HEAT AND THE CITY

DEVN NEWSLETTER /

December 2017 – New footing for heat networks

EDITORIAL – NEW FOOTING FOR HEAT NETWORKS

Last week saw a couple of workshops aiming to improve the quality of bids to the Heat Network Investment Project (HNIP). The guidance offered was based on analysis of bids received under the Pilot Round. At these events it was announced that the first round of HNIP has dropped back to Autumn 2018. Given that HNIP is positioning to provide 'gap' funding to augment other primary sources of funding one wonders whether this delay will leave enough time to get the money out the door before the five year term is up. It was also revealed that the Government will '*set the market'* in an announcement due in late Spring 2018. What does this mean? The likelihood is that it will be the BEIS response to the ADE's Taskforce recommendations, due out in January, on the future regulation of heat networks.

There has been quite a bit of activity around heat network regulation in its broadest sense over the past few months. Back in the summer the Greater London Authority issued a consultation on the draft new **London Environment Strategy** which flagged up changes to a forthcoming consultation on the **London Plan**, which has now been published. Although the heat hierarchy prioritising CHP and heat networks remains intact, it is slightly amended to encourage developers of heat networks to install thermal storage and scavenge for sources of waste heat. In Scotland the Government has issued a **second consultation** of its proposals for Local Heat and Energy Efficiency Strategies and the regulation of district heating. This will place a statutory requirement on local authorities to develop and local heat and energy efficiency strategy that will provide an evidence base for the defining district heating zones as well as a system of licensing and consenting heat network developers and operators with statutory undertaking rights. It seems likely that elements of the Scottish Government's plans will need legislation and the consultation is to refine proposals for inclusion a Scottish Energy Efficiency Plan (SEEP) Bill in the Scottish Parliament.

Separately, a report from the Energy Research Partnership details its research into a '***Transition to Low Carbon Heat'*** This concurs with much of the technological conclusions of the **Committee on Climate Change's report** on heat policy from last year – deep energy efficiency refurbishment of the existing building stock , high standards for new build, pursue 'no regrets' options of heat pumps and heat networks, investment in CCS and an early decision on the role of hydrogen. The resulting scenario will be a mix of energy sources and technologies – unlike the domination by natural gas that we currently have. But where it adds new ground is stating that whatever technologies are deployed the transition is going to cost a lot of money and consequently ***prices will rise***. Consequently, there needs to be an engagement with the public with a new narrative on heat to explain the need and win acceptance as well as consideration of how the distributional impacts will be managed. All in all there needs to be a long term strategy that integrates decisions with those in the power and transport sectors and the report moots the need for a national delivery body to oversee it all. In contrast a **report** from ETI and AECOM suggests that substantial savings – up to £30 billion – could be achieved in technical innovation, primarily in design and pipework installation.

My own view is that one the most significant elements of the cost of any capital intensive energy system is the rate of return on capital. Others seem to agree (see **here**). Of course, capital expenditure and the return on capital are recovered from customers via the standing charge. In October the Heat Trust published its first **annual report** detailing its activities to date. This is a very welcome first step and builds the foundation for the future development of standards of service for consumers. But it also reports that the majority of complaints have been about billing, most commonly about standing charges. Without measures to bear down on the size of standing charges this will continue to irk customers.

Standing charges can be reduced by bearing down on the risks associated with the development of heat networks. Greater regulation can help to do so, particularly demand risk by obligating buildings to connect through planning policies such as the GLA's London Plan. What has is missing from the new Scottish Government consultation against the first version is that the long stop local authority power to obligate connection has been removed. It may be that obliging privately owned buildings to connect is a step too far. But it should be possible to do so for publicly owned buildings. Without it there will be no reduction in demand risk and capital will be priced accordingly Furthermore, if BEIS decides that in '*setting the market*' to include powers to obligate connection for public sector buildings, at the least, then investors may chose to place their capital south of the border.

Both DBEIS and the Scottish Government should also consider the very practical suggestions contained in the report by UKERC and the University of Edinburgh's review funded by the ETI on **local authority engagement in UK energy systems**.

Both Governments need to remind themselves that the challenge is to deliver a heat network market that is sustainable without further government support. Whilst capital investment is welcome it will inevitably run out after the five year term for HNIP ends. Other measures need to be embedded including restructuring of market regulation if heat networks are to fulfil their potential in decarbonising the UK's heat sector.

Wishing you all a very Happy and Merry Festive Season!!

Michael King
Editor

PS Since this piece was written BEIS has published its Consumer Satisfaction Survey and the CMA has announced it is to investigate the district heat market. We wil return to consider these developments in the next issue.

SPOTLIGHT ON: REDUCING THE CAPITAL COST OF DISTRICT HEAT NETWORK INFRASTRUCTURE (ETI) – 5 NOVEMBER 2017

Key findings from **the project**

Cost modelling of a notional baseline network (constructed to current good practice in the UK) comprising a mix of types of dwelling from flats to detached houses and a group of nondomestic buildings showed that 77% of the total cost of a typical heat distribution network is associated with three key elements:

1. The civil engineering work to excavate and reinstate trenches (37%).

2. The transmission and distribution pipes and their installation (17%).

3. The supply and installation into the buildings of the heat interface units (HIUs) and associated pipework, which enable the connection of the DH network to the building's heating system (23%).

A technical review of DH experience outside the UK revealed that the technical designs used in countries with established district heating markets are broadly similar to the designs deployed in the UK.

However, in other countries there is a widespread understanding of DH systems and better integration in practice across all delivery stakeholders, including a more standardised methodology for carrying out assessments, design and construction for new schemes.

SPOTLIGHT ON: BEIS HEAT NETWORKS CUSTOMER SURVEY, A REPORT FOR BEIS BY KANTAR PUBLIC – DECEMBER 2017

The **Heat Networks Consumer Survey** is a research project into the experiences of consumers on heat networks. Survey responses were received from 5,502 consumers, including 3,716 where the household was identified as being served by a heat network (HN), and a comparison sample of 1,786 non-heat network consumers (non-HN). The heat network sample included consumers from both district (multiple buildings) and communal (one building) heat networks. This reflects a 21% response rate.

Responses were received from consumers across 2,218 different heat networks.

How satisfied are consumers with their heating and hot water system? Is it performing as they expect?

Overall, heat network consumers were just as satisfied with their heating systems as non-heat network consumers. Nearly three-quarters in both populations said they were 'satisfied' or 'very satisfied'. Among heat network consumers, the key drivers of satisfaction were: the reported reliability of system, the perceived fairness of price, satisfaction with the level of information provided about their system, experience of under-heating, experience of over-heating, and satisfaction with handling of complaints.

What level of control do consumers have over their heating system? What controls do they have installed?

The survey shows heat network consumers have less control over their heating, compared with non-heat network consumers. They were more likely to report having and using thermostatic radiator valves (TRVs) but were less likely to have a central thermostat or heat programmer. Only 26% of heat network consumers had a heat programmer that they used (compared with 46% of non-heat network consumers).

Lack of control seems to be driving wasteful cooling behaviours; heat network consumers were more likely than non-heat network consumers to open windows (HN: 87%, non-HN: 79%), and use electric fans to cool their homes when they experienced over-heating (HN: 49%, non-HN: 44%). Lack of control also seems to be a cause of over-heating in the heat network sector (see discussion below).

How many consumers have experienced interruptions in service? How frequently?

Service interruptions are relatively common in the HN sector. More than a third of heat network consumers reported experiencing an interruption/ loss of heating in the last 12 months (HN: 37%, non-HN: 24%) and were also more likely to have experienced multiple interruptions in the last 12 months (HN: 21%, non-HN: 11%).

How much do Heat Networks consumers pay?

There is evidence of great variation in pricing in the heat network sector, with pockets of heat network consumers paying high annual prices, including consumers paying more than £1,000, or even £2,000, per year. The mean average price reported was similar on heat networks and domestic gas heating systems, however the median price suggested that heat network consumers paid, on average, around £100 less for their heating and hot water compared with non-heat network consumers

SPOTLIGHT ON: COMPETITION AND MARKETS AUTHORITY PRESS RELEASE, CMA EXAMINES HEAT NETWORKS – 7 DECEMBER 2017

The Competition and Markets Authority (CMA) is **launching a comprehensive study** into domestic heat networks to ensure households are getting a good deal.

Heat networks – systems that heat multiple homes from one central source – currently supply about half a million UK homes through about 17,000 networks. They can also be more environmentally friendly than some other sources of heat, delivering lower carbon emissions and resulting in cost benefits to households.

As a result, heat networks form an important part of government strategy to reduce carbon and cut heating bills. The number of customers using heat networks is expected to grow significantly to around 20% of all households by 2030. Whilst heat networks may have these wider benefits, the sector is not currently subject to the same regulation as other forms of energy supply such as mains gas and electricity.

The Competition and Markets Authority (CMA) is concerned that many customers, a large proportion of whom live in social housing, may be unable to easily switch suppliers or are locked into very long contracts – some for up to 25 years – and that there is a risk they may be paying too much or receiving a poor quality of service.

It will now be thoroughly examining a range of potential issues in a new market study into the sector.

The CMA is planning to examine 3 broad themes:

- Whether customers are aware of the costs of heat networks both before and after moving into a property.
- Whether heat networks are natural monopolies and the impact of differing incentives for builders, operators and customers of heat networks.
- The prices, service quality and reliability of heat networks.

Andrea Coscelli, CMA Chief Executive, said:

Heat networks can play an important role in cutting carbon and keeping down energy bills for customers. However, we have concerns that this sector may not be working as well as it could be for the half a million homes heated by these systems now and the millions that may be connected in the future.

*That is why we're taking a closer look at this market to ensure that heat network customers get a good deal on their energy now and in the future. The **CMA will complete its study within the next 12 months**. Evidence will be gathered from a wide range of stakeholders, including heat network builders and operators, other government departments, local authorities, sector regulators and consumer groups.*

An interim report, with the CMA's initial findings and views on potential remedies, will be produced within the next 6 months, ahead of the final report. Where issues of particular concern are found the CMA may take further action during or after the end of the 12-month market study, such as opening consumer or competition enforcement cases or launching a full market investigation.

The CMA would welcome views on any of the issues raised in the Statement of Scope, which has also been published today. Views should be sent to heatnetworks@cma.gsi.gov.uk by no later than 5pm on 12 January 2018.

SPOTLIGHT ON: PROPOSED CHANGES TO GOVERNMENT'S STANDARD ASSESSMENT PROCEDURE (SAP): GOVERNMENT RESPONSE – 17 NOVEMBER 2017

The UK Government has **responded to the results of its consultation on changing the Standard Assessment Procedure (SAP)**. The following is an extract:

Proposed Amendment 3 – Distribution loss factors for heat networks Consultation Question 3: Do you agree with the proposal to amend default Distribution Loss Factors for Heat Networks?

51 responses were in favour and 15 were against. Several issues were raised on this question. There were concerns regarding assessing whether compliance with the ADE/CIBSE2 "CP1: Heat Networks: Code of

Practice for the UK" had been achieved in practice. We are working with CIBSE and ADE to ensure certification evidence is available for the SAP assessor as-built assessment stage.

The Government will review the £120 standing charge on communal networks cited in SAP.

For SAP assessments (new-build), 15 responses queried:

- If the same default value should be used at design-stage and as-built stage. Our proposals featured a minimum limit of 1.2 at design-stage (and flexibility to manually enter any higher value) and 1.5 at as-built stage;
- Whether the in-use factor applied to calculated distribution loss factors entering the Products Characteristics database (PCDB) should be lower than 1.15.

For design-stage SAP assessments, we are minded to remove the minimum limit of 1.2.

For as-built SAP assessments, we are considering an additional in-use factor option for heat networks compliant with the "CP1: Heat Networks: Code of Practice for the UK" (to be applied to calculated distribution loss factors entering the PCDB).

For heat networks not entered in the PCDB, if these are compliant with the "CP1: Heat Networks: Code of Practice for the UK" then a default distribution loss factor of 1.5 will apply. If not compliant, a default loss factor of 2.0 will apply.

There was also the issue of whether SAP could take the same approach as SBEM to consider future heat loads. The Government will gather further evidence and views on this proposal and consider whether any changes are required.

Some responses asked if we should link heat losses to the flow temperature for heat networks; and consider the impact of different occupancy levels on actual metered data compared to the modelled data. The Government believes these issues can be managed within the Product Characteristics database, where details of the heat networks' actual performance can be reflected.

SPOTLIGHT ON: DRAFT LONDON PLAN 2017, GREATER LONDON AUTHORITY

The Greater London Authority's **Draft London Plan** contains the following:

Policy SI3 Energy infrastructure

A Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy requirements and infrastructure arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.

B Energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options. Energy masterplans should identify:
1) major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
2) heat loads from existing buildings that can be connected to future phases of a heat network
3) major heat supply plant
4) possible opportunities to utilise energy from waste
5) secondary heat sources
6) opportunities for low temperature heat networks
7) possible land for energy centres and/or energy storage
8) possible heating and cooling network routes
9) opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
10) infrastructure and land requirements for electricity and gas supplies
11) implementation options for delivering feasible projects, considering issues of procurement, funding and risk, and the role of the public sector.

C Development Plans should:
1) identify the need for, and suitable sites for, any necessary energy infrastructure requirements including upgrades to existing infrastructure
2) identify existing heating and cooling networks and opportunities for expanding existing networks and establishing new networks.

D Major development proposals within Heat Network Priority Areas should have a communal heating system
1) the heat source for the communal heating system should be selected in accordance with the following heating hierarchy:

- a) connect to local existing or planned heat networks
- b) use available local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system)
- c) generate clean heat and/or power from zero-emission sources
- d) use fuel cells (if using natural gas in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
- e) use low emission combined heat and power (CHP) (in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
- f) use ultra-low NOx gas boilers.

2) CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that there is no significant impact on local air quality.
3) Where a heat network is planned but not yet in existence the development should be designed for connection at a later date

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UK NEWS

HEAT NETWORK CUSTOMERS DESERVE BETTER CUSTOMER SERVICE (CITIZENS ADVICE BLOG)

DECEMBER 2017

Zoe Guijarro Policy Manager for renewable heat and community energy @CitizensAdvice

We assessed heat suppliers' websites to see if they meet their customers' needs

We've previously expressed concerns that heat networks are not bound by the same rules as the companies that traditionally provide heat and hot water to our homes. Heat customers can't switch supplier, so there's a risk that people could get a bad deal and have no option to change things.

A number of heat suppliers have signed up to a voluntary consumer protection scheme, the Heat Trust, which is a good start. But we think there should be minimum customer service standards across the heat supply industry.

ENERGETIK SELECTS SWITCH2 CUSTOMER SERVICES AND SMART METERING FOR ENFIELD HEAT NETWORKS (SWITCH2) 8 DECEMBER 2017

Energetik, Enfield Council's local energy company, has selected Switch2 Energy to provide customer support and smart metering for its low carbon community heat networks. Switch2 will provide repairs and maintenance; along with heat metering and billing.

ADE WELCOMES CMA STUDY INTO HEAT NETWORKS (NETWORK) 8 DECEMBER 2017

"As noted by the CMA, the ADE has also been leading a Task Force to consider how to ensure that heat networks can increase investment and that customers receive good service and a fair deal.

"The Task Force was created in March to consider how to build on the existing customer protection scheme, Heat Trust, including important issues such as heat pricing, contract length and contract structure – areas which Heat Trust is not permitted by law to address.

"We will publish our findings in early 2018 and we welcome the opportunity to support the CMA with its investigation."

UK DOMESTIC HEAT NETWORKS FACE MAJOR REVIEW BY COMPETITION REGULATOR (INDEPENDENT) 8 DECEMBER 2017

The UK's competition regulator has announced that it is launching a comprehensive study into domestic heat networks to make sure that households are getting a good deal. The Competition and Markets Authority (CMA) on Thursday said that heat networks – systems that heat multiple homes from one central source – currently supply about half a million UK homes through about 17,000 networks.

HEAT NETWORK CUSTOMERS PAY LESS FOR ENERGY, GOVERNMENT SURVEY SHOWS (BUSINESSGREEN) 8 DECEMBER 2017

UK consumers connected to heat networks are likely to pay less on average for their energy while feeling just as satisfied with their heating service, according to government research published yesterday. A survey carried out by independent researchers on behalf of the government between April and July this year garnered more than 5,000 responses from heat network users, after asking them about their satisfaction with their heating system, price and transparency of billing, and customer service.

DISTRICT HEATING CAN DELIVER (UTILITY WEEK) 29/11/2017

A fundamental re-engineering of UK heat generation, transmission and distribution is required to meet carbon reduction targets, for which greater government commitment is needed, says Andy King.

ENFIELD COUNCIL'S HEAT NETWORK COMPANY WELCOMES ITS FIRST CUSTOMERS (LABM) NOVEMBER 2017

Energetik, the energy company owned by Enfield Council, has welcomed its first customers. One of the first London Boroughs to establish a municipal energy company, Energetik supplies low-carbon heat and hot water through community heat networks, also known as district heating. The company will supply over 15,000 homes and businesses in Enfield through a series of heat networks. Each network is designed to expand so that more customers can connect over time.

DISTRICT ENERGY: WE NEED YOUR TECHNICAL EXPERTISE – HELP US "UNLOCK" ACCESS TO FINANCING (EEIP) 22 NOVEMBER 2017

The Investor Confidence Project, funded by the European Commission, was brought to Europe to develop a system to give confidence to all active stakeholders. There are still concerns that investing in energy efficiency is risky. ICP Europe is designed to change that. Starting with investments in buildings, ICP Europe has now broadened the scope to include industry, district energy and street lighting. Importantly, ICP Europe will soon convene a Technical Forum for district energy, following one for industry (that is now in its final stages before the Protocol is published in December) and another on street lighting that will convene early 2018. ICP Europe is now looking for more experts to join this Technical Forum for district energy. For the purpose of this project district energy projects are characterised by heating and/or cooling distributed to a group of buildings from a central energy generation plant.

WINNING HEARTS & MINDS: SCENARIO-DRIVEN STAKEHOLDER ANALYSIS ON HOW TO MAKE DISTRICT HEATING SUCCESSFUL IN THE UK (COMMUNICATION WORKS) NOVEMBER2017

It's a dilemma: While the UK government wants to promote District Heating as a means to reach the country's climate targets, the technology is met by reservations. Research from Communication Works together with the Association for Decentralised Energy, ADE, provides insights on how to make District Heating more popular. Now the report is out.

ANALYSIS OF RESPONSES TO THE CONSULTATION ON HEAT & ENERGY EFFICIENCY STRATEGIES, AND REGULATION OF DISTRICT HEATING (SCOTTISH GOVERNMENT) NOVEMBER 14, 2017

Analysis of Responses to the Consultation on Heat and Energy Efficiency Strategies, and Regulation of District Heating presents views on proposals presented and the evidence sought by Scottish Government on the planning at a local level of heat decarbonisation and energy efficiency programmes within Scotland's Energy

The report is structured around the following sections of the consultation:
A: Scope and Content of Local Heat and Energy Efficiency Strategies
B1: Proposed Regulatory Approach for District Heating
B2: Planning, Zoning and Concessions for District Heating
B3: Connecting Users to District Heating Networks
B4: Connecting Surplus Industrial Heat
B5: Technical Standards, Consumer Protection and Licensing
B6: Enabling Activity and Additional Areas for Consideration to Support our Regulatory Approach.

MADE TO MEASURE – ACCURATE BILLING FOR HEAT NETWORKS (CIBSE JOURNAL) NOVEMBER 2017

To comply with regulations and offer tenants more transparency about their energy consumption, Legal & General has adopted an automated billing system at its multi-let building. Liza Young finds out more

SCOTLAND'S ENERGY EFFICIENCY PROGRAMME: SECOND CONSULTATION ON LOCAL HEAT & ENERGY EFFICIENCY STRATEGIES, AND REGULATION OF DISTRICT AND COMMUNAL HEATING (SCOTTISH GOVERNMENT) 14 NOVEMBER 2017

This is a Second Consultation on Local Heat and Energy Efficiency Strategies, and Regulation of District and Communal Heating. Based on the evidence and views gathered from stakeholders through the first consultation and other engagement, this consultation document sets out more specific policy proposals for LHEES, and regulation of district and communal heating

MODELLING AND OPTIMISING THE MARGINAL EXPANSION OF AN EXISTING DISTRICT HEATING NETWORK (ENERGY JOURNAL) DECEMBER 2017

A novel methodology evaluates the marginal expansion of district heating networks.

GET SMART ABOUT ENERGY: MAKE FOSSIL FUELS WATER UNDER THE BRIDGE (HUFFINGTON POST) 7 NOVEMBER 2017

By now, we should all know that global warming is slowly boiling our planet. We also understand that a long list of human activities is the main cause behind it, and that our insatiable hunger for energy is at the top of this list. Yet, our current solutions are lagging behind the raising temperatures and the resulting climate change. Renewable energy sources are only half of the solution to tackle global warming. The other half is energy efficiency. Our housing, retail and production systems waste gigantic amounts of energy, in the form of excess heat. How do we slash this waste? The answer is fairly simple: water; That is, with a smart thermal water grid.

A BUFFER BONUS (LINKEDIN) NOVEMBER 10, 2017

Jim Dowling

If you had told me, when I was at school, that I would grow up to be a professional engineer who wrote articles about the “fantastic benefits” of installing tanks of hot water; I would probably have asked you to shoot me there and then. But that was then and this is now. Presently I really do get excitable whenever anyone mentions the prospect of specifying a buffer store in a heating system. I’m writing now to explain to you why. . . A buffer store is simply a large tank which adds water volume to a heating system. Doesn’t sound too clever, does it.

FUNDING BOOST GIVES GREEN LIGHT TO MANCHESTER’S CIVIC QUARTER HEAT (ABOUTMANCHESTER)

7 NETWORK NOVEMBER 2017

Manchester City Council has secured £2.87m of grant funding from the Government's national Heat Network Investment Project, for the Manchester Civic Quarter Heat Network. Manchester is one of only nine local authorities to have won funding for their projects. The funding success advances the project, which will deliver significant carbon reductions over three decades.

SAVINGS OF UP TO £30 BILLION COULD BE REALISED FOR UK HEAT NETWORKS (ETI PRESS RELEASE) 5 NOVEMBER 2017

District Heat Networks have the potential to deliver CO2 emissions reductions and cost benefits using low carbon heat.

AECOM, commissioned by the ETI, has mapped eight innovative solutions that could see a capital cost reduction of up to 40 per cent for heat networks, saving almost £30 billion of investment. Targeted financial investment to deliver these cost reductions will enable heat networks to be more competitive with alternative pathways to decarbonising heat in existing buildings.

HERE'S ONE INGENIOUS WAY LONDON CAN TACKLE ITS AIR POLLUTION CRISIS (WIRED) 23 OCTOBER 2017

A little-known and groundbreaking infrastructure project from the 1950s shows how London needs to think differently to clean up its filthy air. Pimlico District Heating Undertaking (PDHU), which opened in 1950, was the UK's first major initiative to tackle London's air pollution ahead of the Clean Air Act of 1956.

HOW WOULD A STATE-RUN ENERGY COMPANY WORK? (BBC) 9 OCTOBER 2017

The Scottish government has pledged to set up a publicly-owned, not-for-profit energy company to sell gas and electricity to customers at "as close to cost price as possible". But how would a state-run energy company work?…

The draft energy strategy said a government-owned non-profit company could address areas where the market is deemed to have failed.

These included delivering new schemes and initiatives and changing energy infrastructure, such as district heating.

It could also co-ordinate the procurement of energy efficiency and heat technology measures.

DISTRICT HEAT NETWORK IN LEEDS SECURES £4.2M (ENERGYLIVENEWS) OCT 09, 2017

West Yorkshire Combined Authority has approved almost £4.2 million to improve the Leeds District Heat Network. The £21.6 million Leeds District Heat Network scheme involves the construction of 4.5 kilometres of insulated underground pipework, connecting the city's recycling and energy recovery facility.

STOKE-ON-TRENT PREPARING WORK ON GEOTHERMAL DISTRICT HEATING NETWORK (THINKGEOENERGY) 4 OCTOBER 2017

A new project to bring geothermal heat to the city of Stoke-on-Trent is under way with pipes to be laid over the coming weeks.

HOW TO MANAGE THE TYPICAL APPLICATIONS OF DISTRICT HEATING NETWORKS AND COMBINED HEAT AND POWER (CHP) (ENERG) 3-OCT-2017

CHP can easily integrate with district heating and cooling networks, but the real value lies in the management of typical applications.

CHEAP, LOW-CARBON ENERGY FOR THE WHOLE CITY: OXFORD HEAT NETWORK IS MAPPED OUT (OXFORD MAIL) 27 SEPTEMBER 2017

A MASSIVE underground heat network which could provide struggling families across Oxford with cheaper energy has been mapped out.

Energy experts working for Oxford City Council have for the first time illustrated how the system could heat the whole city. Under the new designs, a huge new power plant at Headington's Warneford Hospital would heat water and generate electricity which could then be carried to homes in the city centre, East

Oxford, Rose Hill and Blackbird Leys

BID TO EXTEND COUNCIL ENERGY PROJECT THAT COULD SAVE DUNDEE FOLK HUNDREDS OF POUNDS (DUNDEE EVENING TELEGRAPH) 22 SEPTEMBER 2017

The council has revealed it aims to roll out the project to hundreds more homes in the city within the next 10 years. Householders would save about 10% on their fuel bills as a result of being connected to a district heating system.

District heating is the supply of heat or hot water from one source to a district or a group of buildings. The city currently has four such schemes and hopes to extend that to 13 in the next decade.

Councillors will hear at Monday's policy and resources committee meeting that it's hoped to more than triple the number of properties that currently benefit from the district heating network by 2027.

SCOTLAND'S FIRST DEEP GEOTHERMAL DISTRICT HEATING NETWORK GIVEN SCOTTISH GOVERNMENT BACKING (BSEE) 22 SEPTEMBER 2017

Ross Developments & Renewables Ltd (RDRL) has announced that the Scottish Government has allocated £1.8m of grant funding to support the creation of Scotland's first low carbon, renewable deep geothermal district heating network at The HALO Kilmarnock development in the West of Scotland.

HEAT DECARBONISATION: POTENTIAL IMPACTS ON SOCIAL EQUITY AND FUEL POVERTY (NEA) SEPTEMBER 2017

NEA commissioned this report as, although there are some real challenges and tensions to be addressed, we believe that it is possible to tackle both decarbonisation of energy and fuel poverty. Through better focusing of energy efficiency programmes and other support to low-income households, we can help them achieve affordable warmth as we transition to lower carbon heating systems. With an estimated four million UK households living in fuel poverty and progress going in the wrong direction it is vital that we harness the economic, social, environmental and health improvements that will be achieved through meeting our national fuel poverty and carbon targets.

INTERNATIONAL NEWS

FRENCH CITY TO DEVELOP GEOTHERMAL DISTRICT HEATING NETWORK (DECENTRALIZED ENERGY) 19/12/2017

France's Bordeaux municipality is to develop a district heating network powered by geothermal energy.

FINNISH CITIES CONSIDER SMRS FOR DISTRICT HEATING (WNN) 15 DECEMBER 2017

A number of Finnish cities have begun studies to evaluate the feasibility of using small modular reactors (SMRs) instead of fossil fuels to provide district heating, according to Energy for Humanity. A recent study looked at completely decarbonising electricity, transport and heating in Helsinki through the use of small, advanced reactors.

CHINA LOOKS TO NUCLEAR OPTION TO EASE WINTER HEATING WOES (REUTERS) 10 DECEMBER 2017

State-owned China National Nuclear Corp (CNNC) recently conducted a successful 168-hour trial run in Beijing for a small, dedicated "district heating reactor" (DHR) it has named the "Yanlong".

NAUGHTEN ANNOUNCES FINANCIAL INCENTIVES FOR RENEWABLE HEAT GENERATION (IRISH TIMES) 7 DECEMBER 2017

Details of a national support scheme for renewable heat have been announced by Denis Naughten, Minister for Climate Action and Environment. It will cost more than €1 billion over 15 years. Businesses that generate commercially usable heat from renewable energy sources will be eligible to receive ongoing payments under the scheme.

The Republic's scheme is designed to support replacement of fossil fuel heating systems with renewable energy for "large heat demand non-domestic users". It covers commercial, industrial, agricultural, district heating, public sector entities and other non-domestic businesses.

ROMAN DISTRICT HEATING PLANT COMPLETED AHEAD OF SCHEDULE (DECENTRALIZEDENERGY.COM) 28/11/2017

The CHP plant will supply heat to about 40,000 residential customers in Rome. The electrical power will be used at ACEA ATO2's sewage treatment plant, and the surplus electricity can be exported to the power grid.

GERMAN TOWN BOOSTS DISTRICT HEATING SYSTEM WITH GAS ENGINE UPGRADE (DECENTRALIZEDENERGY.COM) 28/11/2017

A German town has invested in a boost for its district heating system with an order or for a new gas engine. "The new engine will achieve an electrical efficiency of 47 per cent, compared to 39 per cent with the current units," added Gebhard Gentner, managing director of Schwäbisch Hall Municipal Utilities. "This represents a 20 per cent boost in efficiency.

ENERGY POLICIES OF IEA COUNTRIES – DENMARK 2017 REVIEW (IEA) NOVEMBER 2017

The heating sector is also critical for Denmark's low-carbon ambitions. Denmark's large-scale use of combined heat and power plants with heat storage capacity, and the increasing deployment of wind power offer great potential for efficient integration of heat and electricity systems. However, policies and regulations need to be aligned to realise that potential. Finding the right levels of energy taxation is particularly important.

THE ULTRA-EFFICIENT, HIDDEN HEAT SOURCE FOR AMAZON'S NEW HQ (GREENBIZ) NOVEMBER 20 2017

The system works by piping the heat generated by the data centers in the Westin building into Amazon's central plant, rather than venting it into the atmosphere through rooftop cooling towers, as traditionally might be done. When the water arrives at Amazon's facilities, it is run through five "heat-reclaiming" chillers and concentrated — a process that raises the temperature from 65 degrees Fahrenheit to about 130 degrees Fahrenheit.

LOW CARBON HEAT AND RURAL FUEL POVERTY – LESSONS FROM ACROSS EUROPE (COMMUNITY

ENERGY PLUS) NOVEMBER 2017

This study examines the role of low carbon heat and the potential for it to address fuel poverty, particularly in rural locations. Best practice examples have been sourced from EU member states, which are leading in both the deployment of low carbon heat and with low reported fuel poverty levels. A review of barriers to the UK has been compiled and learning experiences drawn, to inform next steps in the low carbon heat agenda.

EXCITING GERMAN STUDY BODES WELL FOR HEAT NETWORKS (DECENTRALIZED ENERGY.COM) 14/11/2017

Finkenrath and his colleagues are using a software they have named DeepDHC (acronym denotes district heating and cooling) to facilitate thermal load prediction on the Ulm-Kempten heat network.

Fernwarme Ulm waste incineration plant

The project had been in their minds but took on some accidental impetus, when members of the University of Kempten's mechanical engineering faculty happened to strike up a conversation on the subject with their colleagues in the informatics department.

PROGRESSHEAT FINAL DISSEMINATION WEBINARS: HOW TO ACCELERATE THE DEPLOYMENT OF RENEWABLES IN HEATING & COOLING SYSTEMS? (PREGRESSHEAT) NOVEMBER 2017

Over the past 2,5 years, the progRESsHEAT project has been seeking to assist local, regional, national and EU political leaders in developing policy and strategies to ensure a quick and efficient deployment of renewables in heating and cooling networks. The project is now coming to an end, and the team wishes to share and discuss the results through a series of 4 webinars, each focusing on some specific aspects of heating and cooling analysis and planning at local and national level.

DEVELOPMENT OF FUTURE EU DISTRICT HEATING AND COOLING NETWORK SOLUTIONS, SHARING EXPERIENCES AND FOSTERING COLLABORATIONS (PROCEEDINGS) 13 NOVEMBER 2017

…the European Commission adopted a heating and cooling strategy in February 2016 as part of the

wider Energy Union Package. A number of activities and projects funded by the programmes of European Union are supporting this new EU heating and cooling strategy.

ITALY: SOLAR DISTRICT HEATING SHOWS FEW INSTALLATIONS BUT GOOD PROSPECTS

(SOLARTHERMALWORLD) 9 NOVEMBER 2017

Substantial solar resources and a generous incentive scheme called Conto Termico 2.0: Perfect conditions, it seems, for the widespread use of solar district heating. But barriers such as a low gas price and the concentration of district heating in a small part of Italy have so far limited deployment to a few installed systems.

EU EMISSIONS REFORMS SEND A STRONG SMOKE SIGNAL (FINANCIAL TIMES) 10 NOVEMBER 2017

Negotiators had struggled for months to reconcile pressure to strengthen the system in support of EU climate goals and concerns from industry and member states about the region's economic competitiveness.

A compromise was reached on Thursday under which no funds would go to coal plants with the exception of district heating projects in countries with per capita gross domestic product more than 30 per cent below the EU average.

IEA DHC ANNEX XI: PLAN4DE (PLAN FOR DISTRICT ENERGY) (IEA DHC) 2 NOV 2017

This is the a recording of the final presentation of the IEA DHC Annex XI project Plan4DE (Plan for District Energy). It was presented by SSG at Livable Cities 2017 in Victoria, B.C., Canada in September 2017.

FIRST GEOTHERMAL HEATING PROJECTS IN POLAND RECEIVING FUNDING UNDER NEW GOVERNMENT SCHEME (THINKGEOENERGY) 9 NOVEMBER 2017

First geothermal heating projects in Poland receive funding under new $140 million Geothermal Development Fund of the National Fund for Environmental Protection and Water Management.

WELCOME TO THE STEAM-POWERED SUBURBS (CITY LAB) NOV 8, 2017

From Austin to Atlanta, planned communities are tapping into geothermal power—and it has applications for denser urban neighborhoods, too.

Geothermal power is heating up around the world. It accounts for a quarter of Iceland's total electricity production. On Long Island, National Grid and the New York State Energy Research and Development Authority kicked off a pilot program last month, using geothermal energy to power 10 homes. Cornell University has considered converting its HVAC system to it. Boise, Idaho, uses geothermal for 91 government and commercial buildings, totaling 5 million square feet of space. Supported by a geothermal fund, the city incentivizes developers to embrace geothermal power.

SUCCESSFUL REFERENDUM ON COAL EXIT: THE MUNICH SAY "YES" TO SHUTDOWN (ABENDZEITUNG) 6 NOVEMBER 2017

Great success for the alliance "Get out of the hard coal": At the referendum on Sunday, a good 60 percent voted to remove the coal block from the northern heating plant in Unterföhring as early as 2022.

PITAGORAS: OPPORTUNITIES FOR WASTE HEAT AND SOLAR THERMAL ENERGY EXPLOITATION (EUROHEAT) 30 OCTOBER 2017

Efficient integration between cities and industries through smart thermal grids is the main pillar of the Pitagoras project. The urban-industrial symbiosis offers great opportunities that are not fully exploited yet. In this sense, Pitagoras aims at developing innovative solutions for the exploitation of two local sources: industrial waste heat and solar thermal energy. The project, with a duration of 4 years, is at its final stage and successful results can be announced now.

THERMAL ATLAS (PETA4) (BUILDUP.EU) 29 OCTOBER 2017

Heat Roadmap Europe (HRE) added major new features to its energy planning tool, the perfect basis for European governments, businesses, consultants, academics, and planners to make informed decisions about investments in energy efficiency measures and use of untapped alternative energy sources for heating and cooling. The free interactive Pan-European Thermal Atlas (Peta4), assesses heating and

cooling demand, efficiency, and supply across Europe, supporting cities and industry in their efforts to decarbonise the heating and cooling sector.

GERMANY: RENEWABLE DISTRICT HEATING GRANTS (SOLARTHERMALWORLD) OCTOBER 27, 2017

Wagner SolarGerman politicians are beginning to appreciate the benefits of solar district heating, or SDH for short. Germany's Ministry for Economic Affairs and Energy, BMWi, has launched District Heating Networks 4.0, a new subsidy scheme for grids which use solar, biomass or waste heat to meet at least 50 % of their customers' annual demand.

SWEDISH CAPITAL LAUNCHES DATA CENTRE DISTRICT HEATING INITIATIVE (DECENTRALIZED ENERGY) 18 OCTOBER 2017

Stockholm plans to heat 10 per cent of its homes using waste heat from data centres, according to an initiative launched this week. It's part of a larger initiative to make the city fossil fuel free by 2040 with the city government working with district heating and district cooling provider Fortum Värme, power grid operator Ellevio and fibre-optic cable provider Stokab.

BOOSTING RENEWABLES IN HEATING & COOLING SYSTEMS AND ENERGY EFFICIENCY – RECOMMENDATIONS TO GUIDE AND INSPIRE POLICY MAKERS" (PROGRESSHEAT) 9 OCTOBER 2017

An effective policy set is required to succesfully manage the heating and cooling transition. Contrary to other sectors, where regulations and support schemes need to be rather set at national or even European level in a consistent manner, decarbonisation of the H/C sector requires a local approach to a large extent.

INTEGRATION OF SOLAR THERMAL SYSTEMS IN EXISTING DISTRICT HEATING SYSTEMS (ENERGY)

The integration of large solar heating systems in district heating (DH) networks with large combined heat and power (CHP) plants is rarely considered. This is often due to low costs for heat but also due to subsidies for the electricity by CHP plants.

UTILIZING DATA CENTER WASTE HEAT IN DISTRICT HEATING – IMPACTS ON ENERGY EFFICIENCY AND PROSPECTS FOR LOW-TEMPERATURE DISTRICT HEATING NETWORKS (ENERGY)

Data centers seek solutions to increase energy efficiency and lower costs by novel methods. Waste heat utilization is considered to be one of the major trends in the near future, especially in the Nordic countries, where heat demand is high. In this paper, waste heat utilization was analyzed from the perspectives of both the data center and district heating network operators.

INTERNATIONAL REVIEW OF DISTRICT HEATING AND COOLING (ENERGY JOURNAL) OCTOBER 2017

Low utilisation of district heating in buildings.

ICELANDIC-DANISH GROUP DEVELOPING GEOTHERMAL HEATING PROJECTS IN DENMARK (THINKGEOENERGY) 26 OCTOBER 2017

Reported this week by E.ON, a new partnership has been founded to work on geothermal district heating projects in Denmark.

Hot water from the Danish underground will supply more cities with CO2-neutral heat. It is the ambition behind a new partnership between the energy company E.ON and the Geothermal Operations Company, GEOOP, which will reveal the business potential of geothermal power in a number of major cities.

ENERGY STORAGE AND INTEGRATED ENERGY APPROACH FOR DISTRICT HEATING SYSTEMS (ENERGY PROCEDIA) OCTOBER 2017

This paper deals with the potential of using the thermal storage capacities within local district heating systems to balance the low and medium voltage grids by the use of heat pumps (HP) and combined heat and power (CHP) plants

INTEGRATION OF SOLAR THERMAL SYSTEMS IN EXISTING DISTRICT HEATING SYSTEMS (ENERGY JOURNAL) OCTOBER 2017

Integration of solar heat into existing DH systems brings benefits when heat is supplied mainly by fossil CHP plants.

DISTRICT HEATING NETWORK MODELLING PROJECT LAUNCHED (DECENTRALIZED ENERGY) 25 OCTOBER 2017

A European project which launched this week aims to make district heating network planning faster, more efficient and more cost-effective, its developers said.

THERMOS (Thermal Energy Resource Modelling and Optimization System) is an EU Horizon 2020-funded research project which aims to provide advanced energy system data and models through open-source software.

The ultimate goal of the project is to accelerate the development of new low-carbon heating and cooling systems across Europe, and to enable faster upgrade, refurbishment, and expansion of existing systems.

The project will run until September 2019 and its partners include universities, local authorities, energy firms and environment agencies from the UK, Spain, Poland, Latvia, Denmark, Germany, Portugal, and Romania.

DISTRICT HEATING ASSESSMENT TOOL (DHAT) (DANISH ENERGY AGENCY) OCTOBER 2017

A tool performing economic feasibility studies for establishing district heating compared to individual heating, and can be adjusted to local conditions globally. The model can be used by heat planners showing the economic and environmental benefits and costs of district heating.

DISTRICT HEATING MARKET TO REACH $280BN BY 2024 (DECENTRALIZED-ENERGY.COM) 17 OCTOBER 2017

New research performed by MarketStudyReport.com indicates significant growth for global district heating projects, reaching an overall market value of $280bn by 2024.

Rising concerns toward greenhouse gas emissions coupled with strong demand for efficient and cost effective systems will drive the District Heating market size, according to the report.

3RD INTERNATIONAL CONFERENCE ON SMART ENERGY SYSTEMS AND 4TH GENERATION DISTRICT HEATING OCTOBER 2017

258 pages of presentations delivered.

IEA DHC ANNEX XI: SMART ENERGY SYSTEMS AND 4TH GENERATION DISTRICT HEATING – PART 2 (IEA) OCTOBER 13, 2017

This is the second part of the final presentation of the IEA DHC Annex XI project: “Transformation roadmap from high to low temperature district heating system”.

It was held by Dr. Sven Werner on September 12th 2017 in Coopenhagen.

The final reports, summary and presentation can be downloaded after free registration and login on: www.iea-dhc.org.

DATA CENTRE IN FINLAND RECOVERS WASTE HEAT (INTL INSTITUTE REFRIGERATION) 12 OCTOBER 2017

The telecommunications company Ericsson operates a data centre in Kirkkonummi, southern Finland. The facility currently generates between 10,000 and 15,000 MWh of waste heat annually and it is expected to nearly double in 2017 and 2018.

To recover this waste heat, Ericsson signed an agreement in November 2016 with energy company Fortum to use waste heat for district heating. The waste heat from Ericsson’s data centre actually covers about 20% of the Kirkkonummi district heat network’s annual heat demand, enough to meet the annual heating needs of about 1,000 single-family homes, thanks to a large heating network (over 800 km of pipes). Fortum will invest in two Climaveneta heat pumps, used as a primary cooling method. They will use R1234ze, a refrigerant with a very low GWP (<1).

SOLAR DISTRICT HEATING: HOW TO TACKLE LAND USE ISSUES (SOLARNETWORKS.EU) 12 OCTOBER 2017

Usually, solar district heating (SDH) plants require large fields for collector installations, which has raised concerns at local level because of competing land uses and a system's potential visual impact on the surroundings.

One way out of this dilemma is to combine heat generation and fruit and vegetable harvest. As part of SDHp2m…From Policy to Market, a Horizon 2020 project, some regions are looking to create regulations based on best practice examples of land use or spatial heat planning.

SWITZERLAND: PLANS FOR SOLAR DISTRICT HEATING PILOT SYSTEM (SOLARTHERMALWORLD) 10 OCTOBER 2017

"Why is there no solar district heating in Switzerland?" Swiss scientists were asking after their visit to Denmark. … Now, the Swiss-based SPF – Institute of Solar Technology has begun to work with a district heating company on giving the country its first pilot plant.

VEOLIA INAUGURATES SPAIN'S LARGEST DISTRICT HEATING SCHEME (EUROHEAT) 9 OCTOBER 2017

Five years after its development was announced, and after a year of tests, Veolia and Móstoles Ecoenergía have inaugurated the biggest district heating of Spain.

The 12 MW biomass plant and network will provide heating and hot water to 6,500 homes in the town of Móstoles in Madrid.

TORRELAGO, SPAIN. ECO-DISTRICT HEATING NETWORK (VEOLIA YOUTUBE VIDEO) 9 OCTOBER 2017

Veolia manages an Eco – district heating network using biomass and gas that supplies hot water and heating to 1,498 homes (about 5,000 people). It's in Torrelago, a district of the town of Laguna de Duero near Valladolid in Spain.

EVENTS

UK DISTRICT ENERGY VANGUARDS NETWORK HEAT NETWORKS: DEVELOPING YOUR BUSINESS CASE

Wednesday 24 January 2018 – Leeds

https://vanguards-developing-your-business-case.eventbrite.com

The UK District Energy Vanguards Network is hosting a **free one-day workshop in Leeds on Wednesday 24 January 2018** that will provide a platform of expert speakers to address key areas to consider in building a business case. **The event is specifically designed for local authorities and other public sector bodies developing district heating networks.**

A robust business case is the essential cornerstone to the development of a heat network project. It will need to be built on a detailed technical evaluation and credible commercial structure, and meet the strategic objectives of your key decision makers. Investors, both public and private, will want to see a sound financial plan that is conservative in its assumptions, has been tested against potential risks, and will provide them with a return on capital.

These key areas will be discussed and debated in roundtable sessions that will give you the opportunity to network with local authority peers and learn from their collective experience.

Topics and speakers will include:

Local, regional and national perspectives on heat networks:

- Mags Tingey, Edinburgh University, presenting research on current energy activity by local authorities
- Agneta Persson, Anthesis Sweden, on the regional benefits of heat networks
- Robin Wiltshire, IEA, on international business models for district heating

Developing your business case:

- George Robinson from BEIS' Heat Networks Delivery Unit, talking about HMT's Five Case Model and

how to bring together the right team

- Paul Moseley, Scottish Futures Trust, sharing thinking on business models from Scottish heat networks
- Ruth Rule, Energy Direction, on selecting the right business model
- Tina Buchanan, Tenco, exploring financial models and tariff structures
- Caroline Bragg, Association for Decentralised Energy, on maximising revenues from power generation

Book your free place now at https://vanguards-developing-your-business-case.eventbrite.com

The event is sponsored by Logstor, Sustain and Trent Energy.

5TH INTERNATIONAL SOLAR DISTRICT HEATING CONFERENCE: GRAZ ON 11 AND 12 APRIL 2018.

The fifth edition of the International Solar District Heating Conference will take place on 11 and 12 April 2018 in Graz, Austria. Researchers, market actors and policy makers are invited to submit an abstract in order to present their most recent works and results at this key international event in the world of solar and renewable district heating. Please send your 2 page abstract before 6 October 2017 to SDHConference@solar-district-heating.eu. Your abstract will be evaluated by our program committee and you will be notified until 6 December 2017.

PAST ISSUES

Issue 42 : **Scotland the Brave**

January 2017

Issue 41 : **Standing High?**

November 2016

Issue 40 : **HNIP Haste**

October 2016

VIEW ALL DEVN NEWSLETTERS

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