

District Energy Vanguards Network Newsletter

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Editorial

Meter you will or meter you won't

Last week it was reported in a EurActiv Network [article](#) that two thirds of EU member states totaling 19 countries had failed to transpose the EU's Energy Efficiency Directive into national law by the deadline of 5 June 2014. Legal proceedings against non-compliant countries are threatened. One aspect of the Directive is the introduction of heat metering on district heat networks. This was transposed into UK Law under the [Heat Network Regulations 2014](#) which requires heat network operators to provide the National Measurement Office ([NMO](#)) with details about their networks and places a duty on them to install accurate heat meters at building level and at individual customer level. Although last week DECC passed an [Amendment](#) to these Regulations that drops back the deadline on the requirement on network operators to notify the NMO of their operations from 30 April 2015 to 31 December 2015.

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The underlying reasoning for the requirement to introduce heat meters is to reduce consumption and consequently save customers money as well as reducing carbon emissions. This will be through three routes:

- a) It will provide customers with feedback on their consumption to encourage conservation ;
- b) Expose inefficiencies in the design and operation of networks;
- c) By linking back to (a), motivate customers to demand efficiency improvements to secure lower bills.

Let us unpack these assumptions. Firstly, proponents of metering at individual customer level that it cuts consumption by up to 20%. As this reduces fuel burn by a commensurate amount, they argue, it leads to reductions in customer bills. This works for a heat-only network. But when it is served by a CHP unit the principal revenues for the operator come from electricity sales. Reductions in heat demand will feed back to lower power generation and therefore lost revenues. Where electricity revenues are used to cross-subsidise heat charges reduced heat consumption could inadvertently lead to higher heat charges. Additionally, some operators roll up the fixed or infrastructure costs with the variable or fuel costs into a single unit charge. This is common in smaller, typically rural, networks. If the operator has to pay back upfront capital through selling heat it will just have to charge more per kWh if customers use less. Furthermore, introducing heat meters into un-metered networks, whether heat-only or CHP-fed, has a capital and operational cost in itself. Particularly as such meters have a life span relative to other network infrastructure. Such costs are likely to be passed through to the customer potentially cancelling out savings achieved through conservation.

Such cost implications have led the Government to caveat the duty to install meters to allow for networks where the additional cost to customers exceeds the benefit they will derive from their introduction. This is calculated using the [Heat Metering Viability Tool](#) available on NMO's website. Anecdotal reports suggest it will exempt most existing networks in social housing.

Secondly, using metering to expose system inefficiencies is a point well taken. But is it necessary for metering to be at individual customer level given the cost implications? Surely such inefficiencies can be identified by metering at building or floor/storey level and therefore reduces costs. The new ADE/CIBSE Heat Networks [Code of Practice](#) should also raise standards in the design of networks to drive out poor practice.

Thirdly, the notion that customer complaints will motivate poorly performing network operators to up their game is seemingly unfounded. Watch out for research about to be published by the Consumers' Association's *Which?* magazine. Monopoly suppliers have little fear of customers migrating to other energy networks. But there are other less costly ways of addressing this issue. For example, the re-sale of gas and electricity by landlords to tenants is tightly regulated by Ofgem. In Denmark network operators' charges are

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published in comparative form by the Danish Energy Regulatory Authority providing a competitive imperative. Last week saw the welcome establishment of the [Heat Trust](#), a collaborative self-regulation initiative between industry, government and consumer organisations. This body intends to develop a [Heat Cost Comparator](#) to allow customers to compare charges between different network operators.

This is a complex field. The notion that reduced consumption of heat supplied through heat networks will lead to lower costs and reduced emissions is a simplistic one. To try to address this complexity the NMO and Heat Trust are providing software tools. In the short term the assumptions and methodologies underpinning these will be open to challenge and debate; however, in the final analysis it should be the benefit to customers and the environment that decides it.

Michael King, Editor, 31st March 2015

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Letter

Dear Editor,

I just read your editorial in the latest Vanguard's newsletter – as ever, with interest. The editorial touches on a couple of very important points: the investment requirement, and underwriting of risk.

You are spot on in your commentary regarding the issue of financing the required investment: the fact that PWLB, whilst attractive in terms of locking in low rates, doesn't deal with risk, and that district heating is something of an anomaly compared to other energy infrastructure in which there are greater incentives to encourage private investment.

I think the answer to your question "*is it time to consider a long-term risk underwriting mechanism for heat networks*" is yes. The next question is how. I don't think there is a single answer to this. Regulation is seen as a last resort, so perhaps different approaches are needed for different types of scheme. For example, how can the public sector best use its property portfolio to help mitigate demand risk for developers / funders by committing assets as long-term anchor loads? How can risk capital best be deployed in developing heat networks? Should we adopt a portfolio approach to managing / recycling investments across multiple projects? Perhaps your readers could debate these or suggest alternative mechanisms.

Thanks again for the thought-provoking and apt editorial.

A Scottish Reader

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UK, devolved and EU administrations

Policy, regulation, consultations, guidance and funding

26 Mar – [assessment of costs, performance and characteristics of UK heat networks](#) –this research report from DECC and prepared by AECOM aims to provide evidence-based knowledge to support the evaluation of policy options involving heat networks.

25 Mar – [Heat Network \(Metering and Billing\) Regulation Amendments 2014](#) –one of the key changes is to postpone the time limit for the notification duty to 31 December 2015 instead of 30 April 2015.

20 Mar – [Landlords of multi-let buildings - new metering and billing requirements](#) –this article by the legal specialists [Shoosmiths](#) details the obligations on landlords stemming from the Heat Network (Metering and Billing) Regulations 2014 – see [here](#).

10 Mar – [DECC £3m funding for local authorities to boost low carbon heating](#) –the funding has been awarded to 55 local authorities across England and Wales to support 74 low-carbon heat projects. [Page down for a list of the successful local authorities.](#)

6 Mar – [Geothermal Energy Challenge Fund launched by Scottish Government](#) –the £250,000 fund will support research into exploring Scotland's geothermal capacity to meet the heating needs of local communities.

UK conferences and workshops

22-26 Jun – [short course on CHP \(Cranfield University\)](#) – the course will build up the delegates' understanding and knowledge of CHP technologies with conventional fuels and renewables.

6-7 May – [All-Energy 2015 Conference Programme \(Glasgow\)](#) – seminars for this year's All-Energy conference include DH, Geothermal, EfW and many other related topics.

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.

21 Apr –the April session of the Local Authority DH Forum will be held in Westpoint, Exeter in partnership with the UK [District Energy Vanguard Network](#). The forum is a closed group and only open to local authorities with application via [email to Alastair Mumford](#).

16 Apr – [workshop on compliance with new heat network regulations \(London\)](#) – the [ADE](#) is hosting a workshop for members with DECC and [NMO](#) experts on the Heat Network (Metering and Billing) Regulations 2014 and how the regulations will be enforced.

10 Mar – [DECC Community Heat Conference presentations now available](#) – the address to the conference from [Baroness Verma](#) can be [read here](#).

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UK News

27 Mar – [Coventry DH scheme becomes fully operational](#) - the scheme will be operated by Cofely under a 25 year concession agreement with the Council whereby Cofely buys heat from an existing EfW plant and supplies city centre consumers via a 6.6 km DH network.

25 Mar – [online map launched to assist water source heat pump deployment](#) – the interactive map helps identifies rivers, estuaries, canals and coastal sites suitable for low grade heat extraction. The Water Source Heat Map is in the form of a new tool which can be accessed from the [National Heat Map](#).

25 Mar – [SSE to investigate feasibility of installing WSHPs \(Battersea\)](#) – the pumps would take heat from water in the Thames and feed it into a local DH network supporting the Battersea Power Station development ([page down for article](#)).

25 Mar – [new Green Investment Bank report: Ten ways to make UK cities greener](#) – the [GIB](#) report highlights DH and CHP as two of the top ten ways to unlock the benefit of greener cities infrastructure. The report can be read [here](#).

25 Mar – [new ETI report on decarbonising heat call for more heat networks](#) – the report finds that eliminating carbon emissions from UK homes is more cost effective than making deeper cuts in other sectors.

25 Mar – [an overview of the investment secured in low carbon energy since 2010](#) – this new report from DECC includes a section on renewable and low carbon heat with a reference to heat networks. The report can be read [here](#).

25 Mar – [new protection scheme for DH customers gets green light](#) – at a meeting of key stakeholders, Heat Trust was approved for launch following over two years of industry, Government and consumer group collaboration.

20 Mar – [£52m geothermal energy plan gets go ahead \(Stoke-on-Trent\)](#) – the Government has awarded a £19m grant towards the scheme which will help kickstart the DHN. An additional £28m will come from private investors and £3.9m from the council.

20 Mar – [communal DH system wins South West Regional Project of the Year award](#) – the scheme features a ‘micro heat network’ which sees the flats connected to a communal heat system. Heat from the ground is extracted to provide hot water and heating into tenants’ homes via individual heat pumps inside each property.

17 Mar – [Highland Council secure £6m funding for DH network](#) – the funding will help provide low carbon affordable heat and alleviate fuel poverty via a DH network based on a water source heat pump in Caol near Fort William – benefiting over 500 homes.

13 Mar – [County council secures grant to develop low carbon heating network](#) – the grant will help fund a study on the viability of a Greater Lincoln DH Network using the low quality steam being produced by the EfW facility in North Hykeham

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- 12 Mar** – [Eden District council secures funding to study how best to heat homes](#) – the Council will use the grant from DECC to carry out four studies in to how best to the off-gas grid homes, which could help address many of the area's fuel poverty issues.
- 11 Mar** – [ADE urges government to establish new district heating policy](#) – the ADE are appealing to the next government to establish a new DH policy to unlock a potential £1.6bn worth of investment.
- 11 Mar** – [Arup release new carbon calculator tool for DH schemes](#) – the tool is designed to assist projects in their early estimation of the CO₂ savings which could be realised by a DH scheme with different sources of heating. The Excel-based tool can be [downloaded here](#).
- 11 Mar** – [DECC contributes £56k towards DH feasibility study for Crewe town centre](#) – the council is also in talks with potential partners about plans to drill for geothermal energy in the Leighton West district of Crewe.
- 10 Mar** – [Bristol's major employers commit to working together on a DE network](#) – the Memorandum of Understanding will bring the City Council, the University and NHS Hospitals together to work on a district energy network. See also [here](#) and [here](#).
- 5 Mar** – [MP calls for waste heat capture for use in DH systems](#) – MP Laura Sandys pointed out that power stations currently lose 25-35% of their heat and that "We should be looking to capture this heat and reuse it for turbine generation, or put it at the centre of DH networks, but nothing is really being done," she said.
- 4 Mar** – [ETI publishes scenarios for a low carbon energy system](#) – the [report](#) focuses on two potential scenarios with the first calling for the deployment of large-scale DH networks resulting in the local gas distribution network retiring incrementally from 2040 onwards.
- 1 Mar** – [Sleaford community organisations to receive free heat thanks to DH scheme](#) – the free heating will be provided for the next 25 years, saving an estimated £2m in energy costs over the period. In addition there will be a significant investment in the local economy via an annual £120,000 community benefit.
- 26 Feb** – [ENER-G Switch2 celebrates 10,000th community heat meter installation](#) – the G6 meter makes energy prepayment more customer friendly. It also displays graphs showing residents how much energy they are using.

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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](#).

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Europe

30 Mar – [municipal gas DH system launched \(Brasov, Romania\)](#) – the investment entails four CHP plants, comprising 11 Jenbacher Type 6 gas engines, producing 42 MWe and 38 MWth. The plants are part of Romania's drive to modernize older, less-efficient municipal and industrial DH systems to reduce emissions related to energy production.

30 Mar – [crematorium applies for connection to DH scheme \(Oslo\)](#) – the application is not likely to go ahead due to the crematorium being too far away from the existing DH network, ethical issues and the sporadic heat profile from burning bodies.

25 Mar – [Sofia DH utility pledges to repay current debt to gas supplier \(Bulgaria\)](#) – the utility, Toplofikatsia Sofia, stated that it will repay its current liabilities for 2014 of 90m leva (€46m euro) to state-run gas monopoly Bulgargaz by the autumn.

24 Mar – [world's first carbon-negative data center to heat homes \(Falun, Sweden\)](#) – heat from the servers will be piped to the town's DH system in winter and in the summer, the center will supply district cooling from the air conditioning.

13 Mar – [Europe's biggest gold mine to get DH network \(Finland\)](#) – the contract is for approx. €3.4m and will see the implementation of a DH network in the Kittilä mine area in Lapland with completion scheduled for autumn of 2015.

13 Mar – [new biomass boiler plant to provide more sustainable DH \(Nokia, Finland\)](#) – the fossil based natural gas previously used for energy production will be replaced with more affordable biofuels, such as timber chips and whole tree chips. In addition, the boiler can utilize milled peat and sludge from the paper mill.

10 Mar – [heat pumps extract warmth from fjord for DH system \(Norway\)](#) – a positive report from the BBC on the DH system which supplies heat to Drammen's 65,000 residents as well as its businesses.

3 Mar – [IMF reforms result in 220% increase in gas price for DH utilities \(Ukraine\)](#) – the increases come into force from 1 April with further increases planned for September and March 2016 to move domestic prices towards import prices.

27 Feb – [EU recognition of heating and cooling sector welcomed by Euroheat chief](#) – the president's remarks are in response to the recent publishing of the EU's Energy Union strategy which can be viewed [here](#).

26 Feb – [EU must maintain focus on heat in energy policy](#) – COGEN Europe has launched a [Manifesto](#) calling for heat to be thoroughly covered by the European Commission's work plan and in the actions to be developed under the new Energy Union Strategy.

23 Feb – [new Apple Data Centre to provide heat for DH system \(Viborg, Denmark\)](#) – the data centre will measure 166,000 m² and is expected to become operational in 2017.

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European tenders

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

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The Americas and Africa

27 Mar – [construction on new, more efficient Central Energy Plant begins](#) – the plant will provide electricity, steam, hot water for heating, and chilled water for cooling to the upper campus and the new Science and Engineering Complex (Tufts University, Mass.).

25 Mar – [new DC facility will reduce electric consumption and emissions](#) – the 6,000RT facility will provide a chilled water supply to 25 commercial and institutional buildings, including the Hughes Justice Complex, in downtown Trenton, New Jersey.

26 Feb – [DH energy centre damaged by fire \(Revelstoke, BC, Canada\)](#) – the operator, [RCEC](#), installed a boiler to resume heat provision to customers, who include a timber company, the city hall, community centre, aquatic centre, guest house and two schools.

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China, Asia and Australasia

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

20 Mar – [Zamil wins hotly contested \\$92.8m Madinah deal for DC chillers](#) – 200k TR will be generated by 80 MHI centrifugal chillers for the first phase of the project which is designed to accommodate 120,000 pilgrims and will have one of the largest DC systems in the world.

20 Mar – [Dubai set to implement energy efficiency measures \(UAE\)](#) – the strategy has eight programmes to manage energy demand including green building regulations, retrofitting of existing buildings, DC, wastewater reuse and laws and standards to raise efficiency.

18 Mar – [DC company designated as Platinum Elite Service Customer](#) – Empower, the world's largest DC services provider, has been selected for the award by Trane, the US-based Ingersoll Rand subsidiary that provide HVAC systems worldwide.

13 Mar – [Empower completes DC connection to Dubai Design District](#) – the Phase One connection to the 2km² neighbourhood will provide cooling services with a capacity of 10,000 RT.

10 Mar – [Honolulu Seawater A/C project signs up Central Pacific Bank HQ](#) – when completed, the \$250m system will pump cold seawater from more than four miles offshore into a cooling station where it will pass through heat exchangers, cooling off freshwater circulating in a closed pipeline system that, in turn, will cool downtown buildings.

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10 Mar – [DC company Empower announces net profit of AED 410m \(€105m\)](#) – revenue growth for the company includes the first full year of operations following the acquisition of Palm District Cooling, a Dubai-based entity that Empower acquired in Q4, 2013.

9 Mar – [joint venture to build 35MW DC system in Muntinlupa City \(Philippines\)](#) – the project would be the first of its kind in the Philippines. It consists of a centralized chilled water plant supplying 15 buildings, totaling 390,000 square meters, owned by [CPI](#).

3 Mar – [DC heads to the Middle East, Australia and South Asia](#) – whilst current DC growth in the Middle East far surpasses that for any other region, Singapore is cited as another growth area, along with several other cities of South East Asia and Korea.

3 Mar – [SNC-Lavalin signs \\$71m KSA DC contracts](#). –the Montreal-based company has won two [EPC](#) contracts to expand a DC networks in Dhahran and Makkah adding 5,000 RT and 10,000 RT respectively to existing DC capacities.

26 Feb – [Kyrgyzstan's DH sector assessment discussed with World Bank](#) –the study calls for the rehabilitation of the DH network, a comprehensive revamping of heat provision and implementation of an energy efficiency program for public and residential buildings. These investments will also require policy reforms such as tariff and social assistance reforms.

24 Feb – [new Tec-City relies on DC for efficiency \(Ahmedabad, India\)](#) –the Gujarat International Finance Tec-City (GIFT) has all the power cables, fibre optic network and DC pipelines tucked in a three-km long tunnel.

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Conferences, symposiums and forums

25-27 Aug – [4th Annual Asia Pacific District Cooling Conference \(Bangkok\)](#) – this three day event will include sessions on regulation, design, awards, technology and operations.

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.

26-29 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.

14-15 Apr – [5th Annual Small Modular Reactor Summit 2015 \(Charlotte NC\)](#) – there will be a unique panel discussion and workshop on integrating small modular reactors (SMRs) into nuclear co-generation and hybrid energy systems – see [here](#) for detail and brochure.

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.

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9 Mar – [summary of the 3rd Delta-ee Utilities & Heat Pumps Roundtable](#) – large scale heat pumps can make a useful contribution towards heat provision in DH networks. This event was organised in association with the [European Heat Pump Association \(ehpa\)](#)

26-27 Feb – [Heating and Cooling in the European Energy Transition \(Brussels\)](#) – all the sessions were webstreamed and are available [here](#).

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General interest, technology and research

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

21 Mar – [company highlights threat of technology stagnation in district cooling](#) – the CEO of DC Pro Engineering UAE, said that the DC industry continues to apply a 10 year old technology as newer HVAC systems such as air cooled chillers continue to enjoy popularity with a greater market share.

19 Mar – [new static ultrasonic flow meter launched for DHC applications](#) – the meter continually monitors operating conditions and, in the case of abnormal conditions such as back-flow or air in the pipe, sends a warning to the utility by SMS or e-mail.

18 Mar – [new in-line pump features advanced functionalities to improve efficiency](#) – the TPE3 from Grundfos can be used in all heating, cooling and district energy systems.

6 Mar – [building efficiency big now – DE could make it grow even bigger](#) – presently, lighting and building envelope improvement revenues outpace DE and CHP revenues, however, the gap between the sub-segments may shrink with greater customer knowledge and adoption of DE and CHP systems.

4 Mar – [UN report calls for modernising of DE systems](#) – a transition to modern DE systems could contribute up to 60% of required energy sector emissions reductions by 2050, and reduce primary energy consumption by up to 50%, according to the United Nations Environment Programme (UNEP) [report](#)

2 Mar – [DESMI Pumps within District Energy](#) – this 9 min promo-video from the Danish pump and equipment maker gives an interesting insight into DH and DC operations.

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[Link to the glossary of terms and acronyms](#)

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