

Pwyllgor Newid Hinsawdd, yr Amgylchedd a Seilwaith / Climate Change, Environment and Infrastructure Committee

Datgarboneiddio tai / Decarbonisation of housing

DH06

Ymateb gan Dr Jo Patterson, Dr Ed Green, a Dr Simon Lannon - Ysgol Pensaernïaeth Cymru

Evidence from Dr Jo Patterson, Dr Ed Green, and Dr Simon Lannon - Welsh School of Architecture

Response from Ed Green and Simon Lannon based on their research:

Retrofit strategies should include fabric first-measures to minimise increases in household fuel bills and a consequent increase in fuel poverty.

Retrofit options for a significant percentage of housing are constrained by character, which would limit changes to the external fabric.

Given that decarbonisation of the future energy supply is currently uncertain, all other housing should be retrofitted to perform beyond SAP90.

A flexible approach that pushes all housing to achieve stringent standards by 2050 is the only way to achieve targeted reductions in carbon emissions under the assumed energy supply scenarios.

Response from Jo Patterson based on her research:

Regulators have a significant role to play in enabling retrofit - District Network Operators, Planning and Building Regulations etc. should have clear and transparent processes in place to support decarbonisation in the housing sector. Engagement with these sectors needs to be enhanced and flexibility/adaptability needs to be considered to speed up the retrofit process.

Supply chain - costs are spiralling upwards, particular for fabric retrofit measures due to a lack of materials in the market due to energy costs/BREXIT/COVID. Focussing on the 'easy to retrofit' first will enable supply chains to develop to develop economies of scale. More difficult to treat homes later when supply chains have developed.

Skills gap - There is a lack of organisations in the market who have the necessary skills to install individual low carbon technologies and solutions. This is amplified when you look for those who have the skills to combine solutions into whole energy systems to achieve the deep carbon reductions required. 'Further Education' institutions are keen to work together to share knowledge but are not clear on how to do this efficiently and where training skills exist. This requires support.

Longer term decarbonisation retrofit funding programmes - the stop-start nature of earlier initiatives (FIT, Green Deal, Arbed) to progress decarbonisation of housing stock has not helped the development of sustained supply chains. Future programmes need to be longer term (the Optimised Retrofit Programme is longer term) but should be inclusive and flexible. Support should be provided to trusted suppliers in the market to upskill if the market starts to shift. Feedback on the supply chain should be gathered and provided to support

upskilling or removal from purchasing systems if performance is not up to standard. Poor quality retrofits can have a very negative impact.

Whole house/energy systems approach - A clearer understanding of what should be carried out 'first' is required to allow staggered investment in retrofit solution, particularly for owner occupiers. Evidence from research indicates that installation of an air source heat pump in a poorly insulated home significantly increase the energy costs for occupants if switching from solid fuel or gas. Although this does reduce carbon emissions it has a detrimental impact on fuel poverty.

Every home is different - Making the right solutions for right homes is critical. Homes have different numbers and types of occupants, different levels of maintenance, different orientations etc.. - these all impact on how much energy is used and when, and therefore what retrofit solutions are appropriate. A simple and rapid planning survey tool is required to gather initial information to assist with the decision-making process and to present information in a way that is understandable and trusted.

Appropriate and relevant data needs to be stored and shared - having a useful database of information about housing stock is critical for making rapid informed decisions. Social housing companies should be supported to develop a database which will help at all stages of a retrofit from planning, design, procurement, construction and operation/maintenance.

Evaluation has to happen to enable learning from experience and provide reliable evidence - This should be relevant and should be shared widely for others to learn. If this evaluation is carried out independently the outcomes are more likely to be trusted. This also allows for positive and negative outcomes to be shared. Evaluation of the technologies, the energy systems and the supply chain should be carried out to enable short and long term improvements.

Third sector organisations should be support to play a long-term role in the delivery of a decarbonised housing stock. They can provide an independent role that can be trusted, building technical knowledge, collaboration opportunities and communication skills over time. This could also include local authorities if the right skills can be developed.