

Scaling Up Retrofit 2050

Why a nationwide programme to upgrade the existing housing stock is the only way for the UK to achieve its carbon saving goals.

What is deep retrofitting and why should we do it?

Deep retrofitting is a whole-house approach to upgrading the efficiency of homes in one step to net-zero energy for heating and cooling, as opposed to a series of single and incremental improvements carried out over a long period of time. This includes: solar panels, improved insulation, better ventilation, and a sustainable heating system.



Although new homes can be made highly energy-efficient, **80% of the homes we will be living in by 2050 have already been built.** A nationwide programme of deep retrofits and refurbishment of existing housing is the only way to deliver the required carbon savings as well as making them cheaper to run and healthier to live in.

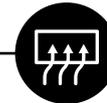


Over three-quarters of household energy demand is for space and hot water heating and this must be reduced to net-zero energy. **We must decarbonise our energy system or reduce heating demand.**



SUSTAINABLE HEATING

The Climate Change Act of 2008 sets a legal target for the UK to **reduce greenhouse gas emissions by at least 80% of the 1990 baseline by 2050.** All parts of the UK economy must contribute to this process, including housing and construction.



AIR VENTILATION



SOLAR PANELS



ROOF INSULATION



Energy use by UK homes accounts for about **30% of the UK total energy budget**, and 20% of UK greenhouse gas emissions each year.



TRIPLE GLAZED, AIRTIGHT WINDOWS



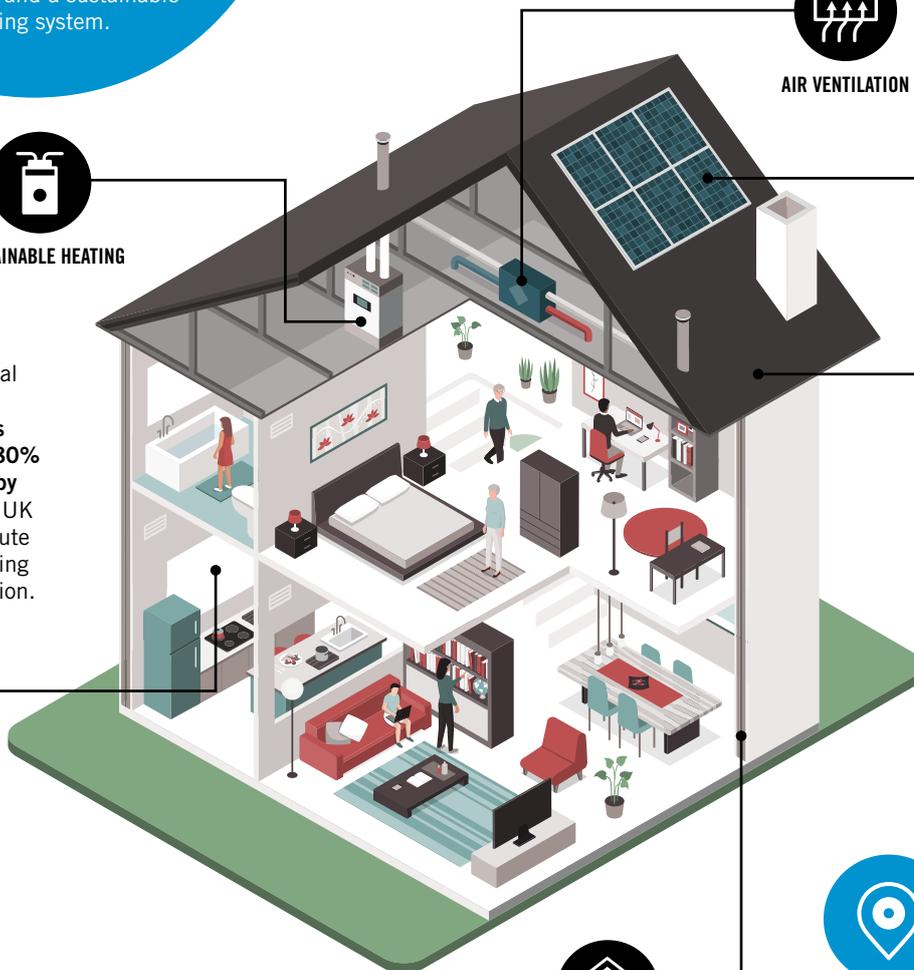
It's not just about hitting legal targets, as poor-quality housing leads to poor health outcomes. It has been estimated that **it costs the NHS £1.4bn per annum in additional treatment costs for conditions arising from bad housing.** Warmer housing could also prevent many of the 35,000 excess winter deaths recorded annually.



WALL INSULATION



Adaptation and improvement of home quality also reduces social care costs by between **£1,700 and £4,500 per person per annum**, and can cut GP visits by almost 50%.



How do we set up a nationwide programme for deep retrofit?

Social housing can lead the way

- Local Authority and Housing Association homes account for 17% of homes – that's approximately **4.5 million homes in the UK** and an ideal place to start scaling up demand and driving down costs.
- It is an effective use of capital. Owners can be encouraged to take a longer-term view of housing quality and performance than the private housing market. **A one-off deep retrofit versus 30 years of ongoing maintenance costs gives better economic outcomes and a quicker improvement in housing quality.**

Developing the programme

This is not just a technological challenge. Governments – both national and local – must take the lead in encouraging and supporting the necessary changes which will in turn support clean growth.

If we are to meet the 2050 targets of the Climate Change Act, then **all housing in the UK must have zero carbon emissions from space and water heating, and space cooling.** They should be near net-zero for overall energy.

New build developments will always assist in reducing costs and improving energy performance, but sufficient work has already been done in research and pilot studies, such as the report's case study in Nottingham, to show that **massively reducing the carbon emissions and energy requirements of current housing is achievable.**

There is experience – nationally and internationally – in financing deep retrofit projects, managing them, and engaging with the householders.

We seek to build on that experience to create a national retrofit programme to deliver our 2050 goals.

Current barriers

- There is a lack of customer demand – the proposition is not yet attractive enough.
- There is no effective policy driver for change.
- Costs per home are too high, and we do not yet have a supply chain that can deliver deep retrofits, cost effectively, in volume, and at speed.
- Projects find it hard to attract financing.

Developing a national deep retrofit programme needs four overlapping strands of activity:



Create clear, consistent policy objectives and a national programme for deep retrofit and climate resilience, with an initial focus on social housing, which makes up 17% of UK homes.



Reduce costs and build the supply chain capacity by developing more pilot projects and demonstrators. This will bring the cost-per-property to below 30-year repair, maintenance and refurbishment budgets. This is a big economic opportunity for the supply chain.



Engage with the home owners by identifying the best ways to discuss the benefits of deep retrofit and developing trusted intermediaries to be a single point of contact for owners and tenants.



Encourage investment by creating larger projects that are more attractive to investors, by aggregating smaller retrofit projects into bigger blocks and introducing more flexible ways for local authorities to borrow and invest in retrofit programmes.

Tapered finance will be required to treat enough properties to drive the cost down to the point where deep retrofit pays for itself in reduced energy and maintenance costs. **Early estimates are that we will need to retrofit 25,000 properties at an extra cost of £100m – £500m**, depending on condition and how quickly we can reduce the cost per unit.

The full 'Scaling Up Retrofit 2050' report is available on the IET website

www.theiet.org/retrofit2050