



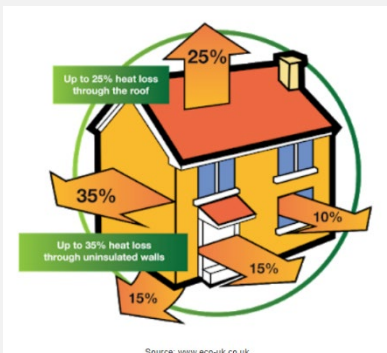
RETROFIT

THE PROBLEM

- [15% of territorial UK emissions come from residential burning of gas.](#)ⁱ
- 80% of the buildings we use today will still be in use in 2050 and most have poor heating efficiency standards
- 1 in 10 households are in fuel poverty

DEEP OR SHALLOW RETROFIT?

The Green Party policy is for deep retrofit for homesⁱⁱ. Tinkering with insulation can help to make homes warmer but is unlikely to bring down energy use much; many will choose to use the same energy to stay warmer for longer – especially those currently struggling to afford to stay warm.



Whilst both renewable energy capacity and storage options are growing, it is still

expected that cold, dull, still days will overload the demand for electrically driven heating if homes are not well insulated. We need both ‘powering up’ renewable energy supply and ‘powering down’ the demand.

The balance between supply, storage, demand, efficiency of heat pumps and levels of insulation is in debate and will vary between localities, but the deeper retrofit the greater the benefits in energy demand and home resilience.

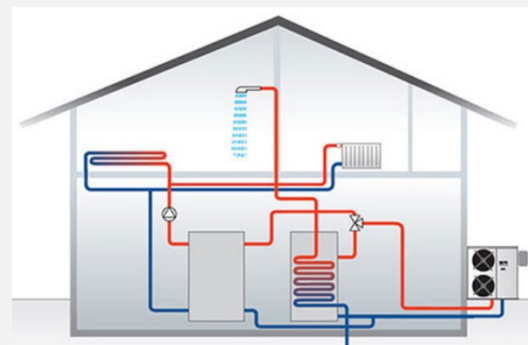
Around a third of homes are suitable for [external retrofit approaches](#); but different solutions are needed for the rest. There are now demanding [standards known as PAS 2035](#)

[requiring a trained retrofit coordinator.](#) This should avoid some of the nightmare bad retrofits of the past.

Wherever possible [one-off, high quality deep retrofit, street by street, is more effective than step by step improvements based on energy ratings promoted by government.](#)

HYDROGEN OR HEAT PUMPS?

[‘If you can use a heat pump, you should’.](#) It’s simply a far more efficient use of energy than converting the gas network to hydrogen. For the maths look at the endnote.ⁱⁱⁱ Heat pump technology is tried, tested, and available. 100% hydrogen heating systems are not. There may be situations where hydrogen makes sense, but it remains highly unlikely to be the main solution. Anyway, **efficiency still need means much improved insulation.**



CLIMATE ACTION BRIEFING



DEMAND, POLITICS, MONEY AND THE MARKET.

Getting retrofitting done needs money, skills, political will, and customer demand.

For owner-occupier 'early adopters' there is a growing [community-based approach](#). Community energy groups are moving in to retrofit. Council should support this. A key message in this sector is to promote Retrofit as home improvement: it's not just about saving on bills.

Large scale demand must begin with social housing and public buildings where the state is the customer. Of the 28m homes in the UK, approximately 4.5m are social housing.

Whole house retrofit is very costly. [One pilot project averaged £40,000 per property](#). Other figures suggest bringing an average 3-bedroom home up to [EnerPhit standard will cost around £75,000^{iv}](#), plus VAT. But social housing maintenance budgets are huge too. See 'In the councils' below.

The market is skewed against retrofit; VAT is charged (but not on new builds using gas boilers); electricity prices bear the costs of the development of renewables whilst gas doesn't yet attract a carbon tax. [The Green Homes Grant is a failing attempt to stimulate the market](#).



Energiesprong retrofits in Nottingham

NATIONAL POLICY CHANGE CALLS

As part of the Green Party's national strategy towards COP26 [we are highlighting the need to introduce an effective carbon tax](#).^v If the unit price difference between electricity and gas were put on a path to reversal this would drive customers away from fossil fuel heating.

We also call for the abolition of VAT on home repair and retrofitting.

[In line with industry figures](#) we call for long term dependable funding for retrofit - directed through councils - well beyond the 2bn so far committed to the Green Homes Grant, or indeed the 9.2bn Tory manifesto promise.

We have called for substantial investment in electricity storage.^{vi}

Watch out for further Green Party statements this year.



UK well behind on renewable energy heating

CLIMATE ACTION BRIEFING



IN THE COUNCILS

Councils need to ensure social housing leads the way (along with public buildings), with their own stock and/or by working with housing associations. This needs innovative thinking and clever use of maintenance budgets, something [our councillors in Lewes](#) and Brighton & Hove are leading on.

This is a huge 'Green Recovery' opportunity and addresses many of our ambitions, as explained in [this great article by one of our Brighton & Hove councillors](#).

Whilst borrowing directly for retrofitting is tricky (as the returns in reduced bills go to the household rather than the council/housing association) there may be ways to borrow to invest in firms or partnerships that can do the work, where there can be a return.

Warmer, better homes

The social justice, health and well-being case is obvious. What other social value can be added when retrofitting social housing? It might be an opportunity to improve green space, cycle storage...?

Local green jobs

This work is local by definition. Skills will be locally defined too as the housing stock differs from area to area. If colleges and firms are told the council has a long-term commitment to retrofitting, they will train and retool. Councils can build relationships with local employers that ensure quality work. This is 'community wealth building' at its best! [This document](#) from Lewes puts the case brilliantly. If you have the ear of your leading councillors or officers send them a copy.

ⁱ Caution needed with %. 'Of what' is one question; 'territorial emissions' is the govt. measurement but misses a lot. Then as other emissions fall due to electricity generation moving to renewables, the proportion left by gas burning will rise.

ⁱⁱ But the case for installing heat pump technology in to public buildings now is made strongly [here](#) and [here](#).

ⁱⁱⁱ A heat pump takes heat from the air (or ground) and uses electricity to ramp this up. The energy out is anything between 120% and 400% of the electrical energy in (the rest comes from the heat in the source). Burning gas to create heat through a boiler has a conversion rate of only 85-90%. So heat pump heating is more efficient. It doesn't feel more efficient to bill payers because of the pricing structure; gas is



Huge potential for green jobs

less efficient, but cheaper per unit. The hydrogen route requires a first step of splitting the hydrogen from water through electrolysis. This is 60-80% efficient. Then the hydrogen goes through the gas system at which point the conversion to heat is 85-90% efficient, giving an overall efficiency range of 51- 72%.

^{iv} EnerPhit is the Passivhaus standard for retrofit. Not quite Passivhaus efficiency. The cost is based on the given estimate per m²

^v From 2019 Manifesto: Apply a Carbon Tax on all fossil fuel imports and domestic extraction, based on greenhouse gas emissions produced when fuel is burnt... We will raise the Carbon Tax rate progressively over a decade, rendering coal, oil and gas financially unviable as cheaper renewable energies rise up to take their place.

^{vi} From Manifesto: Expand our short-term capacity for energy storage so that electricity from peak periods of renewable electricity generation can be effectively stored – utilising solutions such as domestic solar batteries, storage as heat in hot water cylinders and thermal stores, and smart control of vehicle battery charging.