

£44 million cash boost to cut emissions from buildings and help households save on energy bills

- Over £44 million government funding will enable the supply of clean energy to heat and cool tens of thousands of UK homes and public buildings
- investment will help cut carbon emissions by up to 22% for homes and buildings connected to heat networks while providing potential reductions of up to 15% in energy costs
- key step in government's plans to make buildings greener and eliminate the UK's contribution to climate change by 2050

Tens of thousands of UK homes, businesses and public buildings are one step closer to benefitting from greener, cleaner energy thanks to £44 million of government funding announced today (Friday 28 May).

Today's funding package addresses the urgent need to reduce the carbon footprint of heating homes and workspaces which makes up almost a third of all UK carbon emissions.

Of the £44 million funding announced today, £30 million will fund 3 innovative heat network projects providing low carbon energy in south-east London, Manchester and Cambridgeshire, whilst helping to bring down energy bills.

A heat network is a distribution system of insulated pipes that takes heat from a central source, such as a combined heat and power plant or heat recovered from industry and delivers it to a number of domestic or non-domestic buildings. They are a proven, cost-effective way of providing reliable low carbon heat at a fair price to consumers.

South-east London

More than £12 million of funding to develop one of the UK's largest heat networks in the London Borough of Bexley that will supply low carbon heat to 21,000 homes. Heat for the network will be drawn centrally from the processing of non-recyclable waste, a low carbon alternative to individual gas boilers. The project is part of plans by energy company Vattenfall to deliver low carbon heating to 75,000 homes across the Thames Estuary over the next decade.

Manchester

£14.7 million to develop a network across a zone of five square kilometres in Manchester's city centre that will distribute low carbon electricity, heat and cooling to a range of buildings, including the local hospital, a mix of

social and private housing, student accommodation blocks and commercial organisations such as the Heineken brewery. Heating will be powered by energy from solar panels and air source heat pumps.

Cambridgeshire

£3.3 million for a first-of-its-kind community-led project in the Cambridgeshire village of Swaffham Prior, which will allow 300 properties to collectively transition from oil to low-carbon heating using a network of hybrid ground and air source heat pumps.

Minister for Climate Change Lord Callanan said:

Almost a third of all UK carbon emissions come from heating our homes and addressing this is a vital part of eradicating our contribution to climate change by 2050.

Today's funding package will accelerate the development of low-carbon technologies that will both reduce emissions, and ensure people's homes are warmer, greener and cheaper to run.

Securing a lasting move away from fossil fuels to heat our homes will allow thousands of households and businesses to feel the benefits of projects that are breaking new ground and making our villages, towns and cities cleaner places to live and work.

Innovative projects like those this funding is backing are developing new and effective ways to use energy in homes and workspaces, which is helping to drive down costs and making low-carbon heat affordable and accessible for consumers as the UK transitions to a greener future.

On top of the £30 million for heat network projects, a further £14.6 million announced today will benefit 11 projects in England, Scotland and Wales. The funding will be invested in exploring ways the UK can develop and use efficient, low-carbon technologies for heating and cooling buildings.

Projects include one being led by Durham University that is exploring whether water in flooded, abandoned coal mines could be used as a low-carbon geothermal source of heat. Another scheme from the University of Birmingham is looking at ways that electricity from renewable energy sources can be stored in times of low demand to meet requirements at peak periods and a further project being led by the University of Glasgow is aiming to develop the efficiency of air source heat pumps.

Today's £44 million funding announcement comes ahead of the publication of the government's Heat and Buildings Strategy which will set out how carbon emissions in homes and workspaces will be addressed to meet legal commitments over ending contributions to climate change by 2050. The strategy is due to be published this year.

The funding also helps deliver on commitments made in the Prime Minister's [10 point plan](#) to make the UK's homes, schools and hospitals greener, warmer and more energy efficient, while creating 50,000 jobs by 2030, and the government's ambitious [energy white paper](#) that commits to transforming the UK's energy system and changing the way homes are heated.

Notes to editors

£30 million funding for Heat Networks Investment Projects

Swaffham Prior

Funding of £3.3 million will see a first-of-its-kind project developed in Cambridgeshire that allows the village of Swaffham Prior to transition from oil to low-carbon heating, with 300 properties linked to a network using hybrid ground and air source heat pumps.

With government support, Swaffham Prior Community Land Trust and Cambridgeshire County Council have created a collaborative community heat scheme that provides a blueprint model which can be replicated in other communities across the UK.

Councillor Joshua Schumann, Chairman of Cambridgeshire County Council's Environment and Sustainability Committee, said:

This is a fantastic project and a first of its kind that we know of in the country. Retrofitting a whole village is a challenge but the Swaffham Prior Community Land Trust has been a great partner driving the project forward.

Securing the funding is a huge step in creating accessible renewable heat for oil-dependent homes in Cambridgeshire. Cambridgeshire County Council is committed to tackling climate change and I'm looking forward to seeing the continued success of this project.

Cory – London Borough of Bexley

A £12.1 million package of government loans and grants is being made to the Cory project in the London Borough of Bexley. The funding has been awarded to Cory to support heat networks that will supply low carbon heat to 21,000 homes.

Heat for the network will be drawn from Energy from Waste facilities run by Cory and is part of plans by Vattenfall to deliver low carbon heating to 75,000 homes across the Thames Estuary over the next decade.

Dougie Sutherland, CEO at Cory, said:

We are delighted that BEIS is supporting the development of one of

the UK's largest heat networks.

This is a very major step towards net zero, providing low-carbon heat for thousands of homes and businesses in Bexley and its surrounding Boroughs.

Manchester OPEN

The Octagon Project Energy Network (OPEN) heat network will receive £14.7 million in grants and loans for a scheme that plans to distribute low carbon electricity, heat and cooling to a range of buildings in the city centre such as Manchester University NHS Foundation Trust, a mix of social and private housing, student accommodation blocks and commercial organisations.

Heating will be provided by Combined Heat and Power generation, which will be combined with power from solar panels and air source heat pumps.

Richard Everton, Chairman of the Manchester Energy Partnership said:

I am delighted that the tenacity and single mindedness of the Manchester Energy Partnership Limited team has turned what was a personal 'pipe-dream' into a financially viable and practical reality for the city of Manchester.

The support received from both the local authority and central government is proof that multiple agencies can work together with the private sector to bring about infrastructure projects that will benefit communities, in pursuit of fuel efficiency and to reduce carbon emissions in our major cities. Manchester is taking a strategic lead in achieving 'Net Zero North West'.

£14.6 million funding to decarbonise heating and cooling

11 projects are supported by the £14.6 million investment from the Engineering and Physical Sciences Research Council (EPSRC) and Natural Environment Research Council (NERC), both of which are part of UK Research and Innovation (UKRI).

Engineering and Physical Sciences Research Council Executive Chair Professor Dame Lynn Gladden said:

With the heating and cooling of buildings accounting for a large share of the UK's carbon emissions, there is a pressing need to develop sustainable new methods of generating and supplying energy for these purposes.

In the build-up to COP26, the new projects highlight how innovative new technologies and approaches will play a key role in reducing emissions and helping the UK to achieve its Net Zero goals.

Further details on individual projects

Aquifer thermal energy storage for decarbonisation of heating and cooling

- Professor Matthew Jackson, Imperial College London
- UKRI funding: £1.5 million (NERC)

The project aims to develop technology that would tap underground water to provide a renewable energy source to heat and cool buildings. The team would use aquifer thermal energy storage that would warm or cool groundwater that is pumped underground and stored in a porous rock mass, called an aquifer. This would allow warm water to be stored to provide heating in winter, and cool water to be stored to provide cooling in the summer while greatly reducing the energy required to heat and cool buildings.

SaFEGround – Sustainable, Flexible and Efficient Ground-source heating and cooling systems

- Dr David Taborda, Imperial College London
- UKRI funding: £1.5 million (EPSRC)

The project aims to provide a template for reducing the emissions associated with heating and cooling through the use of heat pumps. The team aims to demonstrate the role that heat pumps drawing energy from the ground can play an important role in the UK's future low-carbon energy mix.

Geothermal Energy from Mines and Solar-Geothermal heat (GEMS)

- Professor Jeroen van Hunen, Durham University
- UKRI funding: £1.4 million (EPSRC and NERC)

Mine water in flooded, abandoned mines has the potential to provide a huge source of low-carbon, geothermal heat for the future which is estimated to be enough to meet the demands of all the buildings that lie over old coalfields. The project will look at all aspects of mine water geothermal heating, from its extraction using heat pumps to storage, delivery and the role of local communities.

Flexibility from Cooling and Storage (Flex-Cool-Store)

- Dr Carlos Ugalde-Loo, Cardiff University
- UKRI funding: £1.1 million (EPSRC)

With demand for the summertime cooling of buildings set to increase in the UK, this project will investigate the potential impacts of a growth in cooling demand and how they can be sustainably managed. It will conduct detailed studies to understand how cooling demand might change in the coming decades and quantify the impact of increased demand on electricity networks.

DecarbonISation PATHways for Cooling and Heating (DISPATCH)

- Dr Sasa Djokic, University of Edinburgh
- UKRI funding: £1.4 million (EPSRC)

The DISPATCH project will aim to determine how consumers can use currently available, emerging and future decarbonised energy sources based on where they live, how they and others use the buildings they live in and whether they can be retrofitted with new technologies. These include electrification of heating, hydrogen-based systems, solar panels, batteries and biomass.

Heat Accumulation from Renewables with Valid Energy Storage and Transformation (HARVEST)

- Dr Yongliang Li, University of Birmingham
- UKRI funding: £1.5 million

The project aims to develop new heat storage and conversion technology to absorb and accumulate curtailed renewable electricity over the course of the whole year. It would ensure that renewable electricity is stored in times of less electricity demand and ready for use to meet high heating demand in winter and high cooling demand in summer.

Flexible Air Source Heat pump for domestic heating decarbonisation (FASHION)

- Professor Zhibin Yu, University of Glasgow
- UKRI funding: £1.1 million (EPSRC)

The project aims to address challenges to the wider use of air source heat pumps (ASHPs) as a cost-effective, renewable source of energy for heating in UK homes. The project aims to develop an efficient, flexible ASHP capable of continuous heating and operating at different modes to benefit from off-peak electricity or warm air during the daytime.

Barocaloric materials for zero-carbon heat pumps

- Dr Xavier Moya, Imperial College London
- UKRI funding: £1.4 million (EPSRC)

The project aims to replace the conventional technologies currently used to provide heating with an environmentally-friendly and efficient alternative using barocaloric effects. These take place when materials are subjected to changes in pressure, generating heat that can be utilised through heat pumps.

Decarbonisation of Food Cold Chain Through Integrated Hydrogen Technologies

- Dr Sanliang Ling, University of Nottingham
- UKRI funding: £1 million (EPSRC)

Working alongside industry stakeholders, this project will look to enable hydrogen power to become a key part of the UK's energy future and assist in the decarbonisation of the UK food cold chain.

Zero Emission Cold-Chain (ZECC): Building the Road to Sustainable Cold-Chain Systems for Food Resilience

- Professor Toby Peters, University of Birmingham
- UKRI funding: £1.4 million (EPSRC)

This project will bring together world-leading researchers, industry, technology innovators and customers such as farmers and retailers to map the opportunities and challenges to ensuring that the cold food chain can support UK-wide Net Zero goals and decarbonise while also meeting demand and being resilient.

VTTES – Variable-Temperature Thermochemical Energy Storage System and Heat Networks for Decarbonising the Buildings Sector

- Professor Jo Darkwa, University of Nottingham
- UKRI funding: £1.3 million (EPSRC)

Conventional thermochemical energy storage systems require the storing or discharging of heat intermittently, but this novel system will operate continuously at variable temperatures. The project also aims to investigate to better understand the barriers to the uptake of community-based heat networks so that any socio-economic, socio-technical or environmental issues can be addressed.

Further background on heat networks

- the £30 million funding announced today comes from the government's £320 million [Heat Networks Investment Project](#) (HNIP), which supports the development of heat networks across England and Wales
- heat networks will play a vital role in decarbonising heat, which underpins the Prime Minister's 'Ten Point Plan for a Green Industrial Revolution', and are included in the energy white paper
- the government continues to support the development of a wide range of heat network projects across England and Wales through the £320 million HNIP; BEIS is currently developing the Green Heat Network Fund, which is intended to be the targeted successor to HNIP
- heat network projects are further supported through the Heat Networks Delivery Unit (HNDU)
- HNIP applicants are expected to adhere to Heat Trust standards of customer protection, or equivalent, as a condition of eligibility
- the government has consulted on a market framework seeking views on policy options for regulating heat networks to protect consumers and ensure fair pricing, while supporting market growth and the development of low-carbon networks
- responses are currently being analysed and a government response to the consultation will be published in due course, setting out a choice for a heat networks regulator