

# Findings from the evaluation of Energy Efficient Scotland pilot retrofitting projects

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## About the evaluation

Nine Local Authority-led pilot projects delivered energy efficiency and low carbon heat measures in 1,456 domestic buildings and 47 non-domestic buildings, including mixed-use tenement blocks, owner-occupied hard-to-treat homes, community centres, schools and office blocks. These have been included in a ClimateXChange evaluation project, designed to understand the social and technical impacts of energy efficiency retrofit, and how to deliver these projects at a national scale. The lessons and implications are detailed in full in this [report](#).

The pilots were evaluated through:

- social surveys with building occupants before and after installation of energy efficiency measures;
- monitoring of internal and external temperature, humidity, and energy consumption in buildings before and after installation of energy efficiency measures; and
- interviews with local authorities and delivery partners; these provided detailed understandings of the delivery process.

The lessons are critical for the successful scale up of the full [Energy Efficient Scotland](#) programme. This is the Scottish Government's flagship programme for achieving 2050 climate change ambitions, which will require all buildings to use as little energy as possible and use low carbon energy sources.

## Key findings

### 1.1 Project design

#### NON-DOMESTIC:

- Local authority managers had a high level of expertise in organising large, complex non-domestic retrofit projects within the local authority estate.
- However, designing non-domestic retrofit projects beyond public sector buildings was a new activity for many of the managers, who felt that the necessary in-house knowledge and skills were lacking.

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#### DOMESTIC:

- Well-established procedures were in place for domestic energy efficiency programmes through the existing HEEPS:ABS (Home Energy Efficiency Programmes for Scotland : Area Based Schemes) programmes.
- Existing project design procedures worked because of high quality data, held by local authorities and their contractors, about ex-council houses, as well as accumulated area-based knowledge.
- The Home Energy Efficiency Database was perceived as requiring improvement in the availability and accuracy of data; this will be needed for the wider delivery of Energy Efficient Scotland.

### 1.2 Project delivery

**NON-DOMESTIC:** Mixed-use and multi-property buildings that are not council-owned can have complex consultation and decision-making arrangements, requiring considerable time to plan building upgrades;

agreement to proceed requires involvement from multiple parties. Ad hoc procurement routes were used for some of the pilots; it will be inefficient to have to use these for larger scale non-domestic programmes.

**DOMESTIC:** Factors influential in encouraging the uptake of home energy efficiency measures included: the availability of energy advice services, works being completed by local authority-endorsed contractors, and additional quality assurance checking of the work that had taken place. However, it is important for people to learn how to use the energy saving technology installed in their homes in order to actually save energy.

### 1.3 Funding and finance

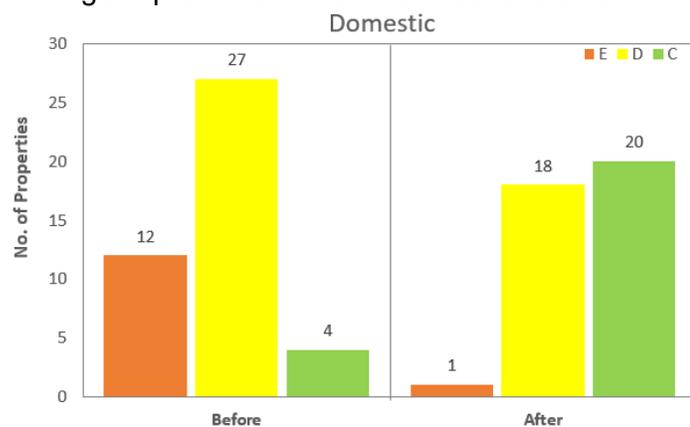
**NON-DOMESTIC:** Short funding timescales can be a main reason for Local Authorities avoiding complex or large scale non-domestic projects. Longer timeframes are needed to test innovative and unfamiliar approaches. Small businesses selected to participate in pilots perceived proposed energy efficiency investments as unaffordable, which was a major barrier to work going ahead.

**DOMESTIC:** Programmes in communities unfamiliar with HEEPS:ABS needed more time for engagement to build trust in the grant and loan funding offer and secure sign-ups. As programmes move beyond grant-funding into encouraging take up of loans or private investment, opportunities to reduce costs through area-based delivery may become more difficult, since contractors will face uncertainty about numbers and locations of works. The development of 'trusted trader' lists is currently being explored; these may help to provide more certainty.

### 1.4 Project impacts

**NON-DOMESTIC:** Nine of the target sample of 48 non-domestic buildings had full technical monitoring data suitable for analysis. According to the available technical monitoring data, energy use was reduced in all non-domestic buildings with new insulation. Two buildings showed a saving with the addition of LEDs, whereas the third showed an increase in consumption, suggesting an increase in the number of light fittings, the area lit and/or lighting use. Social survey data showed that building occupants attributed high value to visible improvements e.g. LED lighting improved the atmosphere of a space, and external wall insulation improved the aesthetics of the buildings.

**DOMESTIC:** 20 monitored households achieved energy savings, but this pattern was not consistent, and some increased energy use. Some potential savings were negated by higher indoor temperatures, but these could represent potential reductions in fuel poverty and/or increased comfort for occupants. Thirty-five domestic properties had full EPC data for both pre and post installation (see Figure). SAP (Standard Assessment Procedure) is the Government's methodology for assessing and comparing the energy performance of dwellings; the SAP score is used to determine the EPC rating (e.g. a SAP score of 70 is an EPC band C). The average improvement in SAP scores for the non-domestic works was 11, with a range of 4 to 23.



The social survey data indicated a reduction in people feeling cold at home after the works had taken place. Fewer people needed to take serious actions such as cutting down on food or going to bed early in order to keep warm. Housing conditions associated with damp, mould and condensation were perceived to have significantly improved between pre- and post-installation.