

District Energy Vanguards Network Newsletter

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Editorial

March has definitely been a hot month for district energy!

This week DECC's Heat Network Development Unit announced the second round of successful bids for support from it. Over the two rounds to date 50 local authorities have benefited. This is very good news and gives an indication of the enthusiasm for district energy across England and Wales. This momentum must continue beyond technical feasibility studies and financial viability modelling. Recently the Government announced £20.2m of support, including a HNDU grant, to build a heat network and deep geothermal plant to extract 45 GWh of heat via heat pumps from old mine workings under Stoke-on-Trent. Under a City Deal Partnership there will be £28.3m of private sector investment plus £3.9m contributed by local authorities. Once again it is good news that district energy has risen to the top of the City Deal objectives. The announcement references other potential geothermal projects in Manchester, Glasgow, Newcastle and North Tyneside. But will these cities, indeed any of the beneficiaries of HNDU support, benefit from similar financial packages?

The Stoke-on-Trent announcement illustrates that in order to harness large scale thermal resources you need a heat network. Other towns and cities may not as be fortunate as Stoke in sitting on top of old mine workings. But most will have other large scale sources of

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heat available to them. A recent study showed that London could provide up to 75% of heat demand from waste heat. The critical role of heat networks in exploiting such resources is highlighted in the Scottish Government's draft Heat Generation Policy Statement released earlier this month. This has set a target to supply 1.5TWh of Scotland's heat through district heating networks by 2020. To address fuel poverty a further target of connecting 40,000 homes to district heating networks by 2020. Such a welcome ambition could be achieved if Glasgow and other Scottish cities are able to benefit from similar packages to Stoke-on-Trent.

The Consumers Association's view that the current energy market is 'broken' has been accepted by Ofgem who have now called for an investigation by the Competition and Markets Authority. They should consider whether retail competition is efficient and effective. This assumes that customers will switch suppliers to take up better offers from others. But individual consumers have neither the market clout nor the expertise to truly take advantage of the energy market. Consequently most do not take the opportunity to switch. Experience from Denmark suggests that a single buyer, such as a heat network operator, can be more effective in establishing competition at a wholesale level. However, the Danish Heat Supply Act requires that they operate on non-profit basis in order to pass the benefits on to consumers. Such an arrangement could provide customers with the confidence they need to connect to heat networks and facilitate the achievement of the Scottish Government's targets.

Michael King, 28th March 2014

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UK and EU Policy

Open consultations, funding and workshops

26 Mar – [DECC announce latest round of successful DH projects via HNDU](#) – more than £2.1 million has been awarded to [24 local authorities](#) across England and Wales to support the development of heat network projects.

25 Mar – [DECC research on costs, performance and characteristics of Heat Networks](#) – stakeholders involved in the successful delivery of UK heat networks are invited to provide information via an [online survey](#) relating to the development, installation, maintenance and management of heat networks. **The deadline for submissions is 11 April.**

5 Mar – [the Future of the Energy Company Obligation \(DECC\)](#) – this consultation includes a proposal to allow DH connections made from 1 April 2014 to be included as a primary measure under [CERO](#). **The consultation is open until 16 April.**

4 Mar – [Draft Heat Generation Policy Statement:\(Scottish Government\)](#) – this consultation sets out an Environmental Report of the policies in the Draft Heat Generation Policy Statement. Section 7 consists of the report's conclusions and recommendations and poses a number of questions **to which responses are invited by the 9 June 2014.**

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Jan – [Transposition of Article 14\(5\)-\(8\) of the Energy Efficiency Directive in Scotland](#) – the directive requires cost benefit analyses in certain situations to ensure viable opportunities for cogeneration and efficient DH and DC are not missed. This Scottish Government consultation is open until 16 April.

UK and devolved administration policy

26 Mar - [the potential for recovering and using surplus heat from industry \(DECC\)](#) –the technical potential of waste heat from eight industrial was identified as 11 TWh/yr with an economic potential of 8 TWh/yr. The study also identified commercially viable heat recovery options in all eight of the sectors.

14 Mar - [Government heeds call to retain LA renewable energy powers for new homes](#) – local authorities will retain powers to specify the sourcing of energy from on-site renewable technologies (such as solar panels) or connected renewable heat networks (using technologies such as biomass, geothermal or EfW).

12 Mar - [CHPA calls for CHP to be exempt from the Carbon Price Floor](#) –industry could increase the efficiency with which they use gas by up to 30% by using it in CHP plants,

12 Mar - [New WWF on Scotland's renewable heating future](#) –the report calls for policy and incentive changes to increase deployment of heat pumps, biomass and DH.

7 Mar – [Maximising the Opportunities for Scotland from DH](#) – this joint Scottish Renewables-WWF parliamentary briefing was issued ahead of a [Scottish Parliament debate](#) on DH and decarbonising heating held on 6 March.

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UK News

27 Mar - [DECC release updated data sets on gas and electricity consumption](#) – the data sets on [MLSOA](#) and [LLSOA](#) gas and electricity consumption may be of interest for those local authorities building heat maps.

25 Mar - [Green Loan facility announced for Hackney \(London\)](#) –the senior debt facility from [LEEF](#) will support the installation of communal heating networks across ten separate social housing blocks, designed to alleviate existing fuel poverty for residents.

22 Mar - [Village considers building its own biomass DH system \(Tessdale\)](#) –the proposal would see Whorlton residents borrow up to £130,000 from the Government to set up a community interest company. Like many dale communities, Whorlton is not on the gas mains and most residents have to rely on expensive heating oil to warm their homes.

21 Mar - [New business formed as DH grows](#) –the company, AMCO Pipe UK, will be based in Stoke-on-Trent, which is due to benefit from the UK's first large-scale geothermal heat DH project.

21 Mar - [20 injured in EfW plant explosion \(Runcorn\)](#) – the injured workers were taken to the local hospital's A&E department where they were treated for breathing problems and

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eye irritation. The 70MWe/51MWth EfW plant is owned by Viridor and is the largest EfW plant in the UK..

20 Mar - [Manchester geothermal project moves forward](#) –GT Energy have instructed SLR Consulting to submit a planning application for the next phase of its proposed deep geothermal heat plant and DH network..

20 Mar - [recommissioned EfW plant to look for heat customers \(Dundee\)](#) –the plant management report that up to 8MWe is being supplied to the grid and that a DH system is under consideration for homes in the nearby Whitfield estate.

18 Mar - [City Deal for UK's first large-scale, low-carbon heat network system](#) –the Stoke-on-Trent DH Network will use deep geothermal heat energy to produce up to 45 GWh a year, save 10,000 tonnes of CO₂ a year and lower energy costs by up to 10%.

18 Mar - [Bank of England governor boosts green investment hopes](#) –Mark Carney said the Bank could buy new types of assets, such as bonds from the [Green Investment Bank](#), instead of UK government bonds if it ever has another round of [quantitative easing](#).

17 Mar - [Cube Housing and SSE win UK award for DH scheme](#) – the system provides low-cost heating and hot water to more than 1,500 tenants and around 300 owners. The CHP engine and new insulation saves around 7,000 tonnes of carbon emissions every year.

17 Mar - [RAF Leuchars to use CHP-DH system](#) – the system will use a [Capstone C200](#) natural gas-fuelled microturbine supplemented by two current 1.4 MWth boilers.

12 Mar - [Veolia proposes 20MWth EfW CHP plant \(Hertfordshire\)](#) – if the scheme wins planning approval, it will provide heat for the equivalent of 4,000 local homes and save the local authority around £667m through the sale of electricity and reducing land-fill charges.

11 Mar - [Dorset tearoom tests Poole Harbour heat scheme](#) – the Poole Tidal Energy Partnership, which includes Borough of Poole, Transition Town Poole, Bournemouth University and others, has been exploring ways to use the harbour as a source of energy..

6 Mar - [Scottish Greens reiterate call for more investment in DH schemes](#) – speaking in a debate at Holyrood, Lothian MSP Alison Johnstone highlighted the success of the CHP scheme at the University of Edinburgh, and the potential of large development sites such as at Fountainbridge for new, future-proof schemes.

5 Mar - [Skanska wins £50m contract for Cambridge University DH system](#) – the contract will include the delivery of all utilities, co-ordination of the installation of the site-wide DH network, and the construction of primary and secondary roads and pathways.

5 Mar - [three leading organisations to connect to new DH network \(Sheffield\)](#) - the £20m DH network will take heat from E.ON's soon-to-be-completed Blackburn Meadows renewable energy plant via an 8km pipe network.

5 Mar - [Scotland sets ambitious target for DH Schemes](#) - to help achieve its target to reduce GHG emissions by 42% by 2020 and tackle fuel poverty, the [Scottish Government](#) is increasing funding for its DH Loans Fund by £4m to £8 million.

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4 Mar - [waste management chief exec calls for DH support](#) - Ian Wakelin of Biffa says that the UK is disadvantaged compared to some of its European neighbours where DH schemes have been more consistently supported by governments.

4 Mar - [Biomass CHP plant plans passed \(Rotherham\)](#) - the plant is set to generate 34MWth and 31MWe with around 29.2MWe available for the grid. The development is expected to save of as much as 15.5m tonnes of CO₂ emissions over its lifetime.

4 Mar - [District Energy centre to open in mid-2015 \(Gateshead\)](#) – the centre will house gas-fired CHP plant, boilers and thermal storage. The system will service six public buildings as well as three multi-story tower blocks housing 400 private residences.

3 Mar - [Local planners and housing standards are drivers to expanding heat networks](#) – in this article from [New Power](#), Jeremy Bungey (E.On), Stephen Brooks (HNDU) and Tim Rotheray (CHPA) tackle the question: how best can low-carbon heat networks grow?

3 Mar - [Climate Change Minister highlights role of heat networks at EfW conference](#) – among diverse topics, Anaerobic Digestion and the Government's approach to Contracts for Difference allocation featured in the Minister's speech.

1 Mar - [new community planned by Doncaster Council could feature DH system](#) – the authority has recently secured a £26,000 grant from DECC to explore the potential for a DH system for the [DN7 project](#) and surrounding areas.

28 Feb - [more heat networks needed as Defra publishes revised EfW guide](#) –the Defra director, Dr Colin Church, said that increasing importance will be placed on the production of heat from EfW plants and that heat networks must be developed.

26 Feb - [Scottish low carbon investment will be boosted, pledges Sturgeon](#) – a substantial portion of the investment for infrastructure projects, such as DH schemes, is set to come from the pension sector which is shifting interest from the bond market due to an extended period of historically low interest rates.

26 Feb - [Which? calls for DH user experiences](#) – the Which? consumer rights organisation is calling for DH users to share their bills and experiences as part of a body of work looking at whether the heat industry needs regulation.

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Europe

27 Mar – [Invitation to Tender for DH pipe supply \(Vinnytsia, Ukraine\)](#) – the City Council wishes to replace an the existing DH system approximately 3200m pipes plus fittings. **The deadline for tender submissions is 6 May.**

27 Mar – [gas prices for DH companies to go up by 40% on 1 July \(Ukraine\)](#) – the price rises are a result of the tough conditions imposed by the IMF as part of its \$14-\$18bn bailout to avert bankruptcy.

24 Mar – [Solar DH prices vary between €37 and €88/MWh \(Germany/Denmark\)](#) – solar DH systems which are run and owned by municipalities in Denmark benefit from a 3%

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interest rate over the system's expected lifetime of at least 20 years with investment subsidies required where the interest rate is higher.

19 Mar – [EIB issues JPY5bn climate awareness bond \(CAB\)](#) – CABs raise funds from fixed income investors to support EIB lending for renewable energy (such as geothermal) and energy efficient projects (such DH).

13 Mar – [Danfoss report good 2013 financial results](#) – their DH business performed strongly with growth in emerging markets offsetting decline in the traditional markets of the United States and Europe, both of which remained weak growth environments.

10 Mar – [EBRD finances Rijeka DH upgrade \(Croatia\)](#) – the Bank will provide a loan of up to €10 million to the service provider Energo Rijeka for the rehabilitation of the existing DH network and the implementation of an investment for a new CHP plant..

5 Mar – [RWE looks to decentralised energy to improve balance sheet](#) – chief executive Peter Terium said that centralised generation is losing its primacy and the decentralised energy world needs an 'integrated energy manager'.

4 Mar – [lower heating bills predicted for DH consumers in February \(Lithuania\)](#) – warmer weather and lower heat price are reasons for expected the 20% reduction according to Vytautas Stasiunas, President of the Lithuanian DH Association.

4 Mar – [DH central to Den Haag climate plan \(Netherlands\)](#) – the Climate Plan outlines how Den Haag will become a CO₂-neutral city by 2040 by, for example, moving away from dependence on natural gas towards sustainable energy such as wind and solar.

3 Mar – [Latour acquires a leading remote meter reading company \(Sweden\)](#) – Elvaco AB is a manufacturer and supplier of communication equipment and software for collection, processing and presentation of metering data. Typical Elvaco customers are electricity and DH companies with geographically dispersed meters.

27 Feb - [surplus heat from lime kiln delivered to Köping DH system \(Sweden\)](#) - a 14 MW water boiler recovers waste heat from the lime kiln flue gases, delivering it to the municipal DH network. The kiln owner, Nordkalk, and the municipality have invested a total of approx. 40m Swedish Krona (€4.4m) in the project.

27 Feb - [Valmet supplies biomass heating plant for Tampere DH grid \(Finland\)](#) - the new 49.5MW plant, fired by wood chips and peat, will reduce the need to use heavy-fuel-oil-fired heating plants, thus lowering the CO₂ emissions generated in DH production.

25 Feb - [Ukrainian crisis impacting on DH schemes](#) - the FT reports that the state-owned natural gas distributor, Naftogaz, has threatened to cut natural gas supply to some DH utilities due to payment issues.

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The Americas

20 Mar – [NuScale and ENERCON announce strategic partnership](#) – the partnership will support deployment of the NuScale's Small Modular Reactor fleet worldwide. NuScale's technology is ideally suited to supply energy for DH, desalination and other applications.

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- 14 Mar** – [DH retrofit plan for Rutgers campus saves \\$1.3 million pa \(Newark\)](#) – the savings were generated by increased efficiency from upgrades to optimise the campus's existing CCHP plant.
- 12 Mar** – [US Embassy showcases sustainable building technologies](#) – innovations, such as [Organic LED](#) lighting and DHC, are projected to reduce building energy costs by 47%.
- 6 Mar** – [business plan initiated for biomass heating DH system in Nakusp \(Canada\)](#) - the system would help reduce greenhouse gas emissions and reduce energy costs for businesses and organizations connected to the system..
- 6 Mar** – [Markham District Energy launches second DE system \(Canada\)](#) - customers of the new Bur Oak Energy Centre include the Markham Stouffville Hospital, public buildings and future high density residential, commercial and industrial buildings in the Cornell area of Markham city.
- 5 Mar** – [the rise of distributed generation threatens utilities \(IDEA, US\)](#) - as more customers adopt DG, utilities' grid costs are spread across a smaller demand base, raising customer rates and increasing the economic incentive for customers to change provider.
- 3 Mar** – [Veolia and Wheelabrator renew heat supply contract \(Baltimore\)](#) – the Wheelabrator EfW facility provides almost half of all the heat Veolia delivers through its DE system which supplies steam hot water and chilled water to 230 customers.
- 28 Feb** – [Medina City School District turns to CHP-DH \(Cleveland\)](#) – the system will heat two pools and a spa at the local recreation centre and should pay back over 8 years.
- 25 Feb** – [Vancouver city sets out incentives to help DH utility owners](#) – the incentives include bylaws requiring the mandatory hookup of new buildings to low-carbon utilities.

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China, Asia and Australasia

- 24 Mar** - [consultant sought for DH project \(Shangri La, China\)](#) - the project will complete a DH area of 300 hectares which will significantly improve the environment by reducing emissions of smoke, dust, SO₂ and slag. **The deadline for applications is 4 April.**
- 21 Mar** - [Christchurch DE system inches forward \(New Zealand\)](#) – three public bodies are looking at forming an alliance with two private energy companies to drive the provision of a DHC system for a wide range of customers across the central city.
- 12 Mar** - [World's largest fuel cell park to provide DH \(Hwasung City, S.Korea\)](#) - the Gyeonggi Green Energy park comprises 21 fuel cell plants with a total output of 59 MWe. When operational it will provide both baseload grid power and heat for a DH system.
- 11 Mar** - [CCHP powers data centre for China's largest publisher](#) - the system uses three Cummins C2000 N5C 2MWe generator sets. Exhaust gas and jacket water heat are retrieved, while the heat generated by the equipment is cooled by chilled water.

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6 Mar - [Qatar Cool plans third DC plant in Doha's West Bay](#) - the new plant will lift output to nearly 40,000 TR cooling. Qatar Cool already operates two cooling plants currently serving 46 residential and commercial towers in the prestigious West Bay area.

6 Mar - [Council hope to sign up commercial operators to DC system \(Brisbane\)](#) – the City’s sustainability agency, CitySmart, expects the project to save 21,000 tonnes of GHGs each year, create 500 jobs and reap up to \$530 million in economic benefits.

4 Mar – [DC company, Empower, posts \\$67.5mn net profit for 2013](#) – the company, which supplies 70% of the DC market in the UAE, grew it’s revenue by 21% to \$241.4m in 2013.

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Conferences, symposiums and forums

5 Nov – [Energy4PowerLive \(London\)](#) – this event will be held at the Queen Elizabeth Conference Centre and will offer four conferences on one day, with both indoor and outdoor exhibition opportunities.

30 Sep – 2 Oct – [Nordic District Heating Fair \(Jonkoping, Sweden\)](#) – the fair will include seminars and study tours as well as suppliers covering the areas of DHC, CHP, fuels, fuel handling, combustion technology, power production, logistics, control systems etc.

7-9 Sept – [14th International Symposium on DHC \(Stockholm\)](#) – this event aims to gather the international research community around issues important for DE development.

8-11 June – [IDEA's 105th Annual Conference and Trade Show \(Seattle, US\)](#) – “Moving Community Energy Forward” call for technical presentations.

3-4 June – [The second solar DH conference \(Hamburg, Germany\)](#) – the 2014 edition of the solar DH conference invites market actors and experts to gather, exchange experience and network at international level, also there is a [call for abstracts](#).

22 May – [CHP, DH & Renewable Conference/Networking Event \(London\)](#) – this event focuses on the latest technology with attractive technical seminars aimed at investors, consumers and suppliers.

13 May – [Decentralised Energy 2014 Forum \(London\)](#) – this forum is aimed at Government, LAs, financiers, technology providers, consultants, corporate business and housing developers considering operating or expanding decentralised energy projects.

5-6 May – [2nd DC \(District Cooling\) Stakeholders Summit \(Dubai, UAE\)](#) – the Summit will emphasize energy conservation and increasing the efficiency of power generation via the deployment of cost effective and efficient DC methodologies.

8-9 April – [3rd Concentrated Solar Power Conference & Expo \(Cape Town\)](#) – reducing CSP costs & risk through international experience and investor insight.

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General interest, technology and research

Mar – [Developing low-carbon heating networks](#) – this briefing from the Heat and the City project highlights research findings from case studies in three UK cities which explore models of local energy governance and organisation.

Mar – [Overview of Solar DH Grid in European Countries](#) - this new market research publication has been announced by Reportstack. The fact that solar collectors can be installed on rooftops has increased their popularity compared to other more space-intensive renewable such as biomass.

14 May – [Economic feasibility of utilizing forest biomass in DE systems](#) – this study identifies important factors which have led to an increase in the share of biomass in energy production in various countries.

4 Mar – [a new study from the Technical Research Centre of Finland \(VTT\)](#) – “Business aspects of energy-efficient renovations of Soviet-era residential districts. A case study from Moscow”.

28 Feb - [Waste heat is free energy. So why aren't we using it?](#) - US based writer Virginia Hughes calls for regulators, producers, and consumers to start thinking of ways to sweeten the deal for recycled heat.

26 Feb - [Simulation and optimization of a CHP biomass plant and DH network](#) - this study presents a methodology that provides accurate estimations of economic, environmental and energetic performances of CHP plants connected to DH networks.

17 Feb - [Proposals for a Regulatory framework for Geothermal DH](#) - following a consultation of stakeholders, the [GeoDH project](#) consortium has released proposals for a Regulatory framework for Geothermal District Heating..

Feb - [Using CHP to save energy and improve energy security](#) - this presentation describes the CHP-DH system at North Carolina State University.

Feb - [Leading By Example: CHP-DE in Public Sector Facilities](#) - this presentation summarises the key benefits of CHP-DE, describes the key role of CHP Technical Assistance Partnerships and identifies the potential for further growth.

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Glossary

| | |
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| AC | – air conditioning |
| ACEEE | – American Council for an Energy-Efficient Economy |
| AD | – anaerobic digestion |
| AREA | – Air Conditioning and Refrigeration European Association |
| ASHRAE | – ASHRAE (formerly the American Society of Heating, Refrigerating and Air Conditioning Engineers) |
| ASPs | – air source heat pumps |

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| CERO | – Carbon Emissions Reduction Obligation |
| CCHP | – combined cooling, heating and power |
| CHP | – combined heat and power |
| CNREC | – China National Renewable Energy Centre |
| CRM | – Customer relationship management |
| CSP | – Concentrated Solar Power |
| CTF | – Clean Technology Fund |
| DCLG | – Department for Communities and Local Government |
| DECC | – Department for Energy and Climate Change |
| DE | – decentralised energy |
| DEA | – Danish Energy Agency |
| DH | – district heating |
| DHC | – district heating and cooling |
| DHN | – district heating network |
| EBRD | – European Bank for Reconstruction and Development |
| ECCC | – (House of Commons) Energy and Climate Change Committee |
| ECO | – Energy Company Obligation |

The three obligations under ECO are:

CERO - Carbon Emissions Reduction Obligation

CSCO - Carbon Saving Community Obligation

HHCRO - Home Heating Cost Reduction Obligation

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| EIB | – European Investment Bank |
| EPSRC | – Engineering and Physical Sciences Research Council |
| ESCo | – Energy Service Company |
| EGS | – Enhanced Geothermal System |
| EfW | – Energy from waste |
| FT | – Financial Times |
| GCC | – Gulf Cooperation Council |
| GHG | – greenhouse gas |
| GSPs | – ground source heat pumps |
| GTCC | – gas turbine combined cycle |

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| H&S | – health and safety |
| HNDU | – Heat Networks Delivery Unit (DECC) |
| I&C | – information and control |
| IBRD | – International Bank for Reconstruction and Development |
| IDEA | – International District Energy Association (US) |
| IEA | – International Energy Association |
| ITT | – Invitation to Tender (European equivalent to RFP) |
| JV | – Joint Venture |
| KDHC | – Korea District Heating Corporation |
| LLC | – Limited Liability Company |
| LPG | – liquefied petroleum gas |
| LEEF | – London Energy Efficiency Fund |
| Ofgem | – Office of Gas and Electricity Markets |
| ORC | – Organic Rankine cycle |
| OTEC | – Ocean Thermal Energy Conversion |
| PIP | – Preliminary Investment Proposal |
| PV | – Photovoltaic |
| QUEST | – Quality Urban Energy Systems of Tomorrow |
| RFP | – Request for Participation (N. American equivalent to ITT) |
| RHI | – Renewable Heat Incentive |
| RT | – Refrigeration Tonnes |
| SDC | – Seawater District Cooling |
| SUDS | – Sustainable urban drainage systems |
| T&Cs | – Terms and conditions |
| TSB | – Technology Strategy Board |
| TSE | – Treated Sewage Effluent |

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