefits of the evaluation



Challenges

- Data collection – required home owners consent and meter numbers (great response rate!)
- Legal basis for consent to enable us to approach the meter operators (gas and electricity)
- Meter Operators time / staffing
- Time series – span intervention ('lost year') - wait time!
- Personal data handling *pre-GDPR - for the purpose of evaluation only
- Scientific method - biased sample (self selected for the scheme, control group selection)

Benefits of the evaluation

- Shift from engineering to measured data - is the rubber hitting the road?
- Forming an evidence base - real world results
- Led to more money for the scheme over time – the scale-up was only possible with the data to back up impacts
- Understood consumers better – surveyed scheme participant AND non-participants
- Experienced evaluation - it was a start and now spreading (slowly) to other programs
 - data sharing condition in scheme rules
 - Get the right data form the start!

Other considerations

- Time investment was big - money small
- Unlikely we are getting all the benefits – e.g. multiplier effect. Could some big impacts be missed? – consider neighborhood and peer effects for example. Health impacts to be added to CBA
 - This view can alter what data might be collected and what might be tested via the policy form the start

Convincing top management of the benefits – and further improvements

- **Integrity** – Being able to stand over assertions
- **Credibility** – winning the argument with Department of Finance / DPER
- **Flexibility** - being better informed about the impacts allows intelligent tweaks to the scheme that show on the 'score board'
 - Mandatory access to actual use data from the start (condition of grant)
 - Spatial analysis - communities scheme, neighbourhood / peer effects
 - More measurement
 - Internal dwelling temperatures
 - More measurement
 - Bills
 - More measurement
 - Costs of measures over time
 - More measurement
 - Opinions of householders (before and after)

Evaluation *and data sharing* essential for integrity and credibility of Government schemes

