UHI | NORTH, WEST AND HEBRIDES
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Energy Efficiency in Rural Homes

RIPEET
Responsible energy transition

UHI

Opportunities and challenges in achieving energy efficient homes in the Highlands and Islands

Energy efficiency opportunities for rural homes in the Highlands and Islands

Two online surveys were designed alongside interviews to gather the data required for this study. One survey focussed on housing associations, local authorities and builders and received 17 responses. The second of the surveys focussed on residents and homeowners and received 87 responses, of these 27 could be clearly identified as being in the Hebrides. Both surveys were open for a 4 week period.

25 interviews were also carried out with government funded organisations, housing associations, local authorities, house builders, and consultants. These interviews were to understand the energy efficiency schemes and products used as well as the challenges and opportunities for energy efficiency options in new and existing homes in the Highlands and Islands.

This research was undertaken through the University of Highlands and Islands as part of a RIPEET Project on responsible energy transition, which was funded through the Horizon 2020 – the European Union research and innovation programme.

Fabric First Energy Efficiency Options

When undertaking any energy efficiency retrofit options for homes or community buildings the research highlighted that the best place to start was with always on the fabric of the building, this is also the part of the building the occupants can have the greatest immediate impact, but type and age of the building can have an impact on what can be installed. The initial focus should always be on:

Insulation
+ Internal Wall
+ External Wall
+ Roof
+ Room in Roof
+ Underfloor

Windows and Doors
+ Double Glazing
+ New Doors

Pipe radiator Insulation

Draft Proofing

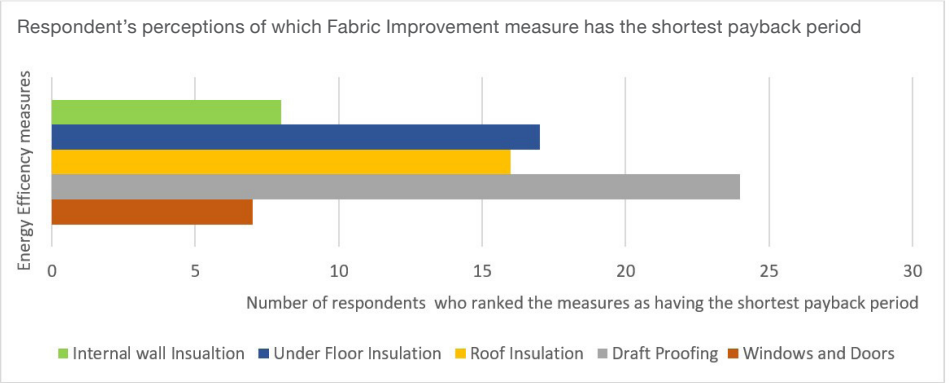
Hot Water Cylinder Insulation

Energy cost savings with a fabric first approach

What is important to residents is not only how much energy they save but also how quick the energy cost savings are realised. Therefore, the research showed what householders perceived as being the quickest payback methods.

Fabric Improvements

The number of respondents who ranked the measures as having the shortest payback period for homes and community buildings in the Highlands and Islands:



Residents across the whole Highlands & Islands had slightly different views when surveyed and stated in their view roof insulation had the quickest payback, followed by underfloor insulation, and then draft proofing.

Technologies in Energy Efficiency options in homes

When it comes to the different type of technologies within homes there is not a one size fits all approach and it can be dependant on the type of property and the age.

Some of the funding schemes also require upgrades to the fabric of the property before and new energy efficiency technologies can be installed.

Biomass boilers and district heating systems work best where there is a cluster of houses or a community building.

Residents are concerned as to whether the current infrastructure can cope with a complete move to electricity.

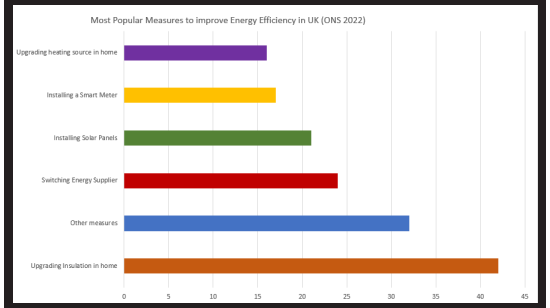
Technologies used in homes

+ Heat Pumps
+ Solar Power
+ Energy efficient boilers
+ Electric Heating
+ New Heating Controls
+ Battery Storage
+ Biomass Boilers

When it comes to technologies fitted in homes, the largest number of homes used an air source heat pump. It was noted that homes need improvements to insulation, doors and windows before they are suitable to install heat pumps.

Energy cost savings with a technology approach

In the UK, ONS (2022) found that insulation upgrades are the most common means used by households to cut their bills:



Energy Cost Savings
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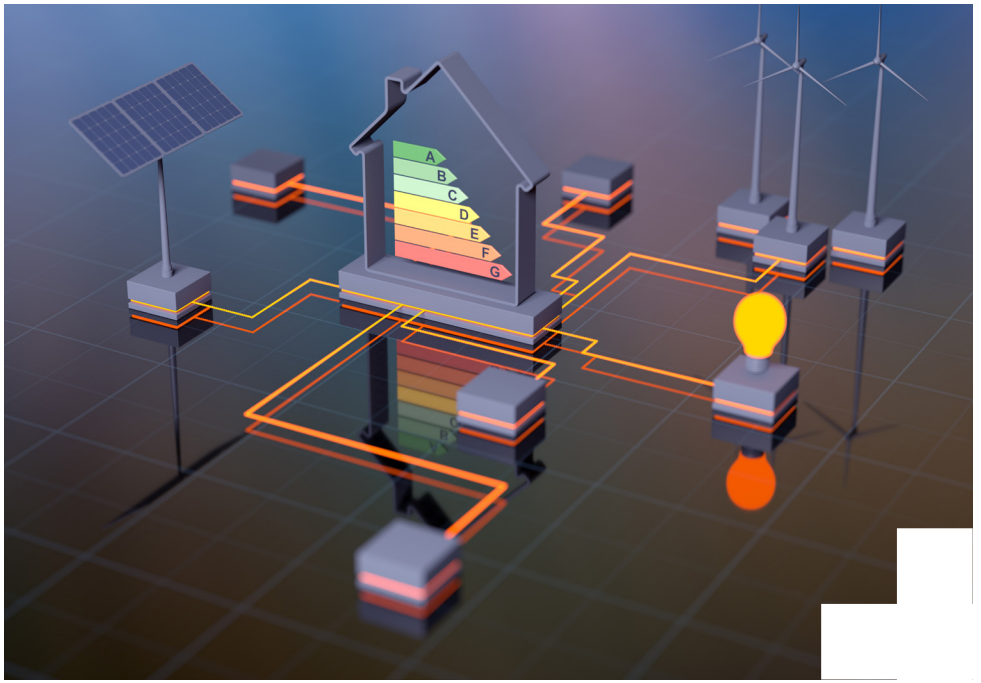


Challenges in getting energy efficiency options installed in homes.

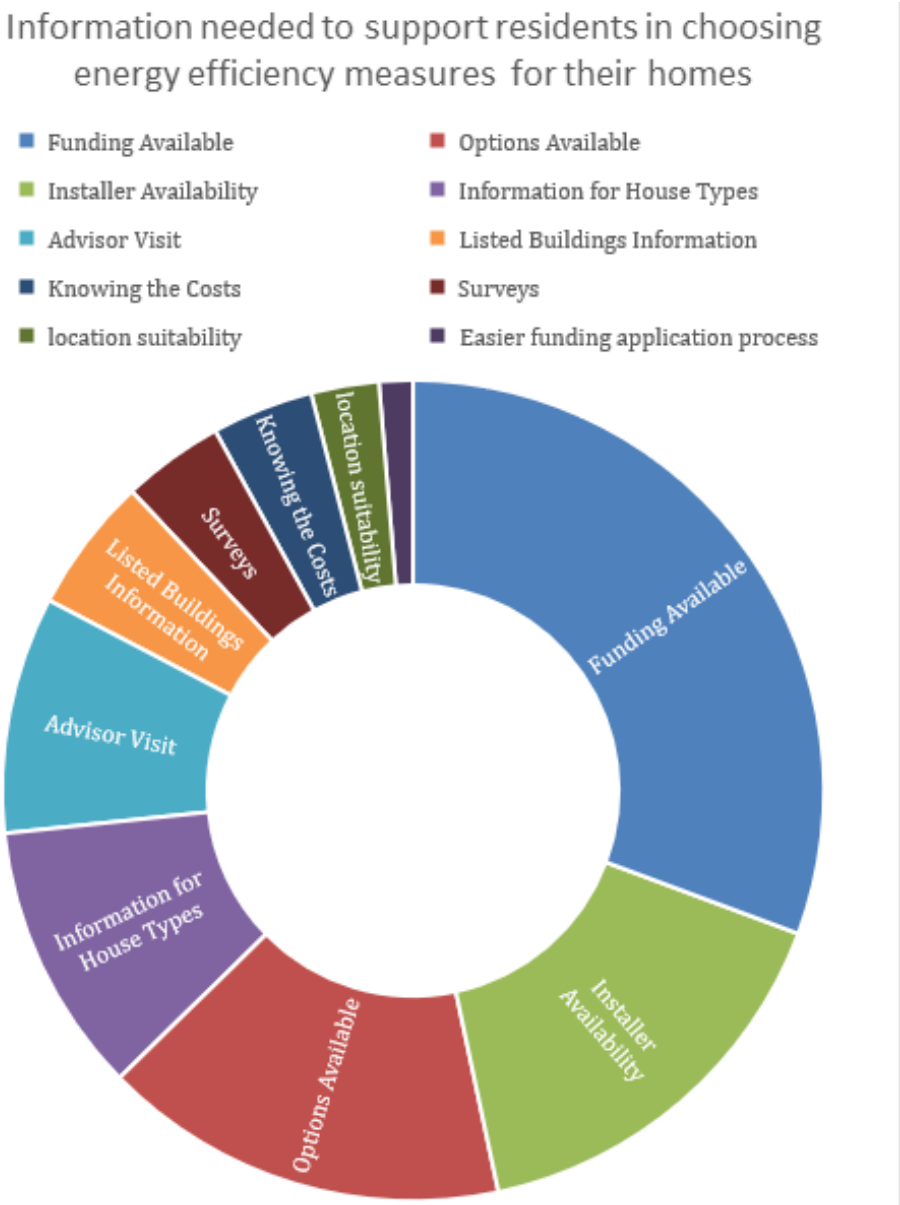
For many residents the challenges with installing energy efficiency methods in homes is complicated by not knowing where to start and what funding is available.

There is also not a one size fits all approach to every house, as many of the houses in the Highlands and Islands are unique based on their age, house type and location.

Other challenges include the availablity of installers and suitable quality systems for commissioning and linked aftercare services in remote areas.

Residents need a range of suitable information to support choice, the research identified 7 key areas :

+ A package of options to suit house types and ages
+ Trades people upskilling and training.
+ Locally based certifier installers
+ Locally sourced materials
+ Locally stored materials
+ Accreditation schemes
+ Better information on energy efficiency options.



Opportunities to support energy efficiency improvements in homes.

Residents in the Highlands and Islands want to embrace energy efficiency in their homes, so what can be done to help them?

+ Upskilling and training in the region for green skills.
+ Alternative materials for older and traditional housing - for example using sheep's wool or hemp for insulation
+ Energy efficiency advocate in community hubs to support the options available in the community.
+ Example Home in the community to demonstrate the options available to homes in the region. Knowledge Sharing and clear concise information.
+ Community enterprise opportunities in setting up as installers, distributors, and maintenance companies.
+ Increase the installer and contractor network in the Highlands and Islands
+ Opportunity for modular housing as a way to produce energy efficient new homes.
+ Tailor made packages of options for different house types.

RIPEET - Responsible Energy Transition
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