

UK National Energy Efficiency Action Plan – April 2014

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307993/uk-national-energy-efficiency-action-plan.pdf

<http://www.planningportal.gov.uk/buildingregulations/approveddocuments/downloads>

Characteristics of the UK building Stock

The UK's building stock includes some of the oldest and more traditionally constructed buildings in Europe. The energy performance of these buildings can vary enormously; from uninsulated homes built in the 19th century to modern flats and business premises that benefit from the latest insulation and heating technology.

The UK has 27 million homes across a wide range of housing types, including a significant proportion of older buildings. Collectively these are responsible for 32% of final energy use in the UK. There are over 1.8 million non-domestic premises in the UK, which are responsible for around 17% of total UK energy consumption.

The non-domestic building stock in the UK also spans a wide range of ages, with more than three quarters of the stock having been built before 1985 and nearly a third before 1940. Again, most of these buildings pre-date energy conservation measures required under Building Regulations.⁵ By 2050, it is expected that half of these buildings will still be in use. Renovation of buildings was encouraged already a long time ago and many buildings have already been subject to deep renovation activities. However, there are still many opportunities for further energy efficiency measures:

Table 1: Remaining potential for measure within UK housing stock

Measure	Remaining number of houses with potential for measure (millions) ⁴⁷
Solid wall insulation	7.3
Cavity wall insulation	5.1
Loft insulation	7.4
Floor Insulation	20.1
Double glazing	19.2
Insulated, energy efficient doors	11.1
Draught proofing (draught stripping)	1.9
Reduced infiltration (foam, strips, sealant use)	23.7
Boiler upgrade	17.6
Heating controls	1.6
Hot Water Cylinder thermostat	4.6
Hot water tank top up insulation	5.0
Energy efficient lighting	(See tables 1&2 p17)
Passive Flue Gas Heat Recovery	7.6
Smart meters – electric	24.9
Smart meters – gas	22.8

Source: Wall and loft insulation figures from ECO and Insulation Levels, up to December 2013 statistics. Other figures taken from 'Review of potential for carbon savings from residential energy efficiency' report for Committee on Climate Change⁴²

The energy saving potential for a range of energy efficiency measures is listed in table below, measured in terms of final energy consumption that could be achieved in a given year, through implementing energy efficiency measures between now and 2020.¹³ Of these measures, the highest energy saving potential comes from **building fabric measures** and heat pumps. However heat pumps are only efficient and cost effective when installed in homes with high levels of insulation that are relatively airtight.

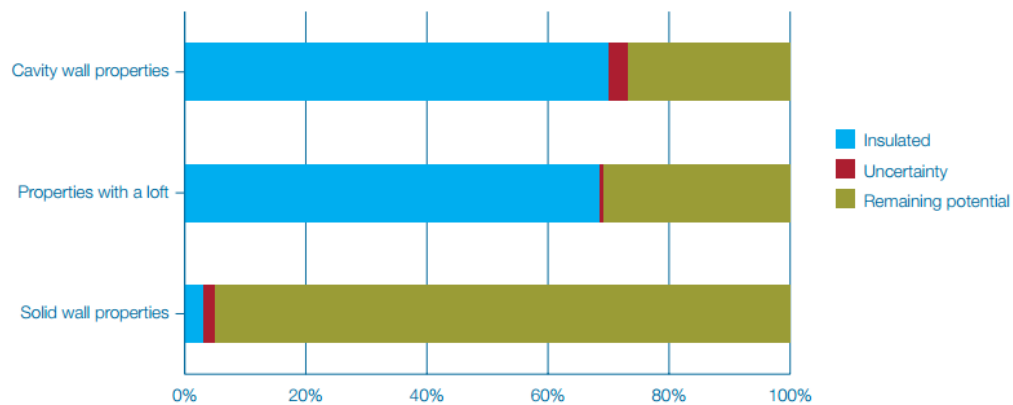
Table 2: Energy saving potential for measures

Measure	Energy Savings in 2020 TWh (rounded to nearest TWh)
Air Source Heat Pumps	15
Internal Solid Wall Insulation	10
Ground Source Heat Pumps	9
Smart Meters	8
Hard to Treat Cavity Insulation	5
External Solid Wall Insulation	3
Easy to Treat Cavity Insulation	3
Loft Insulation	1
Total	54

Source: DECC EE-MACC for 2020¹⁴

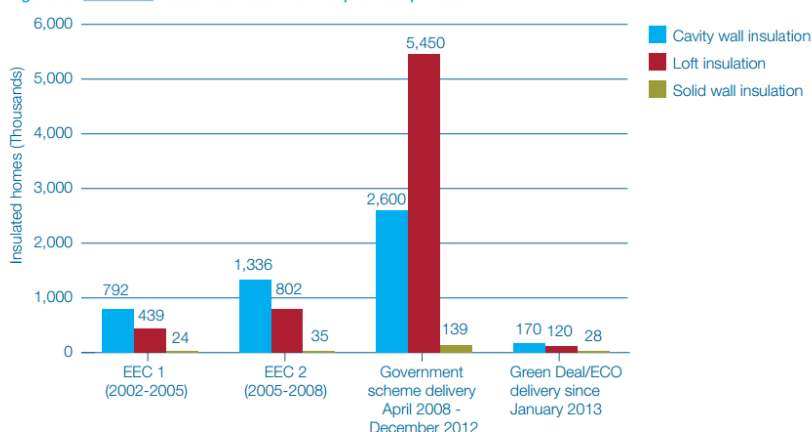
Around 7 million solid wall homes remain with a high potential to benefit from wall insulation in the UK. These homes can be fitted with external or internal insulated linings, or a combination of the two and a typical household saves around a fifth on their energy bill.

Figure 6: Remaining potential to insulate the UK's housing stock (December 2013)



Source: DECC home Insulation levels in Great Britain: December 2013²²

Figure 15: Insulation measures installed under previous policies



Sources: Ofgem 2005, 2008 and DECC 2014⁹⁴

Financing schemes/programmes with focus on insulation

The Green Deal and the Carbon Trust encourage homeowners to do energy assessments. The Carbon Saving Communities Obligation target provides insulation measures for those living in low income areas and the Affordable Warmth target (also known as the Home Heating Cost Reduction Obligation) provides support for heating and insulation measures for the most vulnerable and those more likely to be in fuel poverty.

Building Regulations

Building Regulations are devolved across the four UK administrations but energy standards are broadly comparable in content, scope and in the levels of improvement delivered over past decades across in the UK.

England

The Government announced a strengthening of Part L of the Building Regulations on energy efficiency requirements for buildings. The new regulations came into force on 6 April 2014 and require average reductions of 6% in CO₂ emissions for new homes and 9% for new non-domestic buildings compared to Part L 2010 regulations. These changes take the next step towards zero carbon buildings with an emphasis on improving fabric energy efficiency performance.

Northern Ireland

Northern Ireland introduced improvements to energy efficiency standards through Building Regulations in 2012. These improvements have delivered a 25% reduction in CO₂ emission for new buildings and certain extensions, compared with the policy standards set in 2006. Work is underway to introduce the policy standards of England's Part L 2014 into the Northern Ireland Building Regulations in 2015 thus delivering further energy efficiency improvements.

Scotland

Scottish Ministers have announced further improvements to energy standard in building regulations, to be implemented in October 2015. New homes built to the 2015 standards will deliver a 21% aggregate reduction in CO2 emissions, when compared with 2010 levels. New non-domestic buildings will deliver a 43% aggregate reduction in CO2 levels in comparison to 2010 levels. These improvements will deliver commensurate reductions in energy demand.

Wales

The Welsh Government has announced that there will be changes to the CO2 emission rates of all new buildings in Wales from July 2014. All new homes will require similar improvements to those in England. In addition mandatory fabric u-value standards have been introduced and improved. New non-domestic buildings will be subject to a 20% reduction in CO2 levels in comparison to Part L 2010 levels. Furthermore, non-domestic buildings will also have to meet improved fabric standards for walls and roofs.

The Code for Sustainable Homes

The Code for Sustainable Homes was published in 2007 and currently applies in England and Wales. The Code provides a single voluntary national standard to guide industry in the design and construction of sustainable new homes, and also enables the sustainability of new homes to be measured against nine categories. By the end of December 2013, nearly 144,000 homes were confirmed to have been constructed to Code standards. The Government has also committed to implement a zero carbon homes policy from 2016, which will supersede the energy efficiency standards in the Code.

Central Government buildings

Article 5 of the Energy Efficiency Directive requires Member States either to renovate, each year from 2014 to 2020, 3% of the floor space of their central government building stock in eligible buildings that does not meet minimum energy performance standards, or to take alternative measures to achieve equivalent energy savings by 2020 in eligible buildings owned and occupied by central government.

The UK's target

The UK has estimated the target saving to be achieved by 2020 at 163.6 Gigawatt hours (GWh) and has notified the Commission of this target. Under the alternative approach the main policies and measures being used to meet the target are the Greening Government Commitments (GGC) and separate initiatives in Scotland, Wales and Northern Ireland.

The GGCs are a set of ambitious sustainability targets covering English and UK-wide government departments, their executive agencies and non-departmental public bodies. They run from 1 April 2010 to 31 March 2015 and require departments to reduce greenhouse gas emissions by 25% relative to a

2009/10 baseline. The types of measures which are included within the GGCs include behavioural change, facilities management, estate management, installing energy efficient Information Technology (IT) hardware, and installing energy efficient technology.