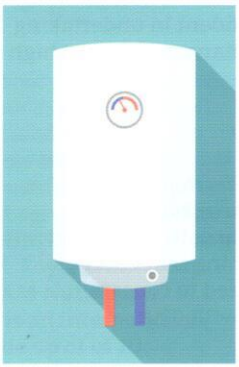
DECARBONISING HEAT

Upskilling for net zero – the task facing domestic heat

Heat decarbonisation is one of the biggest challenges ahead of the UK as it strives to achieve carbon neutrality by 2050. The country urgently needs a trained workforce to install low carbon technologies. *Jennifer Johnson* asks whether offshore wind offers a blueprint for scaling things up.

By 2050, the gas boiler could be as obsolete as the coal fire in UK homes. If the country is going to reach net zero emissions by the middle of this century, there will have to be drastic changes in the way we generate and distribute domestic heat. Academics and policymakers believe that some combination of hydrogen, heat pumps and district heating systems will help us take the fossil gas out of our homes.

But there's not much in the way of consensus around how and when these solutions will be rolled out – or, crucially, whether we have the necessary workforce to install them.



Handling heat

We do know that building a hydrogen distribution grid, or even a large-scale district heat network, is an engineering challenge that will require years of careful planning. However, emissions reductions must start as soon as possible – and this means that some of the UK's housing stock should be equipped with tried-and-tested low carbon technologies. Energy efficiency retrofits and heat pumps certainly seem the logical place to start.

Other European countries have been deploying heat pumps across their housing stock at scale for years. In France, for instance, sales of heat pumps exceeded 240,000 in 2017, while they were less than 20,000 in the UK. Limited demand to date means that there are relatively few UK installers with extensive experience of fitting heat pumps. Therefore, government must support industry to ensure it's prepared to face the challenge ahead.

'It takes more time to install a heat pump than a traditional gas boiler, so we're going to need a bigger workforce if we're going to install a lot of heat pumps really quickly,' explains Richard Lowes, a research fellow at the University of Exeter specialising in heat policy and governance.

'We're also going to need a bigger workforce for energy efficiency retrofits – and there's no strategic programme to make that happen. If you go to college, you might be encouraged to do plumbing or heating engineering, but there's not a national strategy to train more heating engineers or get more people installing insulation,' he added.

In its landmark net zero report issued in May, the Committee on Climate Change predicted that there will be a sizeable skills challenge when it comes to achieving zero emission heat. To this end, it recommended that the government deploys existing policy levers and partnership models in the service of heat decarbonisation.

The government has struck several 'Sector Deals' with key domestic industries to date, including automotive, nuclear and aerospace. These partnerships focus on sector-specific issues that can create opportunities to boost productivity, employment, innovation and skills.

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Lessons learned offshore

In March 2019, offshore wind became the first renewable industry to sign a Sector Deal with the government. The agreement stipulates that one-third of British electricity will be produced by offshore wind in 2030 and includes provisions for the necessary upskilling of the country's workforce.

The deal also announced the creation of a new £250mn Offshore Wind Growth partnership to ensure that companies in coastal regions – including East Anglia, the North East and the Solent – can spearhead the industry's global expansion.

'As part of the Offshore Wind Sector Deal, the offshore wind industry has set up a new body, the Investment in Talent group,' says Rhys Jones, Head of Technical Affairs at trade association RenewableUK. 'This group is developing and implementing pathways to ensure that we attract a wide and diverse range of entrants into our sector. We're working closely with colleges up and down the country to ensure courses are available at every level, for our future wind turbine technicians, project managers and engineers.'

According to Jones, the offshore wind industry is also looking at how it can integrate oil and gas expertise into renewables. Recognising that such crossover exists, and training people who already have a relevant skillset, will also be vital in the decarbonisation of heat. At the moment, there are few training programmes with a significant focus on low carbon heating technologies, likely because demand for them is low.

But change could be coming with the government's new 'T Level' courses, which are designed to follow GCSEs and prepare students for skilled employment in industry. 'There is recognition of sustainable heating in the T Level plumbing course,' Lowes says. 'It doesn't go much further than telling students to be aware of these technologies, but they are mentioned.'

At the end of the day, the renewables sector must recruit and train enough skilled people to carry out a system-wide energy transformation. This will require an unprecedented mobilisation of newly qualified engineers and experienced technology installers alike. The UK already has one large-scale renewables success behind it in the form of offshore wind. Similar levels of policy support must now prop up the other sectors working towards decarbonisation. ●