

Homes of today for tomorrow

Decarbonising Welsh Housing between 2020 and 2050

STAGE 2:

Exploring the potential of the Welsh housing stock to meet 2050 decarbonisation targets

Ed Green, Simon Lannon, Jo Patterson, Heledd Iorwerth
Welsh School of Architecture, Cardiff University

Issue: 18.07.2019



Homes of Today for Tomorrow STAGE 2:

Exploring the potential of the Welsh housing stock to meet 2050 decarbonisation targets

1. executive summary

This piece of work was the second 'stage' of research in support of Welsh Government's Housing Decarbonisation programme. For the Stage 1 scoping review see hyperlink: <http://orca.cf.ac.uk/115442/>

The primary aim of this study was to understand the degree to which the nature of the existing Welsh housing stock could inform the development of a pathway to decarbonisation, while also giving due consideration to energy costs and affordable warmth.

Fourteen recurrent dwelling 'types' were used to explore the effect of key retrofit actions upon the Welsh housing stock, by modelling each dwelling type in 1990, in 2018 and in 2050. The impact of key retrofit actions is explained in terms of capital cost, carbon emissions, ongoing energy costs and overheating. Capital costs are also compared with likely ongoing maintenance costs. Consideration was also given to changes in the energy supply network, because of the current uncertainty around decarbonisation of energy supply, and the impact this could have on decision making.

If targets for decarbonisation are to go beyond 80%, in line with the CCC's recent directive that Wales should target a 95% reduction in carbon emissions by 2050 relative to 1990 levels, this reinforces the importance of aspiring to net zero carbon throughout the existing housing stock. Key recommendations are that:

- UK Government must be lobbied to ensure that energy supplied by the national grid exceeds 60% clean energy by 2050.
- This will inevitably increase the cost of energy. Action must be taken to protect vulnerable households, to ensure that a further consequence is not an increase in fuel poverty.
- There should be no distinction between performance standards for retrofit and newbuild. Similarly, there should be no distinction between standards based on tenure or housing type.
- Some houses have constraints around retrofit, mostly related to character and historic features. However the justification for 'acceptable fails' must be carefully defined so as not to jeopardise decarbonisation targets.
- All other housing must be retrofitted beyond SAP90, to achieve an EPC A rating.
- Retrofit must overcome the performance gap (ie. the results should be measured as delivered, not as predicted).
- Retrofit standards are easier to enforce for social housing and the PRS sectors. Work must be undertaken exploring how to initiate this level of retrofit in the owner occupied sector.
- A flexible approach that pushes all housing to achieve appropriate performance standards by 2050 is the only way to anticipate achieving 90%+ decarbonisation under assumed energy supply scenarios.