

Nusku Fully UK Designed and Manufactured Heat Pump for Distressed Purchases Accelerator

Project Lead: Nusku Ltd

Partners: University of Salford

Funding:

£727,480.01



University of
Salford
MANCHESTER

The problem: Distress purchasers of heat systems are an untapped market for heat pumps

Many people are choosing not to install a heat pump system when their combi-boiler fails. This is driven by three major factors: disruption to household, high capital expenditure, and a time-consuming installation process. Current heat pump systems cost around four times more than a combi-boiler replacement (EST 2022) as customers must cover the additional material and labour costs of adding a hot water tank, pipework and replacing radiators.

The solution

Nusku is creating an air source heat pump solution designed specifically for the easy replacement of gas boilers in a cost-effective way, without the need for major internal home rework. The solution will be quicker and easier to install, taking just a few days compared to a typical heat pump installation, which takes over a week. Its innovative design eliminates the need to change radiators in typical UK households. Another key ambition is for the Nusku heating system to be the smartest, most connected, and efficient on the market when it launches.

“ We're creating an innovative heating system based on heat pump technology, which has been designed specifically for the easy replacement of gas boilers in a cost-effective way, removing the need for major internal changes which most current heat pump solutions require. ”

Russell Murchie

Founder and CEO, Nusku Limited



Designing and manufacturing a revolutionary heat pump solution

What are we going to do?

The project will advance from early prototypes to a fully packaged system, which will be tested in the Salford Energy House and in a small number of trial homes. Nusku aims to develop further functionality in the hardware and controls system to improve performance and optimise the sensor and controls functionality to improve efficiency.

Why is this an improvement on current solutions?

Current heat pump systems cost four times more than a combi-boiler replacement (EST 2022); customers must cover the additional material and labour costs of adding a hot water tank, pipework, and replacing radiators. The Nusku solution removes these additional costs, reducing the CapEx by £3,400 compared to current typical heat pump installations.

The novel design, which has patents pending, allows heat and energy to be managed approximately 14% more efficiently than existing designs, resulting in 12% lower running costs.

What would success look like?

Nusku aims to develop the existing engineering prototype into a full, packaged prototype solution with all the required control and app functionality, before moving into the testing and trialling phase to validate the performance of the product. The timing should work well to unlock the as yet underserved combi-boiler replacement market and ensure the successful R&D to achieve the control and appropriate packaging of a product to meet this need.



How will this project help towards the target of installing 600,000 heat pumps per year by 2028?

Nusku makes heat pumps viable for 40% more households than standard heat pumps, offering a potentially transformational impact on the industry, particularly around distressed purchases. It will contribute to the 2028 target by delivering significant cost savings compared to other heat pump solutions; unlocking installations not possible with existing heat pump technology; reducing installation time and the extent of internal disruption; and through its attractive carbon savings.

The Optimised Solutions Development stream of the Heat Pump Ready programme supports the development of innovative tools, technologies and processes to overcome specific barriers to heat pump deployment in the UK. Wave 2 of this stream supports solutions aiming to improve the ease of heat pump deployment in homes that are 'complex to decarbonise', develop innovative solutions to enable heat pumps to be deployed in 'distress purchase' situations, improve performance of domestic heat pumps with low-GWP refrigerants and improve the domestic consumer experience of using and living with a heat pump.

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