

HEAT TECHNOLOGY INNOVATION: CAN IT LEAD TO A LOW CARBON FUTURE?

This paper was put together following the CBx evening event in March 2016, which explored innovations in heat technology. In the UK, 44% of energy use goes into space heating and hot water, with the energy source for heating predominantly being fossil fuels. In order for the UK to reach its carbon targets, there must be: (1) a shift from fossil fuel energy sources to low carbon sources; and (2) an increase in end-use efficiency. One possible solution to assist the UK with this goal is through district heating installations. However, at present, the UK has one of the lowest participation in such schemes in Europe.

As one of the lowest participants in Europe for district heating, there is certainly room for improvement. However, there appears to be an information gap between invested parties that all too often leads to confusion about how to optimise a heat network's operation. As a result, many networks across the UK are being mothballed, which is a huge blow to the UK Government's carbon targets.

Heat technology innovation can help increase district heating (DH) penetration in the UK. Heat networks should be highly efficient and low carbon to realise the full benefits. An optimal DH operation means meeting the consumer's environmental, economic and technical requirements. An inefficient network will have higher operating costs which are

passed on from the operator to the end-user. Many networks in the UK (new and old) have high heat losses. It has been reported that only 27% of biomass boiler installations in the UK operate at optimal efficiencies according to their owners.

Innovation in the sharing of information, metering, controls, technology and Operation and Maintenance (O&M) can all contribute to the uptake of DH networks. This paper explores these topics and looks at how innovation can lead the way for a low carbon, more sustainable future.



"Sharing of information and training can help narrow the knowledge gap that exists regarding optimal heat networks."

- Patrick Elwell, CBx

KEY FINDINGS:

- Networks across the UK are underperforming and costs are being passed on to customers
- Informing and involving stakeholders at appropriate stages of a heat network project can lead to improved market penetration of heat networks
- Measuring and monitoring network data can lead to better management of heat. This has been made possible with innovation in energy metering
- Innovative energy solutions can improve efficiency without large, and often expensive, infrastructural changes
- Network penetration can be absorbed by barriers such as policy, expertise, finance, availability of technology, and attitude
- Renewable technology will have an important role in DH as the idea of a thermal grid takes hold. Decentralised energy can be made reliable through energy sharing and storage

FULL REPORT:

<http://cbxchange.org/knowledge/white-paper-heat-technology-innovations/>

MORE INFORMATION:

www.cbxchange.org @CBxchange