



Department for
Business, Energy
& Industrial Strategy

What is a heat network?





What is a “Heat Network”?

Heat networks (also known as district heating) supply heat from a central source to consumers, via a network of underground pipes carrying hot water. Heat networks can cover a large area or even an entire city, or be fairly local supplying a small cluster of buildings. This avoids the need for individual boilers or electric heaters in every building. Heat networks are sometimes described as “central heating for cities”.

The central heat source is often referred to as ‘the energy centre’. There are many possible technologies that can provide the input to a heat network including power stations, energy from waste (EfW) facilities, industrial processes, biomass and biogas fuelled boilers and Combined Heat and Power (CHP) plants, gas-fired CHP units, fuel cells, heat pumps, geothermal sources, electric boilers and solar thermal arrays.

Heat is brought into each building through a ‘heat exchanger’ which, for a residential connection, is about the same size as a small gas boiler. All the same heating controls are available and to the end user the central heating and hot water system works in the same way as a domestic gas-fired central heating system without the need for any combustion to take place inside the building.

Heat networks can be various sizes and serve various combinations of building types. Heat networks can be extended over time, and new heat demands and heat sources can be added to the network.

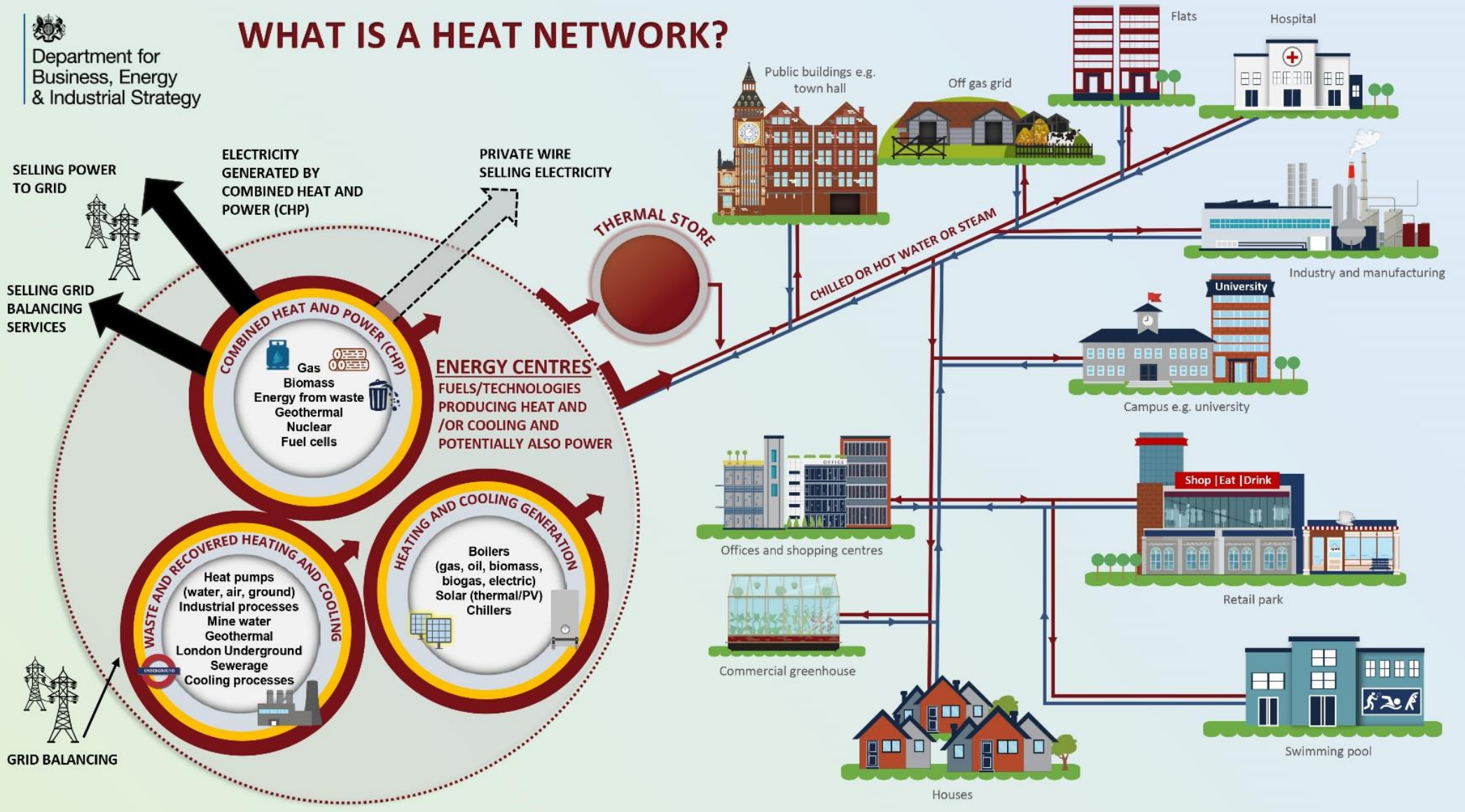
Why consider a Heat Network?

Heat networks are particularly attractive in high-density built-up areas such as city centres, and also work well for new build developments and campuses, and for some more rural off-gas grid communities. They can deliver a wide variety of benefits to the environment, to consumers and to the wider economy.



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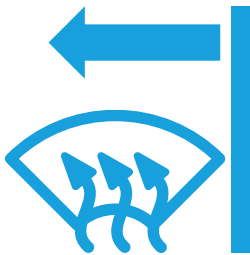


Cost effective low carbon heat



A heat network is one of the most cost-effective ways of reducing carbon emissions from heating. Their efficiency and carbon-saving potential increases as they grow and connect to each other. They are an essential part of our future clean energy infrastructure. Many of the cheapest sources of low-carbon heat can only be used if there is a network to distribute the heat.

Utilising Waste Heat



Once the network is in place, heat that otherwise goes to waste can be harnessed and used: for example waste heat from industry, from power stations or from low temperature heat sources such as from data centres. Heat can even be taken from the rivers and canals that run through many town centres and from the warm mine-water left in old coal mines.



Reducing Consumer Bills



Heat networks can mean lower bills for consumers. The Government will only support heat networks which can provide heat at prices no higher than the alternatives, and we will be specifically encouraging those that can show they will be able to cut bills. Bill savings of at least 30% have been achieved when replacing electric heaters in tower blocks. In this way heat networks can help in our battle against fuel poverty too.

Catalyst for local growth



New infrastructure investment is a catalyst for local growth. Local authorities often incorporate heat networks – sometimes with Combined Heat and Power plants to provide local electricity too – to drive regeneration and attract new business.

Flexible Stable Energy System



The energy system, like the whole economy, is an integrated and complex system. Heat networks can have a beneficial impact on the stability and cost-effectiveness of the whole system. Such benefits will take time to realise, but we know that a large heat network system, especially when combined with a large thermal store (hot water tank), offers a cheap and easy way of storing energy until it is needed. This can include taking any surplus supplies of electricity and converting them to useable heat, to the benefit of the overall energy system.

Document produced for BEIS by [Ecuity Consulting LLP](#)

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