

# HOMES FIT FOR THE FUTURE: THE RETROFIT CHALLENGE

**How will we finance the decarbonisation of homes in Wales to support our net zero ambitions?**

## Executive Summary



# Overview

Climate change is one of the biggest challenges facing current and future generations. Wales has made world-leading pledges to significantly decarbonise housing stock by 2030 to support our goal to be net zero by 2050.

**In 2020 I highlighted that developing an economic stimulus package which leads to job creation and supports the decarbonisation of homes, should be a priority for Welsh Government as part of a Green Recovery to the pandemic.<sup>1</sup> The hosting of a global climate change conference (COP 26) by the UK later this year is an opportunity for both the UK and Welsh Governments to commit to making this a reality.**

Overcoming levels of fuel poverty that remain stubbornly high (12%) sits at the heart of Wales' decarbonisation and social justice objectives, and the decarbonisation of homes must be seen as a fundamental part of a green and just recovery from the pandemic in Wales.

**Housing is an area within Welsh Government control and therefore must be prioritised if the Government is serious about meeting their legally binding climate change targets.**

Wales has some of the oldest and least efficient housing in Western Europe and so action to improve the quality of this stock will be essential. Decarbonisation is a challenge, and an opportunity, for organisations and communities across Wales, which can no longer wait.

## At the moment:

10% of Wales' greenhouse gas emissions come from the residential sector



155,000 homes are in fuel poverty



poor housing contributes to ill health



## Managed well, a retrofit programme could be a gamechanger for the Welsh economy helping to:

meet decarbonisation and fuel poverty objectives



eradicate fuel poverty and reduce needless energy costs, saving a total of £8.3 bn in fuel costs by 2040



generate cost saving to the NHS - £4.4 bn by 2040



create new industries, skills and up to 26,500 new jobs, based on local supply chains



support the foundational economy with potentially millions of local spend.



## Decarbonising our housing stock at the scale needed will require significant investment along with increased coordination of all actors in the system.

Welsh Government needs to lead the way but will be unable to 100% grant fund the programme. The challenge of funding this shift must be balanced across the UK Government, Welsh Government, housing associations, local authorities, landlords and homeowners, with many other organisations playing their part.

## The focus of our work has been to estimate the total funding needed for the decarbonisation of homes in Wales, identify funding gaps and suggest approaches to addressing these gaps.

We have worked closely with a number of organisations and stakeholders, building on previous work including 'Better Homes, Better Wales, Better World'<sup>2</sup> report, the work of the Welsh School of Architecture (WSA)<sup>3</sup>, the Altair report commissioned by Community Housing Cymru (CHC) and Welsh Government's Optimised Retrofit Programme (ORP) which is testing approaches to decarbonising homes in Wales.

# Key findings

**Investment in optimised retrofit across Wales' housing must be seen against the backdrop of significant benefits to well-being, cost savings in services and local economic growth.**

Investment in millions of homes has the potential to generate large economic returns as well as reducing our emissions and levels of fuel poverty.

- A Welsh housing decarbonisation programme would create £19.32bn in additional GDP<sup>4</sup>, £3.54bn of net tax benefit and 26,500 new jobs in Wales by 2030, helping to offset the economic impact and job losses of the recent pandemic.
- The programme would also save £8.3bn in energy bills and create £4.4bn in health and environmental benefits<sup>5</sup> by 2040 helping to put more money back into local economies across Wales and reducing the strain on health and social care services, particularly during the winter.

**We estimate a national programme will require £14.75bn of investment over the next decade<sup>6</sup> (to 2030):**

- **£5.5bn for social housing,**
- **£4.8bn for homes in fuel poverty, and**
- **£4.4bn for homes in the owner occupied and private rented ('able to pay') sectors respectively.**

| Tenure/ status               | Number of units                       | Average investment required per home* | Total investment (bn) |
|------------------------------|---------------------------------------|---------------------------------------|-----------------------|
| <b>Social Housing</b>        | 230,000 (~21,000 are in fuel poverty) | £24,000                               | <b>£5.52</b>          |
| <b>Fuel poor housing</b>     | 155,000 (~21,000 are socially rented) | £35,984                               | <b>£4.82</b>          |
| <b>Private rented sector</b> | 180,000 (~36,000 are in fuel poverty) | £4,700                                | <b>£0.67</b>          |
| <b>Owner Occupier</b>        | 924,000 (~99,000 are in fuel poverty) | £4,525                                | <b>£3.73</b>          |
| <b>Total</b>                 | -                                     | -                                     | <b>£14.75</b>         |

\*Sectors are aiming for different EPC targets therefore the investment required for social housing & fuel poor housing is higher than for the private rented and owner occupied sectors.

## The total government investment required is around £5.3bn over ten years.

**Of the £14.75bn of investment needed to decarbonise and improve the quality of Welsh homes, £3.6bn should come from UK and £1.7bn from Welsh Government, with 64% of total investment coming from private finance, energy companies or self-funding by property owners.**

In 2019 households in Wales spent £1.02bn on general renovation maintenance and improvement (RMI) works, an average of about £723 per home<sup>7</sup>.

Based on existing investment plans and policy proposals there are currently large funding gaps for social housing (£2.7bn) and homes in fuel poverty (£3.9bn) which are privately rented and owner occupied to meet the level of EPC “A” by 2030.

### Finance is key but only one part of the puzzle

Alone it will not deliver change at the pace and scale needed. In order to deliver a large-scale retrofit programme and achieve wider economic, environmental and social benefits it is critical that planned long-term investment is joined up with policy on skills and training as well as regulation, standards and supply chain.



## Sophie Howe

### Future Generations Commissioner for Wales

We will need to move beyond silo-based working and secure a cross Government approach to collaboration and delivery with housing associations, local authorities, skills providers and suppliers ensuring coordinated delivery is central to the approach. Strategy, engagement, regulation, skills, integrated business models and fiscal incentives are all crucial to success.

## Creating skills and jobs for the future through investing in a national retrofit programme

**There are significant opportunities for job creation through a national retrofit programme but investment must be planned for the long-term in order to take advantage of this.**

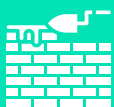
Evidence suggests unemployment in Wales could double in 2021, peaking at around 114,000 people in 2021, and there is an urgent need to invest in job creation and develop skills pipelines in key areas that can support our decarbonisation targets.



**A Welsh Housing Decarbonisation Programme could create 26,500 new jobs in Wales by 2030 but securing these jobs for Welsh people can only be achieved by guaranteeing long-term investment linked to prioritisation of apprenticeships and reskilling the existing, as well as a future, workforce in necessary trades to address the skills gap.**

**Investment in key infrastructure projects in green industries and nature restoration could create in the next two years:**

**45,000 direct jobs**



**60,000 indirect jobs**



**Of these:**

**4,260 jobs**  
retrofit insulation  
of housing



**2,810 jobs**  
social housing  
construction



**2,730 jobs**  
in retrofit energy  
assessors.



However, there are significant skills shortfalls in insulation, heating and retrofit. With sufficient demand and coordination created through investment, movement into the retrofit sector could be facilitated relatively quickly through on-the-job training, as qualifications are not necessarily prerequisite. A long-term pipeline of projects must be guaranteed.



## Strengthening the connections between fuel poverty and decarbonisation

While there are some tensions, it is important that the twin challenges of decarbonising homes and fuel poverty are addressed through an integrated, holistic approach.

**155,000 homes in Wales are in fuel poverty<sup>8</sup> however the impact of the recent pandemic on unemployment and changing working practices could mean that this figure is now higher.**

The long-term solution to fuel poverty, and one that also supports the decarbonisation of homes, is to dramatically improve the energy efficiency of fuel-poor households' homes.

It is fundamentally important that the transition to a low carbon economy does not increase levels of fuel poverty, through increasing costs of energy. The approach must address two of the key drivers of fuel poverty: low incomes and the energy inefficiency of homes.

There are a range of economic, social, environmental and health benefits to be achieved through addressing these agendas together.

**A retrofit program across Wales housing stock, could lead to energy bill savings of around £613 for each home retrofitted to EPC "A"<sup>9</sup> especially benefiting homes in low EPC bands and in fuel poverty. These savings would virtually eliminate fuel poverty in Wales and make a significant contribution to reducing economic inequalities.**



© Coastal Housing



© Coastal Housing

## Key priorities for the next Welsh Government:

**1. The decarbonisation of homes has to be a shared endeavour, with Welsh Government playing a leadership and coordination role, bringing all sectors together in a shared mission.**

**The challenge of financing decarbonisation is not for Welsh Government to undertake entirely. If both the Welsh and UK Governments are serious about a green recovery, and meeting their respective climate change commitments, they must work together to use all the financial levers available to them to fund the retrofit challenge. They should view this investment as support for essential infrastructure, similar to investment in other infrastructure such as road, rail and power.**

Likewise housing associations, local authorities, and over time private households, will also need to play their part in this shared endeavour. All of these organisations should be focused on shared innovation and risk, collaborating and learning at every stage.

Welsh Government should play a key leadership and co-ordination role with support and collaboration required from UK Government, local authorities, housing associations as well as education, training and private sectors to ensure concerted action across social housing, homes in fuel poverty and those in the private rented and owner-occupied sectors.

### Welsh Government should:

- Lead the way by setting clear long-term commitments and targets for Wales' housing stock in the second Low Carbon Plan.
- Fully recognise the interconnected challenges of the decarbonisation of homes and tackling fuel poverty and reflect these across the new programme for Government including linking policy action on skills, finance, foundational economy and health.
- Prioritise investment in this area and emphasise the importance of this agenda for the people of Wales, when negotiating with the UK Government about post EU funding such as the Shared Prosperity Fund.



## Housing associations and local authorities should:

- Consider how they can access private finance to supplement Government grant funding for the decarbonisation of their housing stock.
- View Renovation Maintenance Improvement (RMI) spend and investment in decarbonisation measures as interconnected with opportunities for further integration over time.
- Building on the successful ways of working under the Optimised Retrofit Programme, prioritise collaboration and continuous learning in the approaches taken to decarbonisation of their housing stock.

**UK Government will have a critical role in supporting investment and regulation whilst local authorities should play a more proactive role in driving the decarbonisation of homes and the reduction of fuel poverty, particularly in relation to the Private Rented Sector.**

11 of the 22 local authorities in Wales have retained their own housing stock, and 16 of the 22 have declared a climate emergency so must now demonstrate how they are prioritising decarbonisation of homes through an area-based approach using all the levers available to them. To support this their role should be strengthened and properly resourced.

## 2. There needs to be a longer-term plan for funding.

**There is a clear need for a longer-term pathway to the decarbonisation of homes, if we are to meet decarbonisation targets, at the very least until 2030. This needs to illustrate the shared commitment between Governments, housing associations, local authorities and other players to develop a long-term pathway to the decarbonisation of homes, providing certainty and clarity about funding arrangements, anticipated job creation, procurement routes and skills pipelines.**

But this long-term investment plan cannot be achieved alone or within current mechanisms. It will require new and innovative ways of leveraging other sources of funding and investment and potentially utilising the capacity of the Development Bank of Wales to develop a new Wales Energy Service Company to coordinate and support funding decarbonisation in the social housing sector (as outlined in section 4).



### **Welsh and UK Governments should:**

- UK Government should commit to allocating an additional £2.6bn of infrastructure investment funding and £1bn allocation of the Shared Prosperity Fund which is needed by 2030 to tackle decarbonisation of low-income homes and address fuel poverty in Wales. These sources would be equivalent to other infrastructure programmes (e.g. road, rail, power) recognising the significant fiscal benefits of a retrofit programme to the UK Exchequer.
- Increase its use of Financial Transaction Capital for retrofit and UK Government should facilitate access to the new Green Sovereign Bond market, to enable around £6.3bn of private investment in the Welsh housing stock by 2030.
- Work with the UK Government Financial Conduct Authority (FCA) to stimulate £100m/year Green Mortgage market by requiring disclosure of how energy efficient a house is at “decision in principle” stage.

### **For social housing sector & homes in fuel poverty, Welsh Government should:**

- Double fuel poverty funding to £732m by 2030 and supplement with grants for people on low-incomes which would be available from UK Government’s national infrastructure funding, with the aim of eradicating fuel poverty by 2030.
- Commit to a new £108m/year Social Housing Decarbonisation Grant, conditional on measured performance & cost reductions.
- Work with UK Government to offer £158m/year low interest loans to housing providers through the ‘Welsh Energy Service Company’ (WESCO) via Energy Saving Performance contracts.

### **For the private rented / owner occupied (able to pay) sector, Welsh Government should:**

- Work with Local Authorities to trial the Property Assessed Clean Energy (PACE) mechanism, through a levy on council tax. PACE is a means of financing retrofit measures which attaches the debt to the property rather than the individual, secured by a property tax bill.
- Work with the Development Bank of Wales to trial equity release models and low interest loans to landlords for retrofit finance.

### Property Assessed Clean Energy (PACE) finance:

Developed in the USA, PACE allows municipalities to fund retrofit through attaching the debt to the property rather than the individual. PACE financing covers the full cost of the retrofit and repayments are linked to the property itself. It is secured by a lien (a form of security) on the property tax bill (i.e. council tax). This can remove the split incentive between landlords and tenants or those looking to sell their home.

Our Roadmap outlines which are immediate funding decisions and policy actions and those which should happen over the next ten years.

Our modelling assumes a staggered S-curve deployment of investment over the 2020s peaking in 2028,<sup>10</sup> leading to a total capital investment of £14.75bn by 2030.

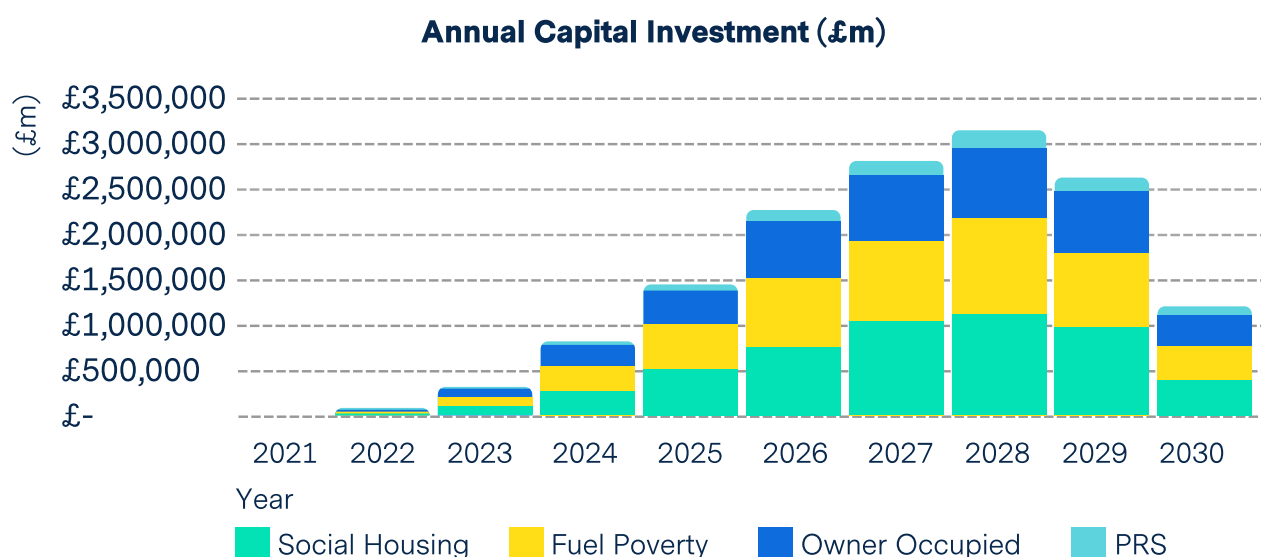
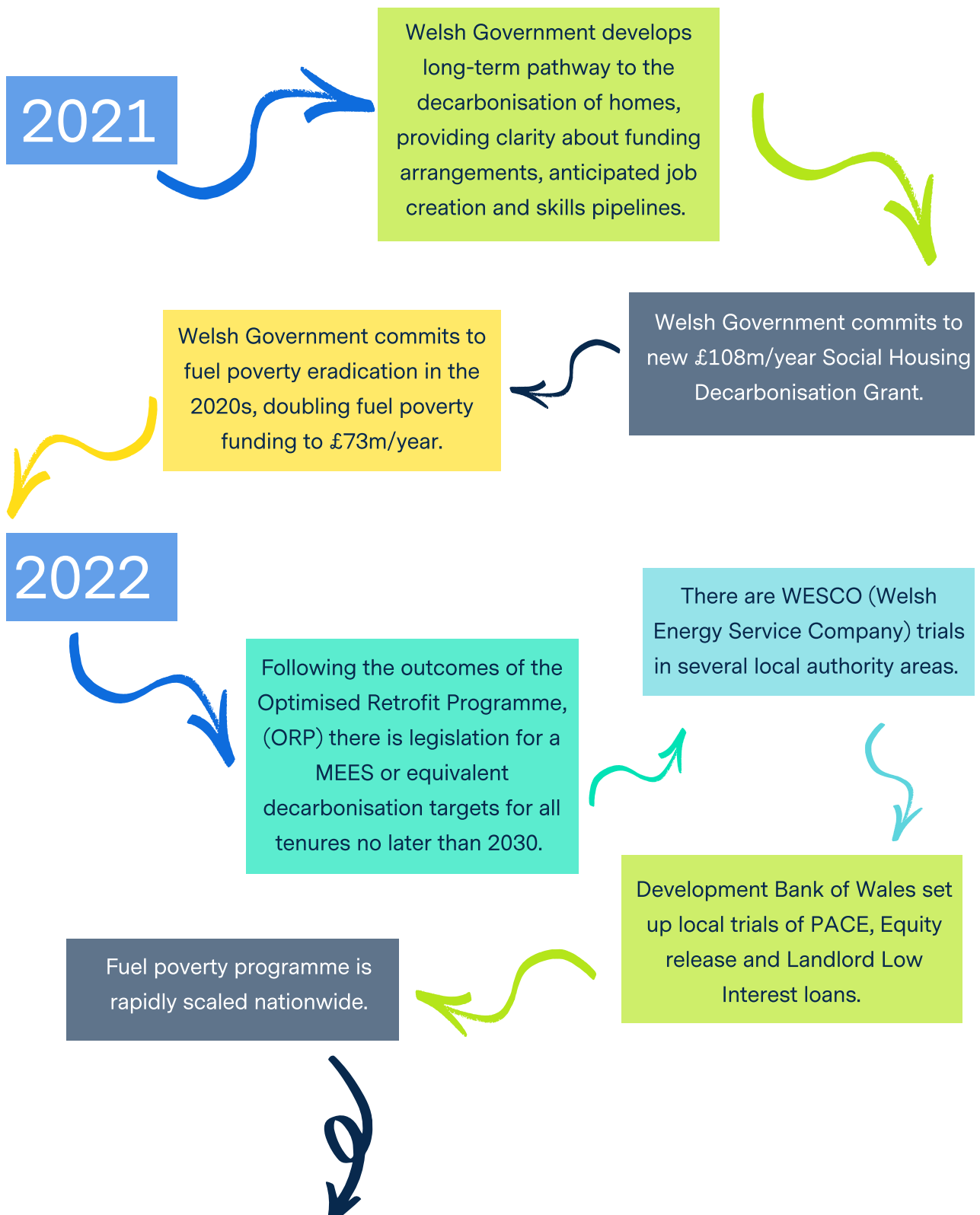
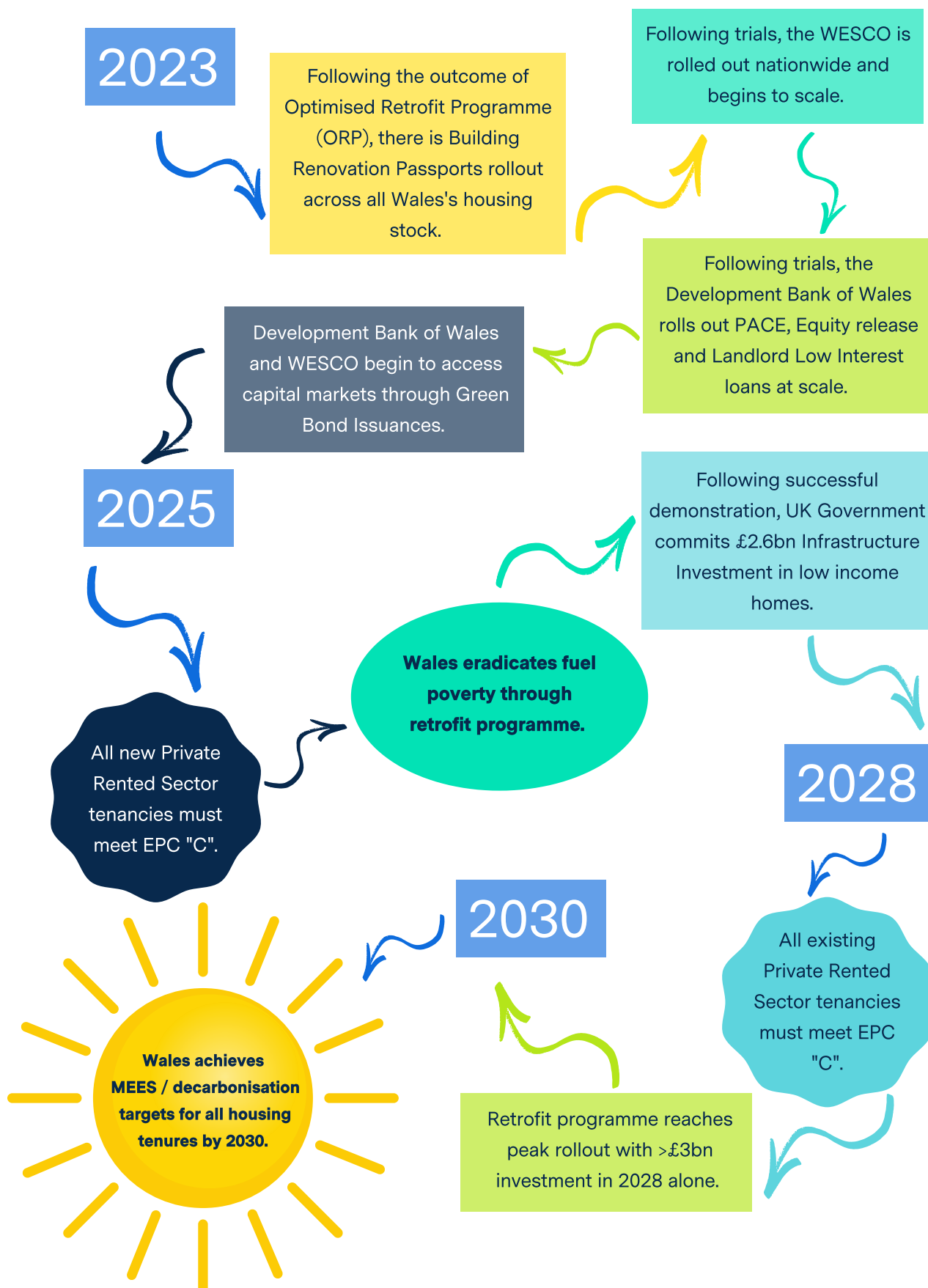


Fig 1: Total Welsh Government funding of £1.7bn required to 2030 - £1,080m through the new Social Housing Decarbonisation Grant and £732m through the Warm Homes programme - peaking between 2026-2029.

## Roadmap to 2030







### 3. Our ambition to decarbonise must be strengthened

**Currently Welsh Government is encouraging the social housing sector to work towards the decarbonisation targets set out in the 'Better Homes, Better Wales, Better World' report. However 1.1 million (or 70%) of Wales' housing stock falls under the owner occupied or private rented sectors which currently lack (or have very weak) targets along with appropriate levels of investment or financial incentives.**

Given the huge challenge of decarbonising homes, and the potential benefits of a Wales wide long-term programme, we need to ensure delivery at pace and scale.

**If cross-sector concerted action is going to achieve these targets they need to be statutory and enforced through minimum energy efficiency standards (MEES) across all stock.**

Our work follows recommendations in the 'Better Homes, Better Wales, Better World' report which recommends that:

- All homes in Wales should be brought to EPC "A" by 2050. This target should be brought forward for all social housing and homes in fuel poverty by 2030.

- We are also proposing an interim EPC "C" (or equivalent) target for all homes in Wales by 2030. As a minimum, all fuel poor households regardless of tenure should meet EPC "C" by 2030 in order for the Welsh Government to at least match equivalent ambitions by the UK Government for fuel poor homes in England.
- In addition, we propose a ban on the installation of new fossil fuel heating for all homes no later than 2030.

#### **Welsh Government should:**

- Determine an ambitious Minimum Energy Efficiency Standard (MEES) or decarbonisation target for the social housing sector, based on learning from the Optimised Retrofit Programme, then prepare a timetable to legislate for this target if needed.
- Work with the UK Government to legislate for a Minimum Energy Efficiency Standard (MEES) of EPC "C" or equivalent decarbonisation target for all homes in the private rented sector and ban the installation of new fossil fuel heating for all homes, no later than 2030. This will require local authority enforcement of proposed and existing MEES which should be strengthened and properly resourced.

### Welsh Government should:

- Build on the work of the Optimised Retrofit Programme to develop a cost model and 'building renovation passports' for the entire Welsh housing stock. Properties will need to be improved, as far as possible, considering current solutions available and the likely costs of the work. Building renovation passports will provide a more detailed understanding of relative costs and the scale of work needed for different types of homes.

### To support this UK Government should:

- Ensure the full devolution of Building Regulations powers to Wales;
- Cut VAT on all retrofit related measures to 5%.



© Ruth Edwards

### 4. The scale of the challenge means new institutions are needed and there will be new roles for existing organisations.

**As the scale of the challenges and opportunities of the decarbonisation of homes are realised, there will be a need for new roles and approaches.**

For example, we suggest a key role for the Development Bank of Wales (DBW) in the coordination of funding for the private rented and owner-occupied sectors, and the development of a Wales Energy Service Company (WESCO) to manage energy performance contract financing for the social housing sector.

### Welsh Government should:

- Establish a central role for the Development Bank of Wales (DBW) or a similar coordinating actor to facilitate lending of around £1bn/year. This would need to be paired with an appropriate, area-based advice and retrofit procurement service to offer a 'one-stop-shop' to households.
- Explore the establishment of a new Wales Energy Service Company (WESCO) to coordinate and support decarbonisation in the social housing sector. A WESCO would combine loans and grants into a single performance contract. It would fund improvements to homes with guaranteed savings repaid on the energy bill, securing debt-finance on its balance sheet on behalf of housing associations.

### **What is an Energy Service Company (ESCO)?**

They develop, design, build, and arrange financing for projects that save energy, reduce energy costs, and decrease operations and maintenance costs. They act as project developers for a range of energy saving measures and assume the technical and performance risks associated with a project. They differ from other organisations that offer energy-efficiency improvements in that they use a performance-based contracting methodology. This means the finance generated is directly linked to the actual energy cost savings.

### **Welsh Government will also need to address the skills gaps, both in numbers and in diversity, which exist for retrofit jobs.**

Currently there is a risk that Wales will lose the benefits of job creation because there are not enough people who are qualified to undertake retrofit work. This needs to be addressed urgently if we are to maximise the multiple benefits of investment in housing decarbonisation.



### **Welsh Government should:**

- **Urgently develop a skills pipeline for a Welsh Retrofit workforce.**

Investing in, and developing a long-term pathway, to decarbonise all homes in Wales will provide long-term commitment and security to enable development of skills pathways and employability programmes which will support new jobs that could be created in our foundational economy.

Building on the momentum and investment in the Optimised Retrofit Programme, proposals such as the Retrofit Academy for Wales should be supported and scaled up across Wales.

- **Adopt a Retrofit Plus approach - broadening the Retrofit programme to support community involvement and neighbourhood regeneration.**

Investment at scale in Welsh homes should look beyond new boilers and towards innovative solutions to improve communities within the broader ambitions of the Well-being of Future Generations Act. Opportunities should be sought to expand the decarbonisation programmes by greening communities, creating spaces for nature, local food growing and culture.

## **5. Wales should target the worst homes first in order to maximise the benefits of reducing fuel poverty and addressing decarbonisation.**

**Many Welsh homes remain in a dire state and thousands of households live in 'severe fuel poverty' requiring over 20% of their income to maintain a satisfactory heating regime.**

While the Welsh Housing Quality Standard, Arbed and Nest programs have made significant inroads in reducing it, 155,000 (12%) of Welsh homes remain in fuel poverty: 20% of the Private Rented Sector, 11% of owner occupiers and 9% of social housing tenants live in fuel poverty. Any decarbonisation programme must target these worst performing homes first as a matter of urgency.

### **Welsh Government should:**

- Ensure that their long-term pathway reflects the phasing needed to prioritise funding and support for decarbonising social housing and homes in fuel poverty first, considering what further regulation may be needed for homes in the private rented and owner-occupied sectors.

## **Conclusion**

This work has demonstrated the level of infrastructure investment needed to improve and decarbonise (retrofit) homes in Wales – this will not only address our climate crisis but will also reduce fuel poverty, improve health outcomes, create thousands of new jobs and support the development of local supply chains to support the foundational economy. A national programme should be an urgent priority for the new Government to support a green, equal and just recovery.

Our in depth research and modelling has shown how much funding is needed up to 2030, the potential sources of funding for different sectors as well as models for delivery. Recommendations for UK and Welsh Government as well as other key players show that this can be achieved with long-term commitment supported by a long-term programme which should be put in place urgently.

**Wales has the ambition, and the vision, our focus now has to be action.**



## Acknowledgements



This work has been developed by the Office of the Future Generations Commissioner for Wales in partnership with New Economics Foundation.

The full report and the technical summary have been drafted by Dr Donal Brown from the Sustainable Design Collective, with support from:

- Christian Jaccarini and Chaitanya Kumar (New Economics Foundation)
- Cathy Madge and Eurgain Powell (Office of the Future Generations Commissioner for Wales)

Thank you to all of the stakeholders who have attended workshops and commented on drafts of this work.



© Coastal Housing



## References and footnotes

- [1] [https://www.futuregenerations.wales/resources\\_posts/welsh-government-budget-must-signal-a-change-in-direction-to-reset-our-economy/](https://www.futuregenerations.wales/resources_posts/welsh-government-budget-must-signal-a-change-in-direction-to-reset-our-economy/)
- [2] <https://gov.wales/sites/default/files/publications/2019-07/independent-review-on-decarbonising-welsh-homes-report.pdf>
- [3] <https://gov.wales/sites/default/files/publications/2019-07/decarbonising-welsh-homes-stage-2-report.pdf>
- [4] Based on a review of GDP multipliers for retrofit developed by Cambridge Econometrics and the University of Leeds.
- [5] Delivering these benefits will require minimum energy efficiency standards (MEES) / Energy Performance Certificate (EPC) regulations across all tenure types and income levels.
- [6] Building on data from the Welsh School of Architecture, to achieve EPC A for social housing and fuel poor homes, and EPC C for all other homes.
- [7] <https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/outputintheconstructionindustrysubnationalandsubsector>
- [8] <https://gov.wales/fuel-poverty-estimates-wales-headline-results-2018>
- [9] D. Brown, H. Wheatley, C. Kumar, J. Marshall, A Green Stimulus For Housing: The Macroeconomic Impacts of a UK Whole House Retrofit Programme, 2020. [www.neweconomics.org](http://www.neweconomics.org)
- [10] Assuming future programmes for the decarbonisation of the wider stock we might expect deployment and jobs to continue through the 2030s.