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A WINDOW OF OPPORTUNITY

The UK has the least efficient housing stock in Western Europe.

3x LESS
energy efficient housing stock than Germany

80 MILLION
windows are in need of replacement to current standards

£395 SAVING
per household per year with new windows to current standards (at current capped rates)

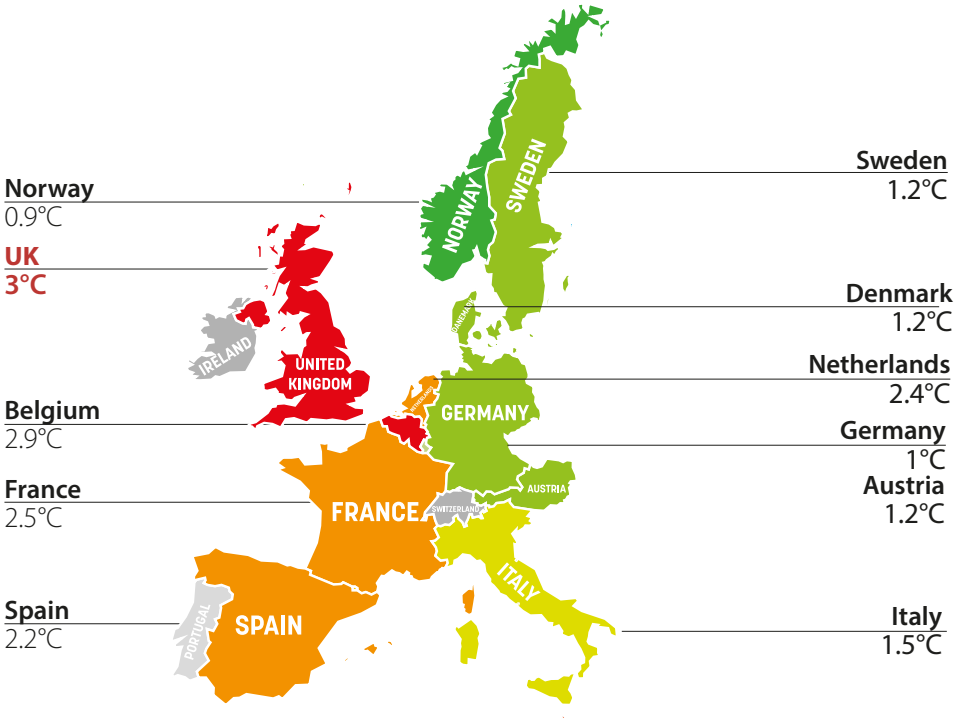
22% HEAT SAVING
could be achieved by replacing windows in properties that have already been insulated to best practice

1.88 MILLION
cars could be taken off the road in equivalent CO_2 savings by replacing old double glazing with new double glazing

A fabric-first approach is the most practical way to achieve Net Zero.

Property heat loss after 5 hours

The UK is the worst performing country in western Europe in terms of heat loss, and is 3x less energy efficient than Germany.



Source: UK homes losing heat up to three times faster than European neighbours, tado°, 2020: https://www.tado.com/gb-en/press/uk-homes-losing-heat-up-to-three-times-faster-than-european-neighbours

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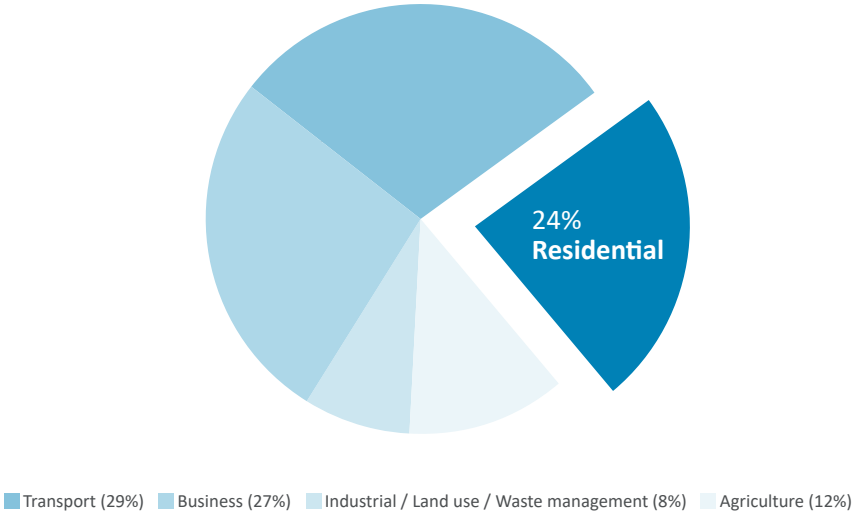
The scale of the opportunity

Share of emissions vs major sectors

- Residential emissions are still significant source of carbon emissions.
- The residential sector has seen one of the slowest declines in carbon emissions over the last 30 years.
- Reducing emissions from households is crucial to achieving Net Zero by 2050.



Source: UK territorial greenhouse gas emissions national statistics
(www.gov.uk/government/collections/uk-territorial-greenhouse-gas-emissions-national-statistics)

UK FACTS

28m
dwellings

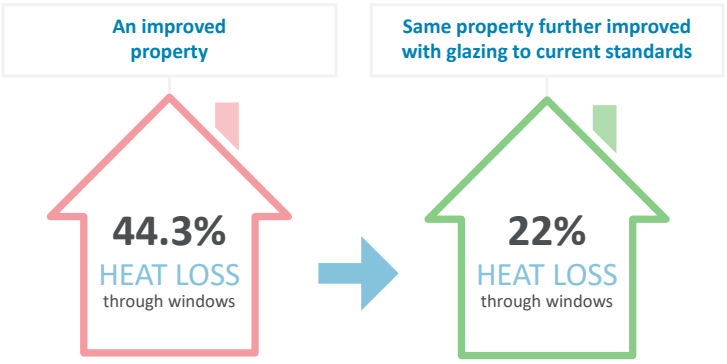
>290m
windows

10.5
windows per dwelling (average)

Percentage of UK dwelling type

Dwelling	%
Terrace	27.4%
Semi-detached	25%
Flat	20.9%
Detached	17.9%
Bungalow	8.8%

Replacing the windows in an already improved property reduces the heat loss by half



When other energy loss prevention measures* are taken. Glazing is now the point of least resistance.

This shows how double glazing has progressed and the impact upgrading windows has on the average household.

*loft/floor/wall insulation, draught proofing, low energy lighting, solar water heating

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The state of play

BFRC Window Energy Rating BFRC = British Fenestration Rating Council	Glazing type	Market share per glazing type
A++	Triple glazing	<1%
A+		
A		
B (CURRENT BUILDING REGULATIONS)	Double Glazing Installed after 15/06/2022	<1%
C	Double Glazing Installed after 2002	70%
D		
E	Double Glazing Installed pre 2002	23%
UNCLASSIFIED	Single Glazing	5%

BFRC ratings vary according to the glazing specification and window components. The Building Regulations prescribe the minimum U values that can be installed and does not mean that windows with lower U values and which are more energy efficient are not being installed.

98%

of windows do not meet current building regulations for energy efficiency

Whilst the minimum U Value in the current Building Regulations is 1.4, windows with U values of less than 1.0 are commercially available in preparation for the Future Homes Standard, PassivHaus and low / zero energy homes.

Equating to

~288m

windows would benefit from being replaced

What is a U-value?

The U-value states how efficient a material is at insulating. The lower the better.

Typical U values

- Triple Glazing **1.0**
- Double Glazing installed after 15/6/2022 **min 1.4**
- Double glazing installed after 2002, **2.0 – 2.4**
- Double Glazing installed pre 2002, **2.8 – 3.2**
- Single glazing, **4.8 – 5.8**

The U values above are for the complete window.

What is a window energy rating?

Window Energy Ratings show how energy efficient a window is by taking into account thermal heat loss, solar gain and the air leakage of the window. Windows are rated using an A++ to E scale to symbolise the total energy efficiency of the windows. The higher the rating the better the performance. Windows and doors with an energy ratings A to A++ are considered to be energy positive.

Installations

Over 80m windows (BFRC rated E or Unclassified) would benefit from immediate replacement as they are inefficient and at least 20 years old.

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The savings to be made

Reduced Emissions

Replacing single glazing with double glazing to current standards = 2.8M TONNES CO_2 per year OR 1.66M Cars

Replacing pre 2002 double glazing with new double glazing to current standards = 3.16M TONNES CO_2 per year OR 1.88M Cars

Return on the investment

£395

Average annual saving per household

Upgrading from pre-2002 to current standards

£3.54b

Annual saving if all pre 2002 windows replaced

Upgrading from pre-2002 to current standards

£12.25b

Total annual saving if all windows replaced to current standard

Upgrading from pre-2002 to current standards

Key points

- The UK housing stock has the worst heat loss performance in Western Europe and has seen one of the worst carbon reductions of all sectors since 1990.
- Windows installed today perform 50% better than older double glazing and 70% better than single glazing.
- Incentivising homeowners to increase the energy rating of windows is necessary (especially those with an energy rating of E and Unclassified which are over 20 years old).
- Replacing windows should be front and centre of future energy efficiency schemes and could reduce heat loss by 22% on the average house.
- Windows not only provide energy efficiency but also reduce noise transmission and provide enhanced security.

This document has been developed by British Glass and the Glass & Glazing Federation. These organisations represent the Glazing industry from glass and framing production through to installation and recycling. The industry is worth £4billion per annum to the UK economy and employs over 100,000 individuals.

GGF
+44 (0)207 939 9100
cbeedel@ggf.org.uk

+44 (0) 114 290 1850
information@britglass.co.uk
British Glass