

District Energy Vanguards Network Newsletter

Table of Contents

Editorial	1
UK and EU Policy	3
Consultations, funding, conferences and workshops	3
UK and devolved administration policy	3
UK News	4
UK Tenders	6
UK Jobs	6
Europe	6
European tenders	6
The Americas and Africa	7
China, Asia and Australasia	7
Conferences, symposiums and forums	8
General interest, technology and research	9

Editorial

Green Gas and District Heating: A Perfect Combination

Mature observers of the world of fashion know that styles from previous decades are constantly re-packaged, re-positioned and presented as the latest trend. It would seem that in the world of energy policy old ideas get the same treatment. Only a few years ago the future was electric. Heat and transport was going to be electrified. Abundantly available nuclear and wind power would charge up cars parked up overnight and power heat pumps in every home and building to provide space heating and domestic hot water.

Of course in the building sector this meant that every building would need to be retro-insulated to a very high standard. It also meant that a total of 150GW of power generation was needed from a fleet of newbuild nuclear power stations and a massive ramping up of offshore windfarms. But the *All Electric Future* was the lodestone and policy was set to prioritise retro-insulation programmes and 'incentivise' the building of the required nuclear and wind generation. However, this vision did not take account of the extra infrastructure needed to cope with the massive variability in heat demand over the course of a year.

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This is illustrated in a chart provided by Imperial College and included in DECC's [Future of Heating](#) strategy setting out the huge variability of annual heat demand compared with the electricity demand. The power grid is designed and built to meet that electricity demand. Electrifying heat demand implies a massive expansion of the power grid to meet the additional demand from electrifying heat and transport as well as the construction of whole new power stations just to meet demand peaks that may only last a few days.

However, echoes of this approach, this time in relation to decarbonising the gas grid, can be heard in [comments](#) by Labour Shadow Secretary of State for Energy Caroline Flint, first made in a speech delivered last May and repeated again recently at the Guardian Big Energy Debate event. The comments are based on a report from National Grid from a few years ago that suggested that potentially 50% of gas supplied through its networks could be supplied from biomethane. Consequently Ms Flint questioned whether there is a need to focus on growing district heating (DH) networks because the desired carbon reductions can be achieved through de-carbonising the gas grid.

Biomethane to Grid schemes are supported under the RHI. They consist of Anaerobic Digestion plant, where the biogas produced is cleaned to gas grid quality and then injected into the national gas grid. By their very nature, these projects tend to be sited close to a gas grid connection. The sector is now expanding rapidly with some 30 projects now installed. Despite this welcome growth in renewable gas production – spurred on by the UK's 2020 renewable target – the volumes produced are – and will be for many years to come – only a very small proportion of overall UK gas consumption. Though Caroline Flint references National Grid's study, I understand that the company is now somewhat cautious of repeating their own biomethane production estimates.

Decarbonising heat is a clear policy priority for government, and the production of renewable gas may well play a useful role in helping deliver this objective. As an aside, it would make sense for policy makers to look at the role that renewable gas could play in the transport market as well where carbon emissions reduction are as challenging – or perhaps even more so – than in the heat sector. Use of biomethane in vehicles such as trucks and buses would also support urban air quality issues – a double policy win for government.

However, district heat networks help deliver additional benefits over and above mitigating climate change. DH can help alleviate fuel poverty, provide opportunities for the delivery of heat from a variety of sources, not only biogas – but also biomass, and waste. Heat networks can help support the use of technologies such as combined heat and power (CHP), heat pumps and fuel cells. And importantly, heat networks can capture thermal energy such as [waste heat](#) and [geo-thermal heat](#) that cannot be converted into gas suitable for distribution in the gas grid. This provides greater diversity of low to zero carbon energy sources as well as flexibility in responding to variations of nature such as poor growing seasons for biomass or lack of wind. Overall DH avoids a 'lock in' to a narrower range energy sources.

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Whilst supporting the Shadow Secretary of State's call for the increased production of renewable gas, I would just caution on this line of pitting one sustainable energy solution against another. The Committee on Climate Change, WWF, Carbon Connect, DECC, the Scottish Government and many others all highlight that there is a real necessity to support the use of DH. Politicians have tended to like quick fixes without the challenge of disrupting infrastructure changes. But in the past these have turned out to be utopian. Heat networks will not be the best option everywhere but, as ever, there is no magic bullet. To hit the 2050 carbon targets we need every single policy lever. We need more renewable gas – and burning it in CHP supplying DH is likely to be the best means of getting the most out of such a valuable resource. That's proper joined up policy.

Michael King, Editor, 30th January 2015

[back to top](#)

UK and EU Policy

Consultations, funding, conferences and workshops

28 Apr – [Scottish Renewables Low Carbon Heat Conference 2015 \(Perth\)](#) – among the topics to be discussed are whether the RHI is working for industry and what more needs to be done to ensure we meet the Government renewable heat target of 11% by 2020.

25 Feb – [Energy from Waste 2015 \(London\)](#) – solving the challenges of heat network delivery from [EfW](#) plants will be a key theme at the conference.

25 Feb – [Carbon Trust Public Sector Conference 2015 \(London\)](#) – this CPD accredited event will feature a dedicated stream: “Distributed energy and heat networks – understanding the role of the public sector in establishing a successful future for decentralised energy”.

24-25 Feb – [low carbon Scotland: meeting our emissions reduction targets 2013-27](#) – a framework for the investment in the future of heat for Scotland will be discussed within this conference with reference to the target set by the Scottish Government for connecting 40,000 homes to DH by 2020. **Conference venue will be in Glasgow.**

22 Jan – [Consultation response from the ADE: Energy Company Obligation 2.2](#) – the [ADE](#) has responded to Ofgem's consultation on ECO 2.2 which includes proposals for DH connections covering themes such as the lifetime of multi-fuel upgrades to DH systems.

UK and devolved administration policy

22 Jan – [Scotland to have great say over design and implementation of ECO](#) – the UK Government have ceded powers over the design and implementation of energy efficiency and fuel poverty measures to enable the Scottish Government to more accurately meet the specific needs of Scottish households. See pages 75 and 76 of the [Command Paper](#).

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8 Jan – [DECC government report indicates heat network priority](#) – a new infrastructure investment report from [DECC](#) shows that heat networks are now recognised by the government as the UK's third major energy network, with new investments of up to £800m in the next few years.

[back to top](#)

UK News

NB articles marked (R) require free registration to view.

29 Jan – [Poole secures heat network funding with Carbon Trust support](#) – the plant will be able to generate around 12MWe and 10MWth in the form of hot water or steam which could be made available to local businesses, industry and homes.

26 Jan – [UK gasification plant will convert wood waste into heat and power \(Derby\)](#) – the plant will be able to generate around 12MWe and 10MWth in the form of hot water or steam which could be made available to local businesses, industry and homes.

24 Jan – [Invisible Energy: Hidden Benefits of the demand side \(ADE report\)](#) – the [report](#) describes the extent of opportunity available for energy efficiency technologies such as DH in the UK over the next decade. See [here](#) for Energy Secretary Ed Davey's thoughts at the launch event.

22 Jan – [Teeside 299MWe CHP biomass plant gains EC dispensation](#) – the plant, being developed by MGT Power, will supply electricity to the grid and heat to customers in close proximity in the Tees Valley.

22 Jan – [living with DH: 10 lessons for a fledgling green industry \(London\)](#) – after nine months living on a DH network, the author, Business Green reporter Jessica Shankleman, reckons the sector has some way to go build customer confidence.

22 Jan – [Vital Energi win £3.1m DH contract \(Euston, London\)](#) – the contract is to deliver Phase 1 of the project which includes a new energy centre and 0.5km of DH network.

21 Jan – [£7m heat network innovation winners announced](#) – the DECC funded prize pool of £1m will be shared among 39 organisations to carry out feasibility studies after which up to ten of the best projects can bid for a share of £6m to fully implement their plans.

21 Jan – [renewable heat network demonstrator secures research funding \(Exeter\)](#) – the DECC funded project will investigate how solar thermal panels and heat pumps can replace or work alongside the existing gas-fired DH scheme to provide a lower cost and significantly lower carbon heating and hot water source.

20 Jan – [£7m competition to boost to heat industry innovation](#) – according to DECC, there are now around 2,000 heat networks in the UK, supplying local heat to 210,000 homes and 1,700 commercial and public buildings. A further 150 schemes are known to be under development by local authorities across the UK..

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- 19 Jan** – [vision for £325m energy plant in heart of Norwich revealed](#) – the plant would burn 200,000 tonnes of compressed straw a year to generate power and heat for homes and businesses although it is likely to only be new developments which would benefit from the DH.
- 18 Jan** – [Applecross community progress hydro-DH scheme \(West Highlands\)](#) – the Community Company’s plan is to install a 90kW hydro-turbine and DH scheme set to provide heat to around 22 local properties by November 2015..
- 14 Jan** – [the Heat Network Regulations are now in force - do they affect you? \(R\)](#) – this article summarises the effect on communal heat suppliers of the new Heat Network (Metering and Billing) Regulations 2014 which came into force in December.
- 12 Jan** – [Slough Council approves SSE’s multi-fuel heat and power station \(R\)](#) – the facility, which could generate up to 50MWe and 20MWth will process 480k tonnes a year of waste-derived fuels.
- 12 Jan** – [CHPA becomes the Association for Decentralised Energy \(ADE\)](#) – the change will reflect the growing role for user-led, local energy and will cement the CHPA’s role as a key advocate for the UK’s decentralised energy transition across the industrial, public, commercial and domestic sectors.
- 9 Jan** – [landmark buildings among first to be supplied from new energy centre](#) – the first public buildings to be supplied with heat and power will include the Civic Centre, Sage Gateshead, the college and five social residential blocks in central Gateshead.
- 9 Jan** – [geothermal potential from deep mines being investigated \(West Cumbria\)](#) –the heat would be delivered via a DHN and the [Utopia](#) project is also considering a solar park, biomass and small-scale wind power as part of.
- 9 Jan** – [initial customer reaction positive for innovative micro-DH scheme](#) – the scheme employed in Holsworthy, North Devon, consists of a series of ten boreholes serving 20 flats; one borehole serves two flats, and thus two Kensa GSHPs.
- 9 Jan** – [are heat meters viable under the EU Energy Efficiency Directive?](#) – in his second article, Casey Cole shows that heat meters are viable in a typical block of flats despite an issue with the DECC [calculation tool](#) which is the subject of his [previous article](#).
- 8 Jan** – [Mayor and TfL launch energy centre \(London\)](#) – the six new natural gas CHP units installed in the historic Greenwich Power Station will provide electricity for the Tube network and have the potential to heat up to 20,000 homes via a new heat network.
- 5 Jan** – [DH important factor in achieving Scottish climate change goals](#) – according to WWF’s Dr Sam Gardner, investing in schemes such as DH and modernising housing stock will benefit employment and household incomes, create a stronger economy and, reduce dependence on fossil fuels and exposure to unpredictable spikes in fuel price.

[back to top](#)

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UK Tenders

A list of tenders which include the [CPV code](#) for district heating can be viewed [here](#).

UK Jobs

A list of district heating related jobs can be viewed [here](#).

[back to top](#)

Europe

NB articles marked (R) require free registration to view.

28 Jan – [New Smart City project will test green solutions for European cities](#) – the EU [READY](#) project will test diverse technologies such as smart solutions for low-temperature DH and local storage, hybrid [PV-T](#) solar panels and [ICT](#) systems.

23 Jan – [Danish Government announces heat network co-operation deal](#) – the deal with the German state of Baden-Württemberg is the outcome of a push by the Danish Government and the DH industry to increase exports in this sector.

21 Jan – [research institute finds in favour of decentralised energy \(Hungary\)](#) – analysis from a model developed using the Danish [EnergyPLAN](#) software suggests that Hungary's electricity network will fulfil energy demands in 2030 even without the planned expansion of blocks at the [Paks nuclear power plant](#).

15 Jan – [grid support power plant goes into operation \(Czech Republic\)](#) – the four 20-cylinder Rolls-Royce CHP engines will generate up to 37 MW of heat and power for the towns of Tabor and Sezimovo Ústí.

15 Jan – [Lithuania's biomass-fired DH to rise in 2015/16 \(R\)](#) – a new study finds that the construction of 60 biomass-fired heating plants will allow the country to move further away from imported fossil fuels, principally natural gas.

12 Jan – [DH: Sweden is leading the way out of fossil fuels](#) – two Swedish experts talk to the media centre [youris.com](#) about ways of removing carbon-based fuels from the heating equation, and what other municipalities can learn from their experience.

12 Jan – [the transition to a green Danish energy system is accelerating](#) – according to the Danish Energy Agency Baseline projection 2014 there will be a major switch from fossil fuel consumption to renewables occurring particularly in electricity and DH production.

6 Jan – [prospects for DH in 2015](#) – according to Clare Taylor of [Pracsis](#) prospects for DH in Europe are good thanks to policy push from Brussels via the Energy Efficiency Directive (Article 14). Among several initiatives is STRATEGO's [Pan-European Thermal Atlas](#).

European tenders

A list of tenders which include the [CPV code](#) for district heating can be viewed [here](#).

[back to top](#)

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The Americas and Africa

22 Jan – [survey of Cheakamus DES users shows troubling results \(BC, Canada\)](#) – the DE system uses a closed ambient heating method that captures waste heat from Whistler's sewage treatment plant to pump into homes.

8 Jan – [how DE can play a role in city-building and urban revitalization \(US\)](#) – the author cites DE as an economic development engine, fostering sustainability by creating a DE utility and integrating diverse fuel types such as wind, solar and biomass.

[back to top](#)

China, Asia and Australasia

NB articles marked (R) require free registration to view.

22 Jan – [District energy heads to Asia](#) - Steve Hodgson of [COSPP](#) sees an increasing number of stories of western know-how being applied to DE projects in Asia.

22 Jan – [UAE cooling firm Tabreed profits up 20% to Dh325.7m \(\\$88m\)](#) - the company's performance was bolstered by major milestones which include the refinancing of its Dh2.6bn debt facility and connecting over 118,000 RT to new customers.

20 Jan – [Tabreed signs DC deal with Aldar Properties \(Abu Dhabi\)](#) - the deal will see future Aldar sites connected to Talbreed's network for the next 30 years. Tabreed currently has six plants providing 160,000 RT to major Aldar projects.

16 Jan – [DC can help reduce carbon emissions and develop a green economy](#) - the government of Dubai has issued a 20% reduction target for carbon emissions from all buildings by 2030, linking this with the potential for developing a green economy.

15 Jan – [World Future Energy Summit to consider environmental benefits of DC](#) - the Summit will be held this month in the UAE where air conditioning consumes up to 60% of energy used during peak hours.

9 Jan – [DC at core of landmark Sydney urban renewal project](#) - the contract, which has been awarded to Veolia, will cover the operations and maintenance of a 62 MW district cooling network, an embedded electrical network and a recycled water treatment plant.

7 Jan – [Emicool to provide DC for Dubai Sports City](#) - industrial chillers cool water to 4.5°C which is then pumped via a DC network to each building within the sports community. A thermal storage tank is integral to the plant and helps modulate fluctuations in demand.

5 Jan – [Empower converts selected Jumeirah Group properties to DC \(Dubai\)](#) - the company is set to construct more than 30,000 RT of DC systems for the hotel group.

29 Dec – [Empower crosses 10% Emiratisation in its workforce](#) – the DC company is committed to the UAE's 7-year [National Agenda](#) development vision.

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29 Dec – [China looks to Denmark to develop heat strategy](#) - by 2015, the city of [Anshan](#) should burn 173,000 tonnes less coal each year and [Danfoss](#) says it can expand the networks of DH pipes to reduce yearly coal consumption by 1.2m tonnes.

28 Dec – [Qatar Cool announces increase of 12% in DC production since 2013](#) – the company owns and operates two DC plants in the West Bay district and a third, the Pearl-Qatar plant, which is the largest in the world. All three plants are in Doha.

[back to top](#)

Conferences, symposiums and forums

17-18 Jun – [3rd International Solar DH Conference \(Toulouse, France\)](#) – this event will focus on sharing international experiences on the realization and operation of solar DH projects, so that newcomers in the field can benefit from international expertise.

27-28 Apr – [4th Global District Energy Climate Awards \(Tallinn, Estonia\)](#) – this event will be held in conjunction with the [37th Euroheat & Power Congress](#) and is now closed. The Awards and associated event is run by [Euroheat and Power](#) and is the occasion where outstanding innovative projects are awarded.

26-27 Mar – [4th Informed Cities Forum \(Rotterdam\)](#) – this year's theme will be "Which way to the future? Strategies, tools and inspiration for transforming cities". The forum is organised as a co-production of the [ARTS](#) and MUSIC project consortia.

19-20 Mar – [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.

17-18 Mar – [3rd Annual DC Stakeholders Summit \(Dubai\)](#) – there will be many seminars on technology and policy with prominent key note speakers. See [here](#) for summary.

11-13 Mar – [11th edition SE European Smart Cities Forum and Exhibition \(Sofia\)](#) – at the conference will have a strong focus on [bio energy](#) and DH.

26-27 Feb – [Heating and Cooling in the European Energy Transition \(Brussels\)](#) – the conference will comprehensively explore the heating and cooling sector, including its role in achieving the EU's climate and energy objectives..

25-26 Feb – [11th International Energy from Waste 2015 Conference \(London\)](#) – there'll be a particular focus on heat delivery from EfW plants, with sessions on local authority based networks and wider sustainable city development, incorporating heating and cooling.

10-13 Feb – [IDEA Campus Energy Conference \(Denver, Colorado\)](#) – the conference program lists a wide range of energy issues that affect campus energy systems including CHP and thermal energy networks. The conference is sponsored by [IDEA](#).

[back to top](#)

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General interest, technology and research

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

26 Jan – [International Energy Advisory Council launched](#) – the Council's focus is the replacement or avoidance of incumbent centralized fossil-fuel and nuclear-energy systems by a combination of greatly improved energy efficiency and decentralized energy..

15 Jan – [DH could be used to heat ovens for drying plastic coatings](#) – using the new process, vehicle parts such as mirror housings and tailgates are finished with their outer clear coat at an energy- and cost-efficient temperature of just 80 °C.

Jan – [Tracking Clean Energy Progress 2014](#) – this free publication from the IEA includes a section on CHP and DHC - see pages 52 and 53.

Dec – [Proceedings from the 14th International Symposium on DHC](#) – the symposium was held in Stockholm in September 2014. All 73 selected papers can be view individually or in a single 552 page document which can be viewed [here](#).

Dec – [the PITAGORAS project](#) – this EU sponsored project focuses on the efficient integration of city districts with industrial parks through smart thermal grids..

[back to top](#)

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