

COP26: Legislate now for future home energy needs

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The energy we consume in our homes is responsible for a significant proportion of the carbon emissions that are causing climate change, and whilst most of these come from burning fossil fuels to keep us warm, a significant amount still comes from the electricity we use to power our modern way of life.

Making our homes carbon neutral is a complex matter and will only be achieved by pursuing multiple pathways. There is no 'one size fits all' plan that we can adopt, but there are different pathways we can each take to reach the same goal. Most do however need government intervention to be successful and whilst legislation is in the pipeline to help us achieve significant reductions in emissions, there is a lot of concern around its timing, breadth and likely effectiveness.

A large proportion of homes rely on natural gas boilers, which are effective and reasonably efficient but they are responsible for around 13% of household carbon emissions in the Harrogate District. The government has already announced plans to stop the installation of new natural gas boilers in homes in England and Wales in the coming years, without committing to an exact date, but concerns about the costs of going zero emissions may see this pushed back. A final decision is not expected until the government publishes its long-awaited 'Heat and Buildings Strategy' document, which is now expected in the autumn of this year.

In its current form the proposed ban is only aimed at boilers in new-build homes, it does not appear to prevent replacement of such boilers in existing homes. There is also no indication of the impact this legislation will have on the installation of boilers or stoves that burn other fossil fuels, such as oil, which are also carbon emitters. Potential loopholes in the proposed legislation may also allow the installation of dual-fuel boilers, even in new homes, after the ban is imposed. Dual-fuel fuel boilers are being developed to allow a gradual transition to hydrogen as a primary fuel and the government has indicated that a consultation will take place later this year, on the case for enabling, or requiring, new natural gas boilers to be 'hydrogen-ready' by 2026.

So, the ban, in its current form, only offers a partial solution to reducing emissions from home heating to zero. Clearer guidance and legislation are urgently needed to ensure we make the right choices for our future home energy needs.

Whilst the type of heating we use for our homes is key to eliminating emissions, it is also essential that we do all we can to reduce our energy demand, to ensure clean energy can be supplied in the quantities needed, at a price that makes it affordable for all. Of immediate importance therefore, are the introduction of effective building regulations for new-build properties and finding ways to address energy wastage from existing homes, which poses the biggest challenge by far.

The current building standards for England were created almost 40 years ago, substantially reviewed in 2010 and are now the subject of an in-government review, with a general stated aim of reducing carbon emission from new homes by 31%, compared to those built under the existing regulations. Initial improvements were planned to come mostly from improved insulation and air-sealing, supported by the use of solar PV panels and heat recovery from used domestic water.

Ultimately, the target is to achieve emission reductions some 75-80% lower than today's standards achieve, by utilising electric heat pumps or hydrogen-fuelled boilers for space heating, on an individual basis, or through shared community schemes. To minimise the need for grid-electricity, homes should also be positioned facing south to make maximum solar gain from low winter sun, with baffling to prevent overheating from the higher summer sun and utilise batteries to store the energy produced during peak daylight hours. Including these features will likely add around £5,000 - £15,000 to the cost of building a new home but this is significantly cheaper than the potential cost of retrofitting these houses in a few years' time.

Dealing with the existing housing stock poses a different set of challenges. There are around 29 million homes in the UK, with 73,000 in the Harrogate District. Most have poor insulation and use natural gas boilers. Those in the Harrogate District are estimated to emit around five tonnes of CO₂ per year, on average, which means most homes will need extensive corrective work to reach whatever standard of thermal efficiency is eventually set in the new building standards.

The 'Green Homes Grant' scheme launched in 2019, with funding from central government was intended to address this issue, whilst at the same time creating new green jobs but it was a short-lived program failing almost totally in its purpose. Builders complained of excessive red tape in registering for the scheme, while households found it difficult to access. Many people were given conflicting advice, while builders complained that heat pump installations in particular were, "stymied by the rules." Retrofitting, the biggest potential contributor to reducing carbon emissions from existing homes, needs to be put back on the agenda.

In September of this year the government's energy regulator Ofgem announced a 'bold and ambitious' plan to support retrofitting of one million existing homes, with a £450M fund aimed at innovative projects that will help the country meet its net zero climate targets. Ofgem will make the money available to energy network companies that are trying to ensure homes and business are going green. However, the Ofgem plan equates to £450 for each of these one million dwellings - not enough to scratch the surface, as the estimated cost of properly retrofitting today's housing stock is £20,000 - £50,000 per dwelling!

Trained retrofitting specialists are also required across the country to take on the work required but there is no clear national training program in place. In announcing the original 'Green Homes Grant' scheme it was suggested that 100,000 jobs would be created to carry it out, but no mention was made of the training people required. Therefore, in an effort to take things under its own control Zero Carbon Harrogate are now working with Harrogate College to raise awareness within the district's building community, of the need for trained retrofitting specialists and also to provide the training programmes needed to develop the skills required.

The government's approach to reducing carbon emissions from homes, has been half-hearted and lacked urgency, to date, with policy decisions adversely impacted by politically manoeuvring to appease and support other conflicting policy decisions. Effective legislation and government support for actions to reduce emissions from homes is urgently needed.

COP26 provides the ideal platform to introduce bold legislation to take in hand measures to address both new-build regulations and the retrofitting of existing housing stock. If no firm, urgent action is taken we will witness swathes of new homes being built to well below the carbon-saving levels we know to be possible.