

District Energy Vanguard's Newsletter



April 2016

Guest Editorial

How will district energy fare under a new London Mayor?

London has seen significant efforts to advance heat networks under both previous Mayors. So, with the only a few days left to the Mayoral election, do the manifestoes of the leading candidates have anything interesting to say about district heating?

First - it should be said that there are a number of welcome energy and climate pledges made in the manifestoes of all four main candidates, Zac Goldsmith (Conservatives), Sadiq Khan (Labour), Sian Berry (Greens) and Caroline Pidgeon (LibDem). These range from the creation of some form of London-government municipal energy operation; a major push on solar generation in the capital; and various actions to kick start building energy efficiency improvements. Decentralised energy hasn't, however, been ignored with the four candidates looking to build on previous work in a number of ways:

Caroline Pidgeon, the only candidate who knows the GLA well as a long standing LibDem London Assembly member has pledged to *"Promote decentralised energy systems, combined heat and power schemes"* and *"work with boroughs to ensure that wherever feasible renewable district heating schemes are adopted for all significant new housing developments"*.

Sian Berry has committed to *"Develop district energy anchors to help housing estates, hospitals, prisons, universities and regeneration projects on public land share their energy needs and work with neighbouring businesses to plug into these new energy networks."*

Labour's Sadiq Khan is fairly succinct in his manifesto on the issue, but does at least reference a 'star' of recent London district energy projects saying he will: *"Back district heating schemes that make the most of waste heat from the tube, such as that in Bunhill, Islington."*

Zac Goldsmith goes into the most detail stating the he *"will cut costs and carbon for homes and businesses, by making sure the waste heat produced by TfL gets plugged back into London's district heating networks; the series of underground pipes which provide ultra-efficient shared heating for communities across London."*

He continues setting out a requirement for *“all major developers to connect to or be ready to connect to London’s district heating networks, building on Boris Johnson’s example which has seen developers plug into networks at Kings Cross, Battersea Park, Myatts Field North and Nine Elms.”*

Two themes come through – the use of low temperature heat from the Tube network – the potential of which was set out in major report for the GLA, published in 2013 – [‘Secondary Heat Study – London’s Zero Carbon Energy Resource’](#) – and is being piloted in a project by Islington in partnership with the [EU CELSIUS initiative](#). London’s planning policy has been a strong driver for district heating, and so it is positive to see manifesto support for heat networks in new housing projects, and ensuring larger regeneration developments are built ‘ready to connect’. The latest GLA planning energy assessment [statistics](#) indicate that, as at the end of 2014, nearly 200,000 “dwellings” have been committed to connect to district heating networks as part of new developments in London (ie if these developments are built out, planning permissions secured will bring forward this amount of district heating activity). This number will have likely risen to 250,000 dwellings by now – which suggests that at a connection cost of, say, £4,000 per dwelling (see Figure 7 of DECC study [here](#) on connection cost estimates), the capital will deliver around £1 billion of district heating investment over the next decade or so.

Further project work being taken forward by the GLA’s decentralised energy team with London boroughs on key retrofit district heat networks will add to this sum – a new £3.5m decentralised energy programme has recently been approved by the GLA with ambitions to create £87.5m of capital investment in London’s energy infrastructure over the programme period. These networks are likely to be supported by London’s share of DECC’s £320m district heating fund – which, based on the London-based feasibility grants funded by HNDU could be as much as £100m.

So – all good then? Well - whilst it’s hugely encouraging that all four main candidates have pledged to continue supporting the GLA’s push on district heating, worryingly none have committed to achieving the long standing 2025 target of 25 per cent decentralised energy. Minds have perhaps been concentrated on the fact that, with only nine years to go, there’s still much to be done!

The new Mayor will also oversee the production of a new [London Energy Plan](#) in the next year. Along with a series of proposed energy masterplans from councils across the country, and a new Scottish Energy Strategy, it’s likely that we will continue to see local and devolved government continue to set the pace for district heating in the UK.

Syed Ahmed
[Energy for London](#)

Spotlight on :

[National Grid: Future of Domestic Heat study](#) (April 2016)

Government policy

The UK Government and the Committee on Climate Change (CCC) believe district heat schemes should support the decarbonisation of heat. In the UK, around 2,000 heat networks already supply approximately 210,000 homes and 1,700 commercial and public buildings – with another 150 schemes under development.

Which areas would be suitable?

With an increasing UK population, the government supports the building of new houses, particularly on regenerated brownfield sites. The National Infrastructure Delivery Plan 2016 – 2021 sets out the Government’s pledge to build 400,000 new homes by 2021 and ensure that 90 per cent of suitable brownfield sites have planning permission for housing by 2020. These developments will be most suitable for district heating, particularly if the source of heat is residual from industrial or commercial processes.

Local authorities will play a critical role by setting the strategic context and initiating the development of district heat networks, because they have local knowledge, organisational capacity and key functions as planning authorities and service providers.

District heat networks offer the highest benefit in densely populated areas. Our analysis shows the potential for district heating solutions are focused around the UK’s larger cities: Birmingham, Manchester, Sheffield and Peterborough. Looking at the total potential, we have developed two scenarios for district heat across four cities of differing sizes – as laid out in our Future Energy Scenarios.

	Birmingham	Manchester	Peterborough	Sheffield
Current no. homes connected to gas	386,000	180,400	73,000	220,300
Current no. of homes off gas	24,700	24,600	1,200	9,600
Potential no. of new District Heat connections by 2050 (Gone Green)	106,882	52,206	11,930	63,291
Potential no. of new District Heat connections by 2050 (Slow Progression)	54,660	49,507	11,644	62,412

See reference²⁴ for figures in this table

[The Future of Gas: Domestic Heat](#) (National Grid) April 2016

Includes District Heating section

[Camden Council Helps Vital Energi Retain District Heating Award](#) (Vital Energi Press Release) 29 April 2016

In partnership with Camden Council, Vital Energi have for the second year running claimed top spot at the H&V News Awards winning “District Heating Project of the Year” for the Somers Town Energy district heating network. Camden’s ambitious project has seen Vital Energi design and build the network in between Euston and King’s Cross train stations in order to provide heating and hot water to 339 homes across 4 estates; as well as retrofitting the energy centre within an existing council owned car park with minimal visual impact.

[The city inside a city](#) (Inside Housing) 29 April 2016

Peabody is taking the reins of one of the largest regeneration schemes ever at Thamesmead in south-east LondonCurrently, the association is consulting on plans to demolish the 595 concrete homes. They have been cold and hard to heat since the estate’s district heating system was decommissioned in 2000, and individual boilers installed.

[Scottish Renewables warns UK Government renewable heat plans are counterproductive](#) (holyrood.com) 27 April 2016

Scottish Renewables has warned UK Government plans to change renewable heat support are “counterproductive, and will significantly impact the industry.... “The changes happening at Westminster underline why the next Scottish Government must bring forward a Warm Homes Act, to encourage investment in district heating, protect consumers, and encourage energy efficiency. Growth in district heating could help reduce emissions, help tackle fuel poverty and create a significant new source of jobs for Scotland.”

[‘CHP is running out of time,’ say Arup engineers](#) (CIBSE Journal) April 2016

National Grid so ‘clean’ in places that CHP is not viable claims paper from CIBSE Technical Symposium

[Newcastle City Council considering scheme to save residents up to £600 a year](#) (25 April 2016) (Chronicle)

City chiefs are “exploring the possibility” of opening a publicly run energy firm in Newcastle. Newcastle City Council is considering a proposal to set up an energy company in order to save residents money on their gas and electricity bills.

The council confirmed that it is currently procuring an energy partner to work in a joint venture to deliver district energy schemes in the city, with the initial focus being Science Central and Civic Quarter.

[On a mission: using data to optimise heat networks](#) (CIBSE Journal) April 2016

Gareth Jones and Casey Cole are using big data to expose the real performance of domestic heat networks. Alex Smith finds out how their disrupter technology could see the industry adopting a Passivhaus-style target approach

[SNP's plans to 'modernise infrastructure' unveiled in manifesto](#) (Scottish Construction Now) 21 April 2016

...The party also pledges to make existing homes more energy efficient to cut bills, reduce emissions and improve health with an initial investment of £103m in 2016/17 to install energy efficiency measures in a further 14,000 homes. It will prioritise the development of the district heating system and establish a loan fund for this purpose.

[Data analytics for simplifying thermal efficiency planning in cities](#) (Journal of the Royal Society) 20 April 2016

We present a novel inference method that can be used via a ranking algorithm that allows us to estimate the potential energy saving for heating purposes. To that end, we only need consumption from records of gas bills integrated with a building's footprint.

[New three-in-one smart billing technology takes risk out of community heating](#) (Environmental Expert) 20 April 2016

Heat metering and billing specialist Switch2 has launched a stylish new three-in-one smart pay-as-you-go billing and energy management system for community heating schemes.

[Latest images of planned Northampton energy centre](#) (Northants Herald) 19 April 2016

Images showing the impact of the planned Northampton Energy Centre on the town's skyline have been released. ...Heat generated at the site has the potential to be used by residents in the town. Heat would be available at a cheaper rate than the National Grid and made available via a district heating network.

[Leeds EfW plant completed ahead of schedule](#) (LetsRecycle) 19 April 2016

Operations have begun at an energy from waste plant designed to treat up to 214,000 tonnes of household waste generated in Leeds each year. ... The plant will also export power to the National Grid, while additional equipment has been installed as part of a planned future district heating network.

[Plans to supply affordable heat to over 200 homes in Perth](#) (Scottish Housing News) 14 April 2016

An innovative renewable heating project which could help to reduce fuel poverty in the north of Perth is to be discussed by councillors next week. Members of Perth and Kinross Council's strategic policy & resources committee will hear how the River Tay Heat Pump and District Heating project aims to use water heat exchange pumps to capture renewable energy from the River Tay without harming wildlife.

[ASA Ruling on E.ON UK plc](#) (ASA) 13 April 2016

Ad: Claims on an energy supplier website, www.eonenergy.com, seen in April 2015, stated "What's a heat network? Heat networks, also called district heating schemes, supply heat from a central source to homes and businesses through a network of pipes carrying hot water ... Set prices - charges are designed to be no more expensive than heating provided by a traditional gas boiler ...".

Issue: Two complainants challenged whether the claim "charges are designed to be no more expensive than heating provided by a traditional gas boiler" was misleading and could be substantiated.

[Heat Networks & Governance Issues](#) (UKERC Event) 11/12 April 2016

Presentation slides available.

Aimed largely at leading-edge local authorities working on heat network issues, the workshop provide the opportunity to exchange best practice in the current budget/policy environment and to input into national heat network priorities around the 300 million GBP capital expenditure announced in the Government's Budget.

[Red tape stops green plans for Cupar development](#) (Fife Today) 8 April 2016

The Scottish Government has been accused of using "bureaucratic red tape" to block progress on an innovative district heating scheme for Cupar.

[New sustainable heating scheme could use heat from Macclesfield Crematorium](#)

(Macclesfield Express) 6 April 2016

A new heating scheme to distribute cheaper energy to homes and businesses could tap into heat from Macclesfield Crematorium.

[Vital Progress on £2 Million University of York District Heating Job](#) (Vital Energi) 5

April 2016

Vital Energi's relationship with the University of York continues with a £2 million contract involving the installation of a multi-utility package and the enhancement of the electrical infrastructure on campus.

DECC launch [HNDU Round 6](#) 5 April 2016

Applications will be assessed, taking into consideration the following:

- Local authority capacity and commitment to undertake the project
- Quality of work undertaken in previous studies (not applicable for applications for funding for heat mapping)
- Credibility of opportunity (including delivery potential)
- Consistency with DECC's carbon objectives.

There may be another HNDU funding round later in the year.

[Energy partnership formed to 'secure low-carbon future' for east Cheshire](#)

(Crewe Guardian) 5 April 2016

A PARTNERSHIP has been formed to help 'secure a low-carbon future' for east Cheshire. Cheshire East Council have teamed up with ENGIE, a global player in the development of renewable energy generation including geothermal.

The new company, which is aimed at promoting eco-efficient district heating networks in east Cheshire, will be called Cheshire Energy Networks Ltd.

[£300m gets us off the island](#) (Carbon Limited blog) 4 April 2016

By Casey Cole - In a shock move, last autumn the chancellor allocated £300m to heat networks to be spent over the next 5 years. This funding presents a golden opportunity, but there's a real danger it will be spent delivering more of what we've already got.

[Optimization of combined heat and power production with heat storage based on sliding time window method](#) (Applied Energy Journal)

A combined heat and power (CHP) optimization model with heat storage is proposed to minimize the production cost and to maximize the revenue from power sales based on a sliding time window method.

Investing in the UK's heat infrastructure: Heat networks England and Wales DECC [Heat Infrastructure Investment Pipeline](#)

[UNEP Recognises Empower efforts in 'Global District Energy in Cities Initiative'](#) (zawya.com) 27 April 2016

Following the UAE's signing of the Paris Agreement on Climate Change during a high-level signing ceremony at United Nations Head Quarters in New York on 22nd April, Emirates Central Cooling Systems Corporation (Empower), the world's largest district cooling company, received an official recognition from United Nations Environment Programme (UNEP) for its efforts in supporting the 'Global District Energy in Cities Initiative' (DES Initiative).

[Plate and Frame Heat Exchanger Market Is Anticipated To Grow At A CAGR of 7.3% By 2022: Hexa Reports](#) (PressRelease Rocket) 22 April 2016

The global plate and frame heat exchanger market is expected to reach USD 5.99 billion by 2022, according to a new report by Grand View Research, Inc. Growing awareness towards energy efficiency coupled with construction space constraints is expected to drive the market over the forecast period. Surging demand for thermal management in district heating applications is expected to drive product significance in commercial and residential sectors over the long term.

[With important customers, steam heat facilities eyed by state regulations](#) (Powersource) 19 April 2016

...the Pennsylvania Public Utility Commission ...decided to focus on the steam plants, which quietly produce and deliver through pipes to business districts in Philadelphia, Harrisburg and Pittsburgh's North Shore. In releasing proposed regulations — which call for more inspections, notification about major construction, more customer education, standardized employee training, and reporting of steam leaks and emergencies — the commission cited the risk of accidents and the fact that a thin staff is responsible for oversight of the plants

[Juneau on Denmark's radar for district heat plans](#) (ktoo.org) 15 April 2016

A proposed district heating project in Juneau has captured the attention of the Danish government. On Friday, a Danish representative gave a presentation to the legislature about how that works in Denmark. Juneau Hydropower invited the speakers. The Juneau company wants to build a dam on Sweetheart Lake. The electricity collected will power a downtown seawater heat pump system, circulating warmth through pipes around the city.

[Keep that fire burning: Fuel supply risk management strategies of Swedish district heating plants and implications for energy security](#) (Biomass & Bioenergy journal)

This journal article analyzes supply chain risks pertaining to biomass fuels used in Swedish district heating plants, identifies key supply chain risks and assesses the risk awareness among district heating plant fuel supply managers.

[Using geothermal energy a 'must' we are to reach renewable energy targets](#) (Irish Examiner) 8 April 2016

Research launched by the Geological Survey of Ireland at yesterday's Geothermal Association of Ireland conference at the Energy Show 2016, highlights that every location in Ireland has the potential to harness shallow geothermal energy using ground source heat pumps.

[Project reuses excess heat to keep cities warm](#) (eusew.eu) 7 April 2016

The four-year CELSIUS project has rolled out demonstration systems for reusing waste heat in district heating and cooling in Cologne, Genoa, London, Gothenburg and Rotterdam. Heating and cooling accounts for 50 % of the EU's energy consumption and renewables account for just 18 % of this. By extending use of waste heat, the project allows substantial energy savings and CO2 emissions reductions.

[Geothermal Market report 2015 now available April 13](#) (EGEC Thermal) 2016

The use of geothermal energy, particularly for heat, is slowly but steadily increasing across Europe. Analysing the development of both the electricity and the heat sectors until December 2015, the 5th edition of the EGEC market report published today shows growth in all areas, but notes that the potential is far from met.

[Europe: 23 New and Upgraded Solar District Heating Plants of 190 MWth Start Operation in 2015](#) (SolarThermalWorld) 5 April 2016

As in previous years, Denmark remained the country dominating Europe's solar district heating market.

[How to develop district heating and cooling in France](#) (buildup.eu) 1 April 2016

This report from the French "Plan Bâtiment Durable" explains that the replacement of district heating and cooling to renewable energies are fully considered part of the approach to decreasing the use of fossil fuels to heat and cool buildings. Within the objectives for France, this action will represent a quarter of the renewable heating and cooling by 2020 and renewables in heating and cooling production will be increased by fivefold in 2030.



Saint Paul District Energy shines a purple plume in honor of Prince.

Events

[Webinar: Local energy efficiency through smart district energy systems 4 May 2016 – Covenant of Mayors](#)

This webinar, featuring speakers from the [CELSIUS project](#) and Covenant associated partner [Euroheat & Power](#), aims to provide an outlook into the opportunities and challenges of smart district heating and cooling systems to enhance local energy efficiency and self-sufficiency. Concrete examples and good, replicable practices throughout Europe will be shown to offer Covenant signatories the tools to develop and enhance their district heating and cooling systems.

ADE District Heating Conference 2016 - [Heat Networks: From cash to commissioning - Practical steps for project delivery](#) – 26 May 2016, University of Manchester

The ADE's annual District Heating Conference and Marketplace is the industry event to network, exhibit and learn about the latest best practice in the district heating sector. Local authorities are highly recommended to attend.

Scottish Renewables [Low Carbon Heat Conference 2016](#) 7 June Perth

[IDEA 26 Conference Building Capacity for Climate Adaptation and Community Energy Planning](#) 20-23 June 2016 St.Paul Minnesota