

Decarbonising our homes

Abstract: *Insulating the relatively old housing stock and switching from gas boilers to electrified heating is a vital decarbonisation priority in the UK. It could make people’s lives better, now, with warmer homes and lower energy bills, while helping to tackle global heating – potentially. But the government’s Warm Homes Plan may squander that potential. On one hand, it lags far behind what climate scientists say is needed. On the other, it is set to exacerbate inequalities, by focusing on heat pumps for individual households, and away from improving housing. Previous retrofit schemes, cursed by 30 years of neoliberal assaults on training and local government, failed disastrously. The continuing absence of effective regulation and workforce training, together with corporate-dominated energy markets and inequitable housing policy, may destroy the Warm Homes Plan’s promise. This cannot be left to the government: social movements and labour must unify climate action with struggles for social justice.*

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The British government’s plan to shift to electrified, low-carbon heating of homes could be heading for ruinous failure without public sector provision and community engagement. The £15-billion Warm Homes Plan (WHP), announced in January this year, envisages replacing gas boilers with heat pumps and retrofitting homes with insulation. There is also money for rooftop solar panels and batteries, and district heat networks. But the government’s plan is flawed. On one hand, it lags way behind what climate scientists say is needed to decarbonise the built environment. On the other, its focus on heat pumps for individual households, and away from improving the housing stock, will exacerbate inequality.

The UK Climate Change Committee (CCC) estimates that, to meet the government’s emissions reduction targets by 2050, at least 15 million homes will need one or more insulation measures, eight million will need draft-proofing, and 21 million will need to swap gas boilers for heat pumps. Heat pump installations, running at 60,000 per year in 2023, need to rise to nearly 450,000 per year by 2030 and

1.5 million per year by 2035, the CCC says. The industry is unlikely to get halfway to that 2030 target, retorts Mars Młodzinski, a heat pump market analyst, raising “serious questions” about the climate strategy.

And even these government targets are rejected by climate scientists as catastrophically inadequate. To limit global heating to 2 degrees above pre-industrial levels, a fair carbon budget for the UK, the total of greenhouse gases the UK could emit from now on, would be just seven years’ emissions at the current level, professor Kevin Anderson of the University of Manchester said at the recent National Emergency Briefing on climate. “Inequality is deeply embedded” in current UK targets, which imply carbon emissions at three times its per capita share, Anderson said. To play a fair part in tackling climate change, the UK would need to reduce emissions by 13 per cent per year – and deploy “timely technologies”, including retrofitting homes, “like the reconstruction of Europe after the second world war”.

To assess the government’s plan, and the response to it by the

labour movement and social movements, here I look at seven interlocking problems: the shift of focus away from retrofit towards heat pumps, in response to the disastrous failures of previous schemes; the continuing absence of effective regulation, and failure to create conditions for a workforce trained and rewarded for the task; the danger that landlords in the private rented sector will use retrofit schemes further to bully and exploit tenants; a failure of regulation and training for heat pump installation; the mismatch of gas and electricity prices in corporate-dominated energy markets that obstruct electrification; the lack of coordinated, place-based approaches to retrofit, exacerbated by the hollowing out of local government and direct labour organisations; and the government's housing policy, focused on persuading developers and construction companies to build new stock, instead of undoing the damage done by decades of marketisation, including to insulation and heating. To develop an approach that both drives out fossil fuels and reverses decades of mounting inequality in housing, the labour movement and social movements should take all these aspects into account.

RETROFIT

Retrofit is the ABC of decarbonisation in the UK, where most houses are more than a century old, and the housing stock is the most poorly insulated in northern Europe. And for several years up to 2012, millions of homes per year got insulation and/or boiler upgrades that were insufficient in climate policy terms, but better than nothing. Then came the poorly designed 2012 Green Deal, and in 2015, universal eligibility for supplier-led schemes was scrapped. Plans to tighten energy efficiency standards for new homes also went in the bin. Firms doing the work folded, and the number of jobs completed annually plunged by 70 per cent.

Worse was to come. In 2022, in response to the energy price shock, the Tory government committed £1 billion over three years to expand the Energy Company Obligation (ECO) scheme. Then the Great British Insulation Scheme (GBIS), offering free cavity wall or loft insulation to some homes, was added. Energy companies were required to finance decarbonisation of homes. They raised money from energy bills and offered grants through a patchwork of schemes that favoured higher-income households. Contracts went to certified installers, who in turn sub-contracted to small businesses, who were motivated to cut corners, often incompetent, and sometimes corrupt.

Regulation of the schemes, by TrustMark, was a disaster. In 2024 journalists started reporting on homes trashed by cowboy operators. Alarm bells rang. The National Audit Office found “major issues requiring remediation” in 98 per cent of homes fitted with external wall insulation, and 29 per cent of those fitted with internal wall insulation under the ECO4 and GBIS schemes. There were “systemic” failings at every level, a senior civil servant told the House of Commons public accounts committee. The Department for Energy Security and Net Zero (DESNZ) designed the schemes “in a way that exposes it to both poor quality work and fraud”, the committee reported – and had no “credible” plan for fixing the damage.

The MPs pointed to evidence of fraud, and in April this year the Serious Fraud Office made four arrests in an investigation of three companies. The regulatory framework for future schemes is under review by a government-appointed Retrofit System Reform Advisory Panel – but campaigners say a more drastic overhaul is needed. The WHP, finalised as the scandal raged, shifts focus away from insulation. The government pledges to prioritise rooftop solar, clean heating, energy storage and flexibility – and funding looks set

to go primarily to better-off households for heat pumps and solar panels (see below).

Retrofit of buildings' fabric will now focus on low-cost upgrades such as double glazing, draught proofing and wall and loft insulation, especially to bring rented homes up to the government's Minimum Energy Efficiency Standard (MEES). This includes funding for councils to work on social housing, while landlords will be required to improve private rented homes – but on a smaller scale than under the scandal-plagued ECO scheme, which is being closed.

In a report for the Common Wealth think tank, researchers argued that expanding access to heat pumps and solar panels is essential – but that “the plan risks missing those most in need: people living in homes that need substantial repairs to be ready for green upgrades, those struggling with energy bills but with incomes above grant eligibility thresholds, or living in older homes that require navigating more complex interventions and planning restrictions.” A neighbourhood-based retrofit strategy could shift the narrative. Madeleine Pauker, an energy researcher at the University of Sussex and one of the report's authors, told *The Ecologist*: “The danger is that subsidies will flow to the more affluent owners of homes in the best condition, that are already decently insulated.”

Researchers and campaigners alike are signalling two wrong turns the WHP may take. First, it may reinforce piecemeal, bit-by-bit retrofit, and sideline whole-building approaches that grouped together multiple insulation measures that were supported by the ECO4 scheme. Second, politicians are suggesting that solid wall insulation is unnecessary; the CCC, for example, has dismissed it as “generally not cost effective”. Pauker argues that, without it, Victorian and Edwardian homes will remain “cold, draughty and costly to heat”; it is complex to install but “why should complexity lead to failure?” The evidence shows that “the privatised delivery model cannot reliably handle that complexity,” and that is what needs to be challenged.

RETROFIT WORKFORCE AND REGULATION

The insulation scandal brought to a head two long-running crises in the construction industry – the collapse of regulation, and the degradation of training and education – exacerbated by the neoliberal economic policies of successive Tory and Labour governments. People's poorly insulated homes were made even colder and damper; poorly paid labour was left without the skills, job security and pay it needs to deliver. Two sides of the same coin.

Fuel poverty campaigners say that, for decarbonisation of homes to succeed, there must be accountability to residents. The guarantees and insurance schemes used under the previous schemes were shown to be useless. “Quality is integral to gaining public confidence that moving from fossil fuels to electricity can work,” James Dyson of E3G, who campaigns on fuel poverty, told *The Ecologist*. “People not only need installations, they need to be able to get them fixed if things go wrong. Protections need to be in place before heat pumps are installed.”

The End Fuel Poverty Coalition (EFPC) proposes a Warm Homes Guarantee, built around “quality advice on the right installations to deliver”, and “a promise that every upgraded home will see energy bills come down”. Campaigners argue that decarbonising homes must be place-based, and that local government must play a key role (see below).

As for labour, energy researchers and trade unionists believe that, unless the dire shortage of workers with the right skills is overcome, decarbonisation of homes is doomed to fail. “The shortage of

skilled workers in key trades such as insulation, installation, heat pump fitting, ventilation and energy assessment”, and for commissioning and programming projects, is a “critical barrier” to scaling up retrofit, a study by the UCL Institute for Innovation and Public Purpose warned last year. The authors see the government’s £625 million construction skills package, announced last year, as an “opportunity” – although that initiative is focused on building new homes, not retrofit.

The workforce problem is not just about numbers, but about quality, a submission to a DESNZ inquiry by the Greener Jobs Alliance argued. That means “depth and breadth of training” and “monitoring and accountability to residents”. The construction and renovation/retrofit sector is “heavily dominated by small and micro-businesses, often operating on tight profit margins”, that lack the capacity to train apprentices. Construction training, and the construction sector, is “generally organised around specific skills rather than understanding of whole house thermodynamics so that interventions in one area don’t cause problems in another”.

THE PRIVATE RENTED SECTOR

The danger that decarbonisation funds will be misused, and/or that electrification will make life worse for residents instead of better, is magnified in the private rented sector, where upgrade grants will be paid to landlords. The government is tightening the MEES energy standards, which will need to be met for grants to be paid – but has refused to close some loopholes that tenants’ rights groups and fuel poverty campaigners say will allow abuse.

Campaigners fear that landlords might exploit retrofit requirements to justify rent increases, evictions or conversion to holiday lets, disproportionately impacting low-income tenants – as has happened with previous retrofit schemes. Under the new standard, landlords will have to meet a primary standard related to building fabric, and to choose between secondary standards on smart-readiness or heating systems. They will have to spend £10,000 per property, but not more – exceeding this figure is one of a long list of grounds for exemption from the rules.

When the government held a consultation on the new MEES standards last year, a coalition of tenants’ groups urged that advisory services, not landlords, have the final say in what work is done; that the cost cap be raised to £15,000; and that all exemptions except for reaching the cost cap be scrapped. All these points were ignored. Tenants’ rights have certainly been strengthened by the Renters’ Rights Act that came into force in May this year, chiefly by abolishing landlords’ right to “no fault” evictions.

But there are still battles to be fought over the WHP, Dyson says – first, because landlords, having received a government grant to upgrade a property, can increase the rent; secondly, because if the work is done badly and energy bills go up, tenants’ only defence is via tortuous complaints processes under e.g. the Microgeneration Certification Scheme (MCS), which regulates heat pumps; and thirdly, because landlords are not required to implement changes until October 2030.

HEAT PUMPS AND NETWORKS

A decade and more of government prevarication, failed retrofit schemes and fossil-fuel-friendly disinformation has left the UK with the least developed heat pump sector in Europe by far. The UK has about 20 space heat pumps per thousand households, compared to 53 in Germany, 169 in France and 662 in Norway, data from the European Heat Pump Association shows. In 2025 the UK had 4

sales of space heat pumps per thousand households, compared to 7 in Germany, 12 in France and 44 in Norway.

UK heat pump sales rose by 27 per cent between 2024 and 2025, and the EFPC welcomed their decarbonising potential – but added that moving on to a heat pump “should come with a Warm Homes Guarantee, with independent advice, strong consumer protections and a clear promise that homes will be more comfortable after work is done”. The underlying causes of previous retrofit schemes’ failures – the fragility of regulation, incentives for contractors to work shoddily, the lack of workforce training – apply equally to heat pump installation.

There are fewer than 4,000 qualified heat pump specialists in the UK, compared to the tens of thousands needed to meet government targets, the Renewable Heating Hub site estimates. For training, the government’s £8 million Warm Homes Skills Programme, which provides for £500 Heat Training Grant discounts, is “utterly inadequate to the scale required”. The WHP also sets a goal of more than doubling, by 2035, the amount of heat provided by heat networks – but campaigners say there need to be real commitments to bring down bills. “Heat networks must deliver promised savings and genuine efficiency to residents, and store excess energy locally for cheap or free distribution,” an open letter sent to ministers in April by 50 campaign groups said.

In response to a government consultation, Community Energy England argued that intervention is needed in areas that private capital – which will happily fund schemes in new-build developments – will tend to ignore: retrofitting existing (mostly gas-fired) networks that need to move off fossil fuels; homes in a ‘heat gap’, where fitting either individual heat pumps or networks is tricky, e.g. dense terraced and mixed-tenure streets, where Rossendale Valley Energy’s pioneering example could be followed by other community energy organisations; and feasibility studies and development of other community energy schemes.

ENERGY BILLS

A more immediate obstacle to widespread heat pump adoption is that, for many households, installation would not save money, due to the way electricity and gas prices are set. The markets are regulated to benefit corporations, not to help tackle climate breakdown. Electricity costs households roughly five times as much as gas per unit of energy (about 27.5p per kilowatt hour earlier this year, compared to 5.5p per kilowatt hour for gas). So, even though heat pumps convert electricity to heat energy more than three times as efficiently as boilers convert gas to heat energy, a heat pump still may not be cheaper to run than a boiler.

Fuel poverty campaigners have long demanded price reform. And even the government’s own Climate Change Committee says policy costs (items related to renewables investment guarantees and other policy decisions) should be removed from electricity bills, to make electricity cheaper in comparison to gas. The problem runs deeper, though. UK wholesale electricity prices are set so that all power generators receive the price of the most expensive kilowatt-hour bought that day: this ties the wholesale prices of cheap-to-generate renewables power to gas prices and reinforces retail buyers’ vulnerability to volatile international fossil fuel markets. To defend ourselves from all this means to reverse decades of neoliberalism and fossil fuel companies’ political power – by public ownership of energy companies and the setting of retail prices in the public interest, for example by means of a single, publicly owned buyer of wholesale electricity.

HOW THE JOBS GET DONE

The travesty of past retrofit schemes was “not simply a story of inadequate oversight or accountability”, Pauker argues; rather, trying to deliver high-quality retrofit through subsidies to contractors who are “structurally incentivised to minimise costs” made widespread failure almost inevitable. The WHP is, in one respect, a step forward. Instead of funding decarbonisation through the ‘supplier obligation’ on energy companies – who raise the money from customers’ bills, penalising the poorest – the state will pay grants itself out of general taxation.

The money will still be spent unequally, though: while £4.4 billion will go to low-income homes for the most urgently needed upgrades, most of a £5.3-billion Warm Homes Fund and a £2.7-billion boiler upgrade scheme will go in grants and loans to better-off households. Often they will have to add their own cash to pay for heat pumps and solar panels.

Neoliberal ideology pervades the plan. It is presented not as a collective challenge in the face of climate emergency, or as public action to meet social need, but as an “offer to consumers”. Campaigners have long insisted that housing will never be transformed on the scale required without empowering local government to coordinate the work – and they welcome the greater role for mayoral authorities and local councils envisaged in the WHP. But the government has no intention of reversing the long-term trend towards outsourcing work to contractors or the obliteration of councils’ direct labour organisations.

Evidence is clearly documented that public bodies such as the Social Housing Decarbonisation Fund work more effectively than contractors, and that public schemes can better integrate retrofit with other home improvements and achieve economies of scale. So far, it is being ignored. Ellen Robottom of the Greener Jobs Alliance told *The Ecologist*: “To meet a challenge at this scale, we need a retrofit programme that is free at the point of installation. But to get a proper upgrade under the WHP, people either have to live in a home that is practically derelict to qualify for a grant, or they have to cover much of the cost themselves. Instead of this we need a mass installation programme on one hand, and a big training programme for the construction sector on the other, coordinated by the state and funded from progressive taxation.”

HOUSING POLICY

The deep flaws in the WHP can only be understood in the context of the government’s signature policy of building 1.5 million new homes – which housing researchers say, despite some welcome funding for social housing, will not solve the problems caused by decades of marketisation.

The government’s housing policy relies heavily on large-volume private sector developers, ensuring resource-intensive, energy-intensive construction, rather than making best use of the existing housing stock. The damage done by decades of policy aimed at turning homes into financial assets – the rundown of social housing, the expansion of the private rented sector, the relentless increase of

rents and mortgages – will not be undone. Where in the 1970s the state directly funded council housing, it now transfers billions each year to private landlords via housing benefit.

This grand capitulation to private wealth means that the UK’s housing stock is used inefficiently. Housing has become less affordable not because there is an underlying shortage of space, but because the space is used inefficiently. One third of households in England have two or more spare bedrooms, but financial disincentives make it difficult or impossible for those who wish to downsize to do so. Well-researched solutions to the housing crisis – rent controls, the transfer of homes from the private rented sector to social housing, incentives for downsizing – are ignored by a government deeply wedded to neoliberal ‘market principles’. This is the context in which sustainable retrofit and whole-house energy efficiency are sidelined. Circular construction practices and efficient use of residentially zoned land are too. Energy efficiency requirements for newbuilds are far from what they could be with modern building techniques and what they are in other European countries.

WHAT TO DO?

Our homes are central to how we live, and the need to change the way they are heated is central to tackling climate breakdown. Decarbonisation, by way of retrofitting insulation and installing heat pumps and solar panels, could and should be a powerful theme to unify action on climate with action for social justice. It is no surprise, then, that a wide swathe of civil society – from tenants’ and housing rights organisations and fuel poverty campaigners to climate activists and trade unionists – has responded forcefully to the government’s plans.

It is vital, and difficult, to take an integrated view of the problems. However, as far as I can see there is as yet no unifying force able to bring all these campaigning efforts together. There is a good historical reason for this, in my view. In the 20th century, the labour movement’s aspirations were voiced politically through the Labour party. But 40 years of neoliberal reaction have not only produced the interlocking problems listed above – through marketisation of housing and energy supply, degradation of local government, ruination of public construction capacity and training – but also destroyed social democracy in its 20th-century form.

The current Labour government stands stubbornly for enforcement of neoliberal norms. Many of the campaign proposals mentioned above are effectively calls to restore bits of the social democratic gains of the late 20th century, from building industry regulation and restraints on exploitative landlords to public provision via local government. How, and whether, such reversals can be achieved in the context of 21st-century capitalism, bent on further concentration of wealth and haunted by climate breakdown, is an open question. That is not offered as a reason to despair, but as an assessment of the difficulties we need to overcome. With this in mind, there is every reason to believe that we can build new unifying forces to achieve aims that are so obviously necessary to tackle climate breakdown and social injustice.

DISCLOSURE

Simon Pirani is honorary professor at the University of Durham, a life member of the National Union of Journalists, and author of books on energy systems, Russia and Ukraine. He is a regular contributor to *The Ecologist* and writes a blog at peoplenature.org.

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