
About Nesta

Nesta is the UK's innovation agency for social good. We have worked for over 20 years to design, test and scale new solutions to society's biggest problems, changing millions of lives for the better.

Background

The UK's low-carbon heating industry will have to grow its capacity rapidly in the coming years. Over the next three decades, around 25 million fossil-fuel boilers will need to be swapped for less polluting heating systems. This cannot be done without skilled people to do the work.

Nesta's latest research explores the current state of the heat pump market from a skills, training and productivity perspective and suggests ways of increasing the supply chain's capacity to install heat pumps. We interviewed industry experts, training providers, think tanks, manufacturers and heating engineers and assessed data from Nesta's own Open Jobs Observatory¹ and Microgeneration Certification Scheme's Installation database of certified heat pump installation companies.

Key findings

The UK needs to train more engineers each year than there are currently in the whole industry. We estimate that there are currently 3,000 trained heat pump engineers in the UK. In order to increase the annual number of installations twenty-fold by 2028, the number of engineers will need to increase to at least 27,000 in the next six years, an average increase of 4,000-6,000 per year.

Growing the capacity of the heat pump industry is crucial. Increasing the number of highly skilled engineers and having productive companies to employ them may be even more important and challenging than increasing consumer interest. Without them, the industry will not be able to meet increasing demand.

The existing training pathways are complex and fragmented. There is currently no single, clear route for someone new to the industry to train as a heat pump engineer. Training offers are fragmented and sometimes inconsistent.

The industry needs to attract both experienced gas engineers and new entrants. Having enough companies and experienced engineers to take on and help train new workers is vital so the heat pump industry can grow. Attracting new entrants via colleges and apprenticeships will also be crucial given the age demographic of the existing gas workforce.

Diversity is a central aspect of this challenge. The heating industry is one of the least diverse parts of the UK economy. Considering the lack of diversity, the high average age of engineers and that many will be retiring within the next decade, the industry needs to cast the widest possible net to attract recruits who are currently underrepresented.

¹ The Open Jobs Observatory is an ongoing project from Nesta that provides free and timely insights on the skills mentioned in UK job adverts.

Incentives for installers and companies to switch to heat pumps remain weak. Engineers are hesitant to invest in retraining because there is currently uncertainty about the future direction of the industry and governments' policy in regards to net-zero and low-carbon heating. The market incentives are not currently strong enough either for workers to train as heat pump engineers or for companies to take them on. Our research shows that there is currently no wage premium for installing heat pumps compared to gas boilers.

Increasing productivity. Industry productivity has remained stagnant for the past few decades. Increasing it is critical as this could translate to higher wages for engineers, reduced costs for consumers and a reduction in the number of engineers needed.

Recommendations

Leadership to oversee the industry's expansion

- The UK **government** should appoint a body to oversee the expansion of the low carbon heating industry and workforce.

Attracting people into the industry

- Colleges, training providers and governments should work together to establish more direct routes to training.
- Governments in the UK should trial how effective a cash incentive would be in attracting people to train as heat pump engineers and encouraging heat pump companies to take on and train new workers.
- Governments in the UK should launch a national campaign about net-zero homes, heat pumps and the crucial role of heat pump engineers to help crystallise a new image for the sector.
- Installation companies should review their hiring processes to attract a diverse workforce and ensure that their internal policies encourage employee retention, experience and promotion.

Improving existing training pathways

- Colleges, training providers and governments should integrate in-depth heat pump modules into existing college courses and apprenticeships.
- The UK's **governments** should offer time-limited grants for continued professional development to certified heat pump engineers.
- Governments should support the wider take-up of shared apprenticeship schemes and provide employees that are taking apprentices with teaching guidance, resources and financial support.

Increasing productivity in the low carbon heating industry

- Existing small heating installation companies may benefit from taking on additional employees. MCS and governments should provide more formal support for cooperatives or umbrella arrangements.
- Heating manufacturers should consider getting more directly involved in training engineers and helping them to raise their productivity.

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