



Multiple impacts / benefits of energy efficiency

Tina Fawcett, Kathryn Janda, Gavin Killip, Ruth Mayne



Why look at intangible / multiple benefits?

IEA: The term "**multiple benefits**" aims to capture a reality that is often overlooked: investment in energy efficiency can provide many different benefits to many different stakeholders.

INBEE: By developing better understanding of multiple benefits, by developing tools for use by regional and local authorities, and by disseminating compelling case studies, we hope to increase the uptake of energy efficiency projects, programmes and policies.



What do we mean by multiple benefits?



Source: IEA 2014

Multiple benefits: energy efficiency as a means not an end



In an Uzbekistan school, the implementation of simple energy efficiency measures increased the classroom's temperature from 10° C to 20° C, making for a much more comfortable learning environment. Photo: UNDP

Multiple benefits and multiple motivations

Why do householders carry out low energy renovation?

| Which of the following did you want your renovation to achieve? | Response Percent |
|---|------------------|
| Reduced energy use | 96% |
| Lower carbon emissions | 94% |
| Improved warmth / thermal comfort | 85% |
| Reduced energy bills | 76% |
| Reduced (mains) water use | 61% |
| Better indoor air quality | 30% |
| To become a 'Superhome' | 19% |

Base = 54 respondents

From Fawcett, T. and Killip G.(2014) Anatomy of low carbon retrofits: evidence from owner-occupied Superhomes. *Building Research and Information* 42(4) 434-445

Multiple benefits and engaging participants

Kirklees Warm Zone



It was the largest and most comprehensive local Authority home insulation scheme in the UK and offered free loft and cavity wall insulation to every suitable household in Kirklees.

Key message to householders were around increased warmth, health and well-being benefits.

Key aims were fuel poverty and carbon emissions reduction and job creation.



Advantages to local areas, cities and regions of including multiple benefits

- Promotes joined-up thinking and action
- Creates projects, policies and programmes which can deliver multiple environmental, economic and social goals
- Better engagement of public / business who have multiple motivations themselves for taking energy efficiency action
- Gains more funding for energy efficiency actions

Disadvantages

- Can be more complex and time consuming to put together a case for action – but the tool(s) we are developing should help with this.



Aims for this part of the project

To develop a new **assessment framework** for use in regional and community level energy saving policies, programmes and projects, which incorporates multiple benefits of energy efficiency.

To report on **case studies** of energy efficiency projects, programmes or policies which have multiple benefits.

To produce **tools and guidelines** to help incorporate multiple benefits in energy efficiency decisions.



Aims for this stakeholder meeting

After introducing you to our project, we would like to find out:

- What 'multiple benefits' means to you
- Whether using the multiple benefits framing can help more projects get funding
- Which multiple benefits are of most interest
- How / whether you currently use multiple benefits concepts (e.g. jobs / health benefits of energy efficiency in housing)
- Whether there are any multiple benefits identification / calculation tools you use
- How we can best develop our research and tools to meet your needs
- Whether you can offer any case study examples of using multiple benefits in your decision-making



Priority benefits for national stakeholders

IEA identified the following benefits of most interest to national stakeholders:

- Macroeconomic development
- Public budgets
- Health and well being
- Industrial productivity
- Energy delivery

But national stakeholders are just one component of the multi-level governance of energy and energy efficiency.

Do you share these national stakeholder priorities?

What might be the differences in priorities at local and regional levels?



Case study: Kirklees Warm Zone – stakeholder identification of benefits

- **Economic impacts** such as local job creation, company growth, household savings on energy bills, improved benefit uptake & improvements to property values
- **Social impacts** such as health benefits for elderly and vulnerable residents, tackling fuel poverty, long-term benefits for future generations and the scope of the scheme helping to improve general well-being and quality of life
- **Environmental impacts** such as energy conservation, reduction in carbon emissions, raising awareness of energy efficiency and engaging households in broader green issues
- **Political impacts** such as the impact of the scheme on government thinking and policy on green issues, the influence on area-based models of home insulation, the national reputation of Kirklees-based organisations and the scheme offering opportunities for a range of partners to raise awareness of their service offers.



Developing useful tools

Simple tools are being developed for use by community groups.



| Project outputs | No. Households | CO2 savings per hh per year | Financial benefits per hh |
|--------------------------------------|----------------|-----------------------------|---------------------------|
| Loft insulation (100 – 270mm) | | | |
| Detached house | | 110 kg | £25 |
| Semi-detached house | | 65 kg | £15 |
| Mid-terrace | | 60 kg | £15 |
| Detached bungalow | | 95 kg | £20 |