

# District Energy Vanguards Network Newsletter

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## Editorial

### *A rising temperature?*

Over ten years ago there was very little attention given to heat as a form of energy. Furthermore as DECC's Head of Heat Strategy & Policy, David Wagstaff, noted at the CHPA's Heat Conference earlier this month, when people mentioned energy it was invariably conflated with electricity. However, a rush of reports on heat out this month suggests that the think tanks and NGO's are certainly making up for this attention and knowledge gap. Whilst these cover a wide range of issues to do with heat, this inevitably focuses in on heat networks. As the [report](#) from [Carbon Connect](#) puts it:

*"District heating is the biggest piece of the jigsaw missing from the puzzle of future heat for buildings".*

Firstly, a [report](#) commissioned from consultancy [Verco](#) for [WWF](#) calls for a stronger framework for delivery. This should include; strong leadership with a coherent plan; substantially more resources for development activities through vehicles such as DECC's Heat Network unit ([HNDU](#)); and regulation to oblige building owners to connect whilst providing appropriate consumer safeguards. Two further recommendations are: for government to take steps to that will reduce capital costs by de-risking investments through

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the provision of grants, equity and loan guarantees; and the development of appropriate ownership and governance structures to facilitate the rapid roll-out of heat networks. All very good stuff.

Secondly, the Green Alliance published a report on the challenges and opportunities of tower block retrofit. This identified that residents are frequently paying disproportionately high energy bills and that installing district heating is an effective means of delivering affordable warmth. Investing in resident engagement was a key success factor as described in the report [Greening the skyline](#)

The Carbon Connect [report](#) analysed a series of six pathways to de-carbonise heat to draw out common themes. Whilst also considering the need for regulatory frameworks and touching on building connection issues it extends the focus of the WWF/Verco report both downwards to recognise the specific localism of heat networks due to geography as well as outwards to realise the potential of heat networks to draw from a variety of heat sources and provide balancing to the power grid. It states that these benefits are undervalued in the forward cost capital forecasts used in the various pathways.

Whilst the focus these reports give to heat are welcome, particularly in the approach to the General Election in May 2015, they risk dragging heat into its own silo alongside parallel ones for renewables, nuclear and demand side retrofits with the danger that they will fight each other for political attention and resources. What is needed is for these different energy interests to be brought out of their silos and woven together in a 'Big Picture'. DECC's recent [D3 study](#) touched on bringing these individual demand side policy elements into a more coherent policy strategy.

This should extend to recognising the role that heat networks together with thermal storage can play in balancing a future power grid fed primarily by inflexible nuclear generation and intermittent wind generation. A truly 'smart energy system' that integrates these different forms of generation is explored in the [Energy PLAN](#) project led by Professor David Connelly of Aalborg University. In this vision there are a role for demand management and all forms of generation working in cooperation rather than competition. This is the 'Big Picture' politicians and government should be painting.

*Michael King, Editor, 28<sup>th</sup> November 2014*

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## UK and EU Policy

### Consultations, funding, conferences and workshops

**8 Dec** – [financing and organising DH projects in Ireland](#)—this course aims to support the development of DH based on [RES](#) through know-how transfer and exchange of experience using best practice lessons from Denmark

**4-5 Dec** – [District Energy Vanguard Network workshop \(Exeter\)](#)—this workshop's theme will be "what works for DE business models in Britain". This workshop is for core Vanguard members only. Presentations and summaries will be posted in a subsequent newsletter.

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- 4 Dec** – [IET seminar - the Future of Urban Heat \(London\)](#) –energy expert Davy Thielens and guests from built environment and energy sectors including senior figures from DECC, will be exploring how to meet the challenge of low-carbon heating in towns and cities.
- 3 Dec** – [innovation in DH - workshop \(London\)](#) –following on from DECC’s funding competition to boost low carbon heating, this half-day workshop aims to explore the challenges and potential innovation that could help bridge some of the skills and technology gaps. This event is sponsored by the DH piping company [Rehau](#).
- 26 Nov** – [DECC consultation: metering and billing of heating and cooling](#) – the Government has now published its response to the public consultation on implementing the metering and billing requirements of the Energy Efficiency Directive.
- 19 Nov** – [CHPA consultation response to the Scottish Government’s Draft CEPS](#) – the response includes many references to the role of DH. The draft Community Energy Policy Statement can be viewed [here](#).
- 13 Nov** – [DECC launch Urban Community Energy Fund](#) –this is a £10m fund to kick-start renewable energy generation projects in urban communities across England. Eligible technologies include DH and the first **deadline for applications is 22 Dec.**
- 5 Nov** – [Heat 14 Annual Conference proceedings \(London\)](#) – the conference, which attracted more than 200 delegates, was hosted by the CHPA and the Energy Institute.
- 3 Nov** – [CHPA consultation response: Fuel Poor Network Extension Scheme Review](#) – the response to Ofgem’s consultation, which recognises of the role DH systems can have in alleviating fuel poverty, is available to read [here](#).

## UK and devolved administration policy

- 18 Nov** – [DECC - heat meter measurement errors final report](#) – this report quantifies the effects of errors in heat meter installations on heat measurements and to identifies actions that can be taken to reduce the occurrence of these errors.
- 17 Nov** – [report: Pathways for Heat: Low Carbon Heat for Buildings](#) – this report by [Carbon Connect](#) calls on the next Government to set heat as a priority by scaling up efforts to prepare for decarbonising heat in buildings - includes section on DH.
- 10 Nov** – [Annual Energy Statement 2014 Summary](#) – excerpts pertaining to heat from Secretary of State for Energy and Climate Change statement to House of Commons.
- 5 Nov** – [consumer protection scheme “vital” for heat networks and customers](#) – speaking at the Heat 2014 conference, Energy Minister Amber Rudd MP underlined the importance of the new scheme for the long-term success of heat networks.

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## UK News

- 24 Nov** – [new biomass plant and DH system coming to Southampton](#) – the project includes a DH system to serve 900+ council homes and improved cladding for 400

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properties at an approx. cost of £15m offset by £12m in reduced heating bills and £10m savings for the council via RHI payments and ECO funding.

**24 Nov** – [What price heat?](#) – in this blogpost, Thomas Briault and Stuart Allison from Arup explore our tendency to over-simplify how we think about the price of heat, and show some findings from recent work which show DH in a more favourable cost-benefit light.

**24 Nov** – [Borough of Poole secures HNDU funding with Carbon Trust support](#) – the council have been awarded £73,783 for feasibility studies into the viability of heat networks on the town's regeneration sites, close to the award winning Twin Sails Bridge.

**20 Nov** – [pay-as-you-go heat meter being used across thousands of UK homes](#) – the award-winning technology is transforming energy prepayment for residents connected to community heat networks.

**20 Nov** – [resilient energy systems: how will the UK adapt? \(Guardian\)](#) – this article cites creating larger DH networks as a key element in diversifying our energy supplies.

**19 Nov** – [straw burning CHP-DH plant to heat public facilities \(Sleaford, Lincs\)](#) – the plant will provide £285,000 of wellbeing funding and surplus heat generated by the plant will be used for heating the public swimming pool, bowling centre, town football club, a primary school and North Kesteven District Council's office.

**18 Nov** – [DH: a hot idea whose time has come \(Guardian\)](#) – in this Resilient Cities article, Charlotte Johnson extols the virtues of DH provoking many comments from the public.

**11 Nov** – [new £42M Centre for Medicine to use DH \(University of Leicester\)](#) – the Centre will be built to Passivhaus standards for energy conservation with space heating supplied from the university's existing DH network when needed.

**7 Nov** – [enterprise partnership awards £110k grant for DH studies \(York\)](#) – the Leeds City Region Enterprise Partnership has found 15 economically viable sites for DH including two in the City of York area.

**6 Nov** – [London Mayor slammed for 'abject failure' on air pollution](#) – the motion, which was passed at a full meeting of the [GLA](#), also attacks the Mayor's record on energy security, claiming that Mr Johnson is missing targets on decentralised energy capacity.

**6 Nov** – [Judge dismisses EfW concerns \(Sutton, London\)](#) – the 275k tonne EfW plant will generate up to 26MWe and potentially supply heat to commercial and domestic users.

**30 Oct** – [SHEAP consider heat pump solution to extend DH system \(Shetland\)](#) – the sea-water source heat pump would add a further 2MWth to the DH scheme, which at peak loads currently exceeds the 6.3MWth output of the energy recovery plant run by the Council.

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## UK Tenders

NB the items below are a subset of all publically available tenders chosen to give an idea of DH related activity– a more complete set of tenders can be viewed [here](#).

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**13 Nov** – [providing advice on the procurement of a DH network \(Swansea\)](#) – the study will set out a proposal for a start-up phase connecting three publicly owned buildings together with expansion options across the city centre **Deadline for tender receipt is 5 Dec.**

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## UK Jobs

NB the items below are a subset of all publically available jobs chosen to give an idea of DH related activity– a more complete set of jobs can be viewed [here](#).

**14 Nov** – [DH engineer \(Southwark, London\)](#) – applicants will be expected to operate and maintain a range of commercial heating systems in accordance with community energy obligations, standards, policies and supporting procedures. **Applications close on 12 Dec.**

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## Europe

**21 Nov** – [World Bank approves \\$40.5m for DH upgrade \(Chisinau, Moldova\)](#) – the financing is aimed at improving the efficiency of the DH services and reducing costs. The poorest population currently spend up to 26% of their monthly expenditure on heating.

**20 Nov** – [the world's largest intelligent DH grid becomes reality \(Aarhus, Denmark\)](#) – the system, which will have 56,000 heat meters, is expected to reduce daily water wastage by 125m<sup>3</sup> per 24 hours, corresponding to 45,625m<sup>3</sup> annually.

**18 Nov** – [new flue gas scrubber to provide heat for DH system \(Kupio, Finland\)](#) – the scrubber enables the plant to recover sufficient heat for 9,000 average-sized family houses, significantly increasing the plant's energy efficiency and production capacity.

**18 Nov** – [online database on large-scale solar heating plants \(Europe\)](#) –since 1997 the database has grown to 131 plants with a total collector area of 586,000 m<sup>2</sup> (410 MWth).

**17 Nov** – [University of Tromsø uses computer liquid cooling for DH \(Norway\)](#) – the University's new [HPC](#) facility is the first to use [Direct-to-Chip, Hot Water Liquid Cooling](#) for waste heat recovery by using the heat from the servers to heat the university campus.

**12 Nov** – [Danfoss steps up efforts to support German Energiewende](#) – an example is [HafenCity](#) in Hamburg where surplus heat from a local power plant is used to heat the buildings via a DH system. Currently DH systems only meet 13% of German heat demand.

**12 Nov** – [Swedish forestry EfW plant keeps costs down with Organic Rankine Cycle](#) – the plant produces 2.4MWe and 10MWth for the Falköping DH system using locally sourced forestry wastes such as bark and other residues as well as virgin timber.

**11 Nov** – [spectacular Farmers' Market building uses DH \(Rotterdam\)](#) – the building is meant to increase density in the city center, encourage the use of public transportation and is hooked up to the city's DH system.

**11 Nov** – [new geothermal DH system underway at Montieri \(Tuscany\)](#) – the project includes DHN construction, upgrading the energy efficiency of public buildings, and

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installation of solar PV and LED for street lighting, and solar thermal panels to provide space heating and DHW for those households unable to connect to the DH network.

**11 Nov** – [BREEAM® certified high-rise office complex uses DHC \(Barcelona\)](#) – the final energy consumption for this building is 31.2 kWh/(m<sup>2</sup> per year) and its emissions level is just 16.1 kg CO<sub>2</sub>/(m<sup>2</sup> per year), almost 75% lower than a standard building.

**10 Nov** – [Hamburg at forefront of global drive to reverse privatisation of city services](#) – it will probably be 2019 before the much more valuable DH grid is back in public hands reports suggesting that the price tag could exceed €1bn.

**7 Nov** – [heating should come from the ocean \(Arctic Ocean Heat Project\)](#) – the project group representing Norway, Greenland, Iceland and the Faroe Islands aim to replace oil and electricity by using sea-water heat pumps to extract the heat from the ocean.

**5 Nov** – [large biomass plant to supply 100MWth to DH system \(Ghent, Belgium\)](#) – the €315m plant will produce 215 MWe by burning wood chips and agro-residues in a “Circulated Fluidized Bed” with the heat supplied to local industries and households.

**30 Oct** – [thoughts about Third Party Access to DH Networks in Sweden](#) – the author of this blog piece argues that recent laws passed in Sweden will make agreements between suppliers of heat and the owner of the DH network easier to reach and that more currently unused heat will be used.

**29 Oct** – [England's waste increasingly used to generate Danish heat](#) – the environmental protection agency [Miljøstyrelsen](#) said that up to 200,000 tonnes of non-hazardous waste from England was incinerated in Denmark in 2013 – nearly 6% of the total volume of combustible material used.

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## European and other tenders

NB these are a subset of all publically available tenders chosen to give an idea of DH related activity – a more complete set can be viewed [here](#).

**14 Nov** – [Prijedor DH - project implementation and engineering supervision \(BiG\)](#) – the [EBRD](#) is providing a loan of up to €7m for a 20MW biomass DH plant and small CHP system. [Sida](#) is considering a related grant of up to €2m for demand side investments including heat metering and upgrading heat substations. **Closing date: 12 Dec.**

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## The Americas and Africa

**25 Nov** – [CHP/DHC Country Scorecard 2014 for US published](#) – the IEA CHP and DHC Collaborative [report](#) finds that although DHC infrastructure in the US has not had the same level of policy support as CHP systems there has been significant deployment.

**25 Nov** – [University of Alaska Fairbanks initiates second phase of CHP-DH upgrade](#) – the new plant will use two circulating fluidized-bed (CFB) boilers to provide up to 127 tonnes per hour of steam to heat the Campus and produce up to 22MWe using a steam turbine.

**21 Nov** – [DH system may use waste heat from pet crematories \(Vancouver\)](#) – the [MoU](#) enables [Lonsdale Energy](#), a DH provider, and [UWMA](#), the owner and operator of three gas fired pet crematories, to collaborate on the waste heat recovery project.

**18 Nov** – [St. Paul's DE plant attracts artists \(Minneapolis\)](#) – the nonprofit ESCo recaptures excess steam from electricity generation for use in the DH system. The artists will project their work onto the residual steam release via the utility's cooling towers.

**7 Nov** – [New Jersey Energy Resilience Bank is open for business](#) – the first group of facilities targeted for the program, water and wastewater treatment plants, are now able to begin applying for financing from the \$65m allocated to support DE projects.

**29 Oct** – [US Forest Service awards \\$250k grant to support biomass DH system](#) – the program aims to support the use of wood energy to promote sound forest management, expand regional economics and create new rural jobs. (Claremont, [NH](#)).

**22 Oct** – [US Dept. of Energy shows the country's vast geothermal heat potential](#) – the new mapping tool will help identify low-temperature resources suitable for DHC, water purification, and industrial and agricultural processes.

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## China, Asia and Australasia

**26 Nov** – [Renewable Energy Prospects: China](#) – many industrial systems in China are based on old, inefficient coal boilers and DH loops. This [study](#) by [IRENA](#) recommends upgrading CHP and DH plant to improve efficiency.

**21 Nov** – [Empower awards contracts for DC network expansion](#) – the AED 60m (\$16.2) contract covers the supply of pre-insulated pipes and fittings and network expansion work in Dubai's Business Bay area and International Media Production Zone.

**20 Nov** – [DC Pro Engineering scoops "DC Consultant of the Year"](#) – the award was accepted by the CEO of DC Pro who reported that cooling demand is expected to increase by 5% to 7% every year, while penetration of DC systems will increase by 20% annually or at a rate of 500,000 tons of new DC projects each year.

**15 Nov** – [Empower host US delegation to boost DC cooperation \(UAE\)](#) – both parties discussed the need for boosting cooperation and exchanging expertise within the DC sector and future prospects to exchange best practice in R&D within the [HVAC](#) industry.

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**14 Nov** – [more efficient DH key to reducing pollution \(China\)](#) – many of the DH systems employ old, inefficient coal-fired boilers to produce steam and hot water. They have few pollution controls and spew soot, sulfur and nitrogen compounds into the urban air.

**11 Nov** – [Kuwait considers installment of DC systems](#) – a Kuwaiti official, Dr. Al-Otaibi, was speaking on fringes of the 6th Annual Middle East DC Summit.

**10 Nov** – [residents relieved for reprieve on DC disconnection \(UAE\)](#) – Palm District Cooling had stuck a disconnection notice on doors of more than 65 flats warning that if outstanding fees were not cleared by Sunday, services would be cut off the following day.

**10 Nov** – [DC must become more efficient \(UAE\)](#) – the CEO of DC Pro noted that traditional DC systems may become obsolete if they do not develop to include renewable energy such as solar, and conserve primary energy sources such as natural gas.

**3 Nov** – [DSE wins £29m contract for DC plant for housing complex \(Abu Dhabi\)](#) – Under the terms of the agreement, DSE will design and build a DC plant with five and a net production capacity of 12,500 TR.

**23 Oct** – [Tabreed's Q3 profit rises by 28% \(UAE\)](#) – the company, which has 67 DC plants across the Gulf area, has increased revenues by 4.6% over Q3 2013 and also reduced finance costs.

**21 Oct** – [Empower opens new Customer Service Centre \(Dubai\)](#) – the DC services provider announced the opening of its latest Customer Service Centre which will meet the needs of customers in the Business Bay area, including registration, bill enquiries and payment and complaints resolution.

**21 Oct** – [Qatar Cool launches new website and Online Bill Payment Service](#) – the Doha based DC services provider owns and operates the world's largest DC plant with a capacity of 130,000 RT to cool the 45,000 residents of [Pearl-Qatar](#) once fully occupied.

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## Conferences, symposiums and forums

**27 Apr 2015** – [Global District Energy Climate Awards \(Tallinn, Estonia\)](#) – the Award and its event is the occasion where outstanding innovative projects are awarded. Categories include: New Scheme, Modernization, Expansion, Emerging Market and Special Award.

**27 Apr 2015** – [4th Global District Energy Climate Awards \(Tallinn, Estonia\)](#) – this event is now open. The Awards and associated event is run by Euroheat and Power and is the occasion where outstanding innovative projects are awarded.

**19-20 Mar 2015** – [Future District Heating Conference \(Stockholm\)](#) – the conference will cover areas like developments in the heat pump market, how do you respond to increased competition by smarter pricing and profitable business model and many more.

**14-15 Dec** – [IDEA announce 6th International DC Conference \(Dubai\)](#) - participants will explore how district cooling enables greener buildings, critical water savings and a smarter electricity grid. More description of the Conference context can be viewed [here](#).

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**25 Nov** – [DE and the Role of the Private Sector](#) – this is a free public dialogue.

**15 Nov** – [6th Annual Middle East DC Summit \(Doha, Qatar\)](#) – the Summit came to an end with the announcement of recommendations covering areas such as the usage of [TSE](#), alternatives for desalinated water in DC, financing new technologies, etc.

**5 Nov** – [Energy4PowerLive \(London\)](#) – this site contains links to copies of the presentations made to date at this conference.

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## General interest, technology and research

NB articles marked (P) may need to be purchased.

**Nov** – [DHC+ Technology Platform: Autumn 2014 newsletter](#) –the District Heating and Cooling plus (DHC+) Technology Platform provides a European level framework aimed at stimulating research and innovation for DHC.

**Nov** – [analysis of hourly meter readings in a DH system](#) – in this study the author shows that analysis of substations and secondary systems based on hourly meter readings can be useful for the development of future DH systems.

**20 Nov** – [DH key to improving data centre efficiency](#) – water from the cooling system is hot enough for DH systems that heat greenhouses and buildings - a better option than cooling towers used in air-cooled systems which can require large volumes of water.

**19 Nov** – [latest Alfa Laval newsletter](#) –this issue carries articles on energy savings in the DH network in Angers (France), the energy-saving potential of low return temperatures, a new range of compact substations and the NetSizer substation dimensioning tool.

**14 Nov** – [analyzing CHP in the US report \(P\)](#) – this extensive report from Research and Markets includes sections on DH, DE and biomass.

**14 Nov** – [Sycous – DH: metering and billing](#) – this 15 slide show introduces remote and automatic meter reading products.

**8 Nov** – [Optimal integration of solar energy in a DH network \(P\)](#) – this study describes an optimisation procedure for determining dispatching strategies for the different power sources present in a heat network.

**29 Oct** – [Annex X reports from the IEA-DHC research programme now available](#) - Final reports, addressing such topics as low temperature systems and integrating renewables, are available [here](#) (requires registration but access is free). UK membership of the IEA-DHC programme is supported by DECC.

**22 Oct** – [an assessment of new pricing strategies in the DH market](#) - in this study from Stockholm University the authors describe the competition faced by the DH sector from electricity and bio-fuel based heating providers.

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**Oct** – [CELSIUS October newsletter](#) – supporting the achievement of EU's 20-20-20 goals, CELSIUS is a DHC demonstration and knowledge transfer project coordinated by the City of Gothenburg.

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