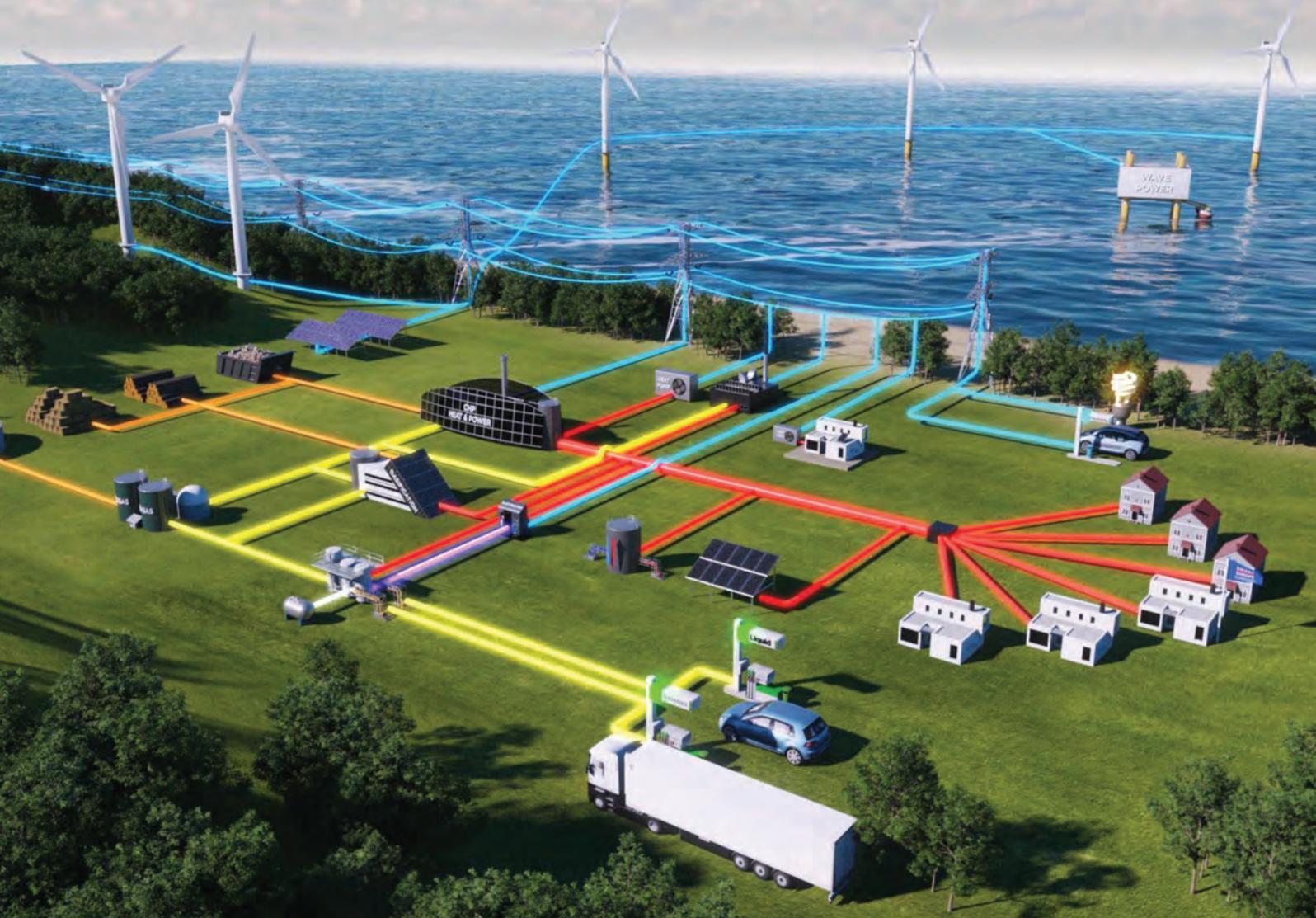




70 40

'Delta T' Design Guide

Low Carbon System Design - a whole system approach
"70°C flow / 40°C return"



Strategic review of **4G Heat Networks** in the UK

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Tackling fuel poverty, the key role of heat networks

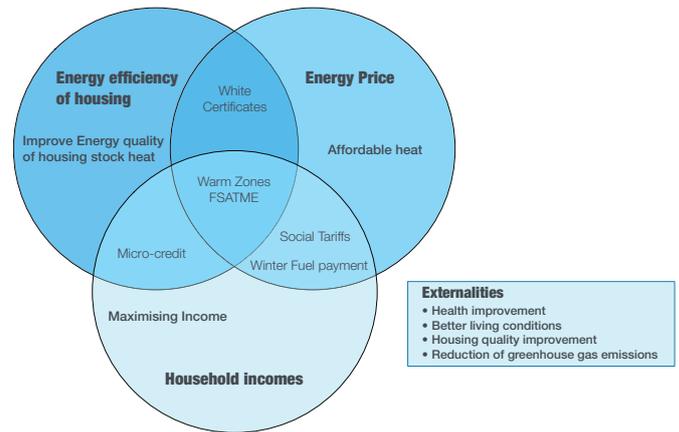
Introduction

Fuel poverty is a widespread socio-economic issue across the UK, driven by three key factors – the energy efficiency of the property, the cost of energy and the income of the household.

The UK government has had a legal duty to set out policies designed to reduce, or ideally eliminate, fuel poverty since 2001. Yet, the number of households in fuel poverty has not fallen significantly since that time.

The conventional approach, namely increasing financial support to households in fuel poverty through initiatives such as the Warm Home Discount, fails to get to the root cause of the problem. Whilst it makes a positive contribution to the income of the household, it does not address the other two contributory factors cited above. A holistic approach to fuel poverty must address all three.

Lean heat networks for block heating or district heating (aka communal heating) have a key role to play in improving energy efficiency and reducing fuel costs. However, BSRIA estimates that less than 2% of the UK’s total housing stock is currently connected to a heat network or central plant system.



What is fuel poverty?

National Energy Action estimates that fuel poverty affects over four million households in the UK – approximately 15% of all households.

Fuel poverty is defined in different ways in different parts of the UK. The traditional definition, still used in Scotland, Wales and Northern Ireland, is a household that needs to spend more than 10% of its income on fuel.

In England, a ‘Low Income High Costs (LIHC)’ definition was introduced in 2014. This only counts low income households that have high energy needs as being in fuel poverty. This re-definition was politically expedient as it halved the number of households in England that were classified as fuel poor.

In reality, as observed in the Annual Fuel Poverty Report 2016, there are many households that are not defined as ‘low income’ but are forced into fuel poverty because of high energy requirements. These are typically the result of poorly insulated buildings and inefficient heating systems.

For example, in the past a lot of social housing was equipped with electric heating as this provided the lowest capital cost. However, this is the most expensive form of heating to operate, so that the people who can least afford it have the highest energy bills. It is estimated that there are still over 3 million homes in the UK heated by electricity.

Equally, there are low income households living in energy efficient buildings that are not in fuel poverty.



Above: % People living below poverty-threshold in the UK (60% of median income) - Source: National Energy Action

HIGH NOTE FOR BROAD STREET

One of Birmingham's tallest new buildings is have its mechanical services designed and installed by J S Wright.

Wates Construction has awarded the company the £2m contract for the new 31-storey second building at The Bank development on the city's Broad Street.

The commission involves designing and installing all the mechanical services for the building's 205 high-quality apartments, including boosted cold water and domestic hot water services supplied through electric water heaters.

An energy saving heat recovery ventilation system, water sprinklers, above-ground drainage and a building management controls system will also be provided and fitted by the company.

The iconic 16,055 sq m structure, being built for Regal (West Point) Ltd, is nine storeys higher than its neighbouring building, which is already in the process of being equipped by J S Wright. When complete, the taller building will feature ground floor retail space open to the public.

J S Wright will start work on site on the second building this summer with completion scheduled for autumn 2019. Both buildings have been designed by Glancy Nicholls Architects.

Managing Director Marcus Aniol said: *"We are delighted to be able to apply our specialist skills and experience in continuing to regenerate Birmingham's Broad Street as a vibrant city centre area in which to live, work and shop."*

With a long history of supporting residential and mixed-use developments, J S Wright was responsible for Birmingham's 26-storey Orion Building and recently carried out the enabling works for Paradise Birmingham.

No stranger to even taller buildings, J S Wright is currently equipping two brick apartment towers at Keybridge in London, one of which at 37 storeys will be Britain's tallest.

A CGI of what the new 31-storey second building at The Bank on Broad Street will look like



HONoured FOR THEIR EXCELLENCE



Steve Davis (left) and Tony Harrison (right) of Wolseley with J S Wright Finance Director Martin Roberts



Jamie McCann (left) and Steve Sullivan (right) of AV Group with Phil Leech, J S Wright National Contracts Director



Lars Fabricius (left) of SAV Systems with Andrew Smith, J S Wright National Design and Estimating Director

Outstanding levels of quality, commitment and service delivery were acknowledged by J S Wright at the company's annual Supplier Awards.

Trophies were presented to the top performers in each category at the keenly anticipated awards ceremony at Locanta Restaurant in Birmingham.

The Supplier of the Year Award trophy was awarded to Leamington Spa-based heating and plumbing products distributor Wolseley.

AV Group, the Bolton-based ventilation specialist, received the Sub-Contractor of the Year

Award, and the Manufacturer of the Year Award went to SAV Systems, the Woking-based company specialising in low carbon technologies and energy efficient heating systems.

The awards were based on nominations made by J S Wright's design and contract engineers and foremen, and the broad range of criteria in all three-award categories included quality, proactivity, service level involvement, technical content and after sales support.

Tony Harrison, National Key Account Manager at Wolseley, commented: *"We couldn't be more grateful. A lot of work goes on behind the scenes to ensure our customers receive the best level of*

service possible and it's great to see the hard work pay off."

Supplier of the Year Award runners-up were R&M Fixings & Supports and G M Treble, while Direct Control Systems and Denco Thermal were Sub-Contractor of the Year Award finalists. Polypipe Terrain and Victaulic were shortlisted for the Manufacturer of the Year Award.

Managing Director Marcus Aniol said: *"Working in partnership with loyal and trusted suppliers that provide us with consistently outstanding service has been a key contributor to our success as we progress towards becoming a £50million business."*



Lean heat network design in Bristol

Our thanks to all who attended our recent CIBSE-accredited CPD presentation on [Lean Heat Network design](#) in Bristol, an area where district heating/block heating is proving to be the ideal solution for many projects. The event provided us with an excellent opportunity to share our experiences in working towards 4th Generation heat networks.





SAV customers visit Fredericia district heating scheme

As part of SAV's low carbon education programme, consulting engineers from the UK visited the factories of SAV's manufacturing partners Danfoss, EC Power and AirMaster. The highlight of the trip was the Fredericia district heating scheme.



Founded in 1954, the Fredericia district heating scheme is a private consumer-owned district heating company that supplies heat and hot water to the connected properties. Around 99% of the heat load for the connected properties is met by a combination of waste heat, CHP and the surplus heat from the local Shell oil-refinery.

Fredericia district heating scheme is one of the eight local district heating companies that are connected to the regional heat transmission system TVIS. Located in the middle of Denmark, this multi-city district heating system serves 83.000 homes in the cities of Vejle, Fredericia, Middelfart and Kolding, where its 183.000 consumers benefit from the large amounts of surplus heat generated in the area.

TVIS is an independent general partnership company established in 1983. Its main principle is to be a non-profit company and is owned by the four municipalities it serves (Fredericia, Kolding, Middelfart, Vejle).

Currently the distribution network comprises 82 km of main pipe, from Kolding in the south to Vejle in the north. Pipe diameters range from 200mm to 660mm with a **2-3%** heat loss across the main distribution network.

The fact that all district heating (DH) companies in the area are interconnected through one system, enables efficient use of the surplus heat which would otherwise have gone to waste. Local operation of directly fired oil or gas boilers in the former district heating stations has ceased, thus almost eliminating the direct consumption of fossil fuels for district heating. Once the recent conversion of the Skærbæk power station to wood chip (biomass) CHP is fully implemented, the district heating in the so-called Triangle Region will become 95% CO₂ neutral.

This is economical for the DH customers as the heating production price from the biomass plant will be reduced by 20-25% compared to 2014 prices and it also improves the environmental quality for everyone living in the region by reducing emissions



campaign to educate consumers on the importance of lowering the return temperatures and advise them on how to achieve this. The campaign resulted in a drop on the scheme's return temperatures by 1°C, which, in turn, resulted in a reduction in energy costs for the scheme's consumers.

The trip also included a visit to a multi-residential development connected to the Fredericia district heating scheme, where three consulting engineers were shown how a 60/30 system operates and performs in real life. The conversation continued inside a flat within the development, where particular emphasis was given to the importance of controls of radiators and underfloor heating to obtain low return temperatures.

The benefits of reducing return water temperatures is also a key theme in SAV's [lean heat networks education programme](#).





SAV hosts energy efficiency talks with Danish Energy Minister

SAV Systems' low carbon energy centre in Edinburgh recently played host to talks between the Danish Minister of Energy, Utilities and Climate, Lars Christian Lilleholt, and Danish companies exporting energy efficient solutions to the UK.



The meetings followed the signing of a Memorandum of Understanding between Denmark and Scotland to collaborate on low carbon heat, heat networks and energy efficiency in buildings. This agreement will support the Scottish Government's aims to reduce CO₂ emissions by 80% by 2050, with significant reductions in energy consumption and carbon emissions by 2032.

Lars Christian Lilleholt commented: "The Scottish Government is clearly ambitious in the low carbon energy and climate area. I am very pleased to sign this new cooperation agreement, which I hope will support Scotland's green conversion with Danish energy solutions based on our 40-years of experience."

SAV Systems is a leader in facilitating low carbon solutions for the UK, often adapting and applying technologies and techniques that have been tried and tested in Denmark. The company's Danish partners include Danfoss, EC Power, Airmaster and Kamstrup.

The company's low carbon energy centre in Manor Place, Edinburgh is equipped with working versions of its products, including LoadTracker CHP, Danfoss FlatStation heat interface units and AirMaster Smart Ventilation Units.



SAV is Championship Partner for CIBSE Scotland golf day



SAV Systems' keen golfers are looking forward to an exciting day on the 18th May at the CIBSE Scotland Golf Championship 2018, where SAV is the Championship Partner, sponsoring the event for the second year running.

To be held at the famous, world-class Gleneagles course this year, the event will see 22 teams playing 18 holes, with prizes for the winning three teams.

SAV Managing Director Lars Fabricius commented: "SAV has a strong presence in Scotland and has a well-deserved reputation for delivering low energy building services solutions. The CIBSE golf tournament provides us with a welcome opportunity to participate in a higher energy event and enjoy the natural environment we are trying to protect".

In support of its activities in Scotland, SAV operates a [low carbon energy centre in Edinburgh](#).



SAV recognised as one of Surrey's fastest-growing companies

For the 3rd year running, SAV Systems has won through to the finals of the Surrey Super Growth Awards, this year gaining 4th place in a shortlist of 60 finalists. This placing recognises SAV's position as one of Surrey's fastest-growing privately-owned companies, with a substantial growth in turnover over a four-year accounting period.



The Surrey Super Growth Awards are a collaboration between asb law, Lloyds Bank and RSM. Finalists are selected on the basis of the turnover growth shown in their financial reports, filed at Companies House. The Awards are only open to private companies that have a registered address in Surrey and a turnover in excess of £2m per annum.

SAV Systems General Manager Jose De Almeida commented: "Surrey's economic activity represents 3% of the UK's GDP and is therefore a significant and growing contributor to the national economy. There are over 9,000 private companies registered in the county, so our very high position in this shortlist is testament to the innovation, foresight and commitment to customer service that underly our success."