Department for Energy Security & Net Zero

Heat Networks: 2024 Q4 Pipeline

Any enquiries regarding this publication should be sent to us at:
hndu@energysecurity.gov.uk

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Introduction

This publication by the Department for Energy Security and Net Zero (DESNZ) brings together heat networks investment opportunities in England and Wales. The opportunities present a wide range of projects supported through the development stages by the Heat Networks Delivery Unit (HNDU), projects seeking capital support from the Heat Networks Investment Project (HNIP) and projects that have applied to the Green Heat Network Fund (GHNF) Transition Scheme.

The publication includes a list of one-page summaries for each of the heat network projects supported by DESNZ, which set out details of HNDU, HNIP and GHNF projects, where projects have provided enough detail in time for publication.

For GHNF, this represents projects that have applied for GHNF Transition Scheme funding and which have given us permission to publish. If you would like to get in touch with the project please liaise with the DESNZ GHNF team (ghnfcorrespondence@beis.gov.uk)

For HNIP, this represents projects which have submitted at least a pre-application to the Delivery Partner, Triple Point Heat Networks Investment Management (https://tp-heatnetworks.org), since the scheme opened in February 2019. As a number of the projects are at different stages of development some of the costs aren't currently available or will be subject to project consent[1] and change as they progress through the project lifecycle.

The following chart shows the 2024 Q4 Capex pipeline of HNDU and HNIP projects from early stage development through to construction.

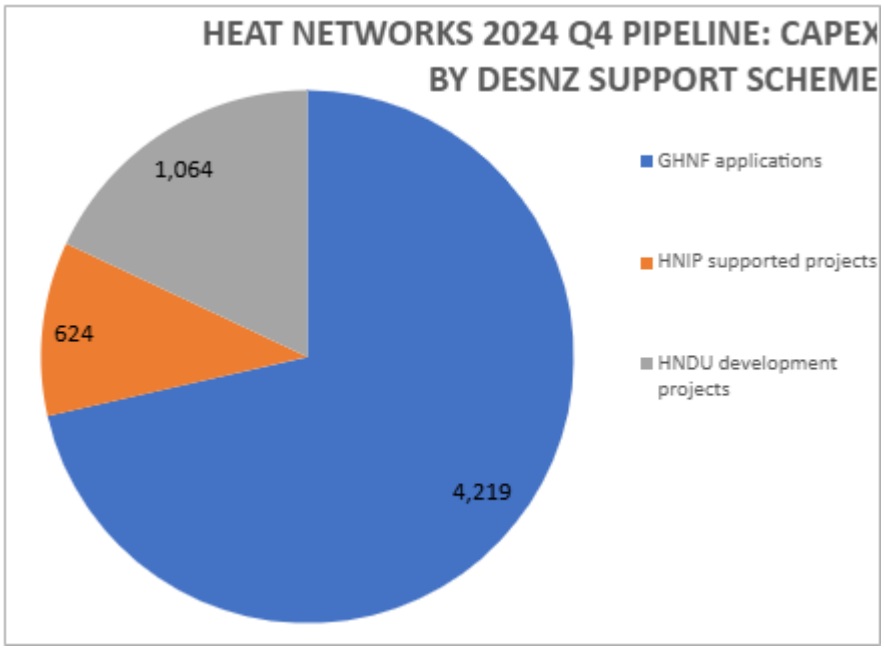
For questions relating to the HNIP pipeline or scheme enquiries, please direct these to enquiries@tp-heatnetworks.org. For questions relating to the HNDU pipeline opportunities please direct these to HNDU@energysecurity.gov.uk FAO: FAO HNDU

Department for Energy Security and Net Zero also publishes a quarterly Procurement Pipeline which can be found on the same webpage (https://www.gov.uk/government/publications/heat-networks-pipelines) and provides information about upcoming procurement opportunities on heat networks projects supported by government funding and HeatNIC members. Government funded projects will undertake Market Transformation Commitments (MTCs) which aim to

[1] Projects seeking HNIP funding can choose between three consent levels for the purpose of this application, full consent, limited consent and aggregated data only:
- "full consent" level will include all project information listed in the "Heat Networks Project Pipeline Summary" one-pager,
- "limited consent" keeps commercially sensitive data, such as financial information, confidential, and
- "aggregated data only" will only include projects in the Pipeline chart and applies to all projects as part of the application process.

increase project and procurement visibility, encourage best practice in procurement, support diversity in the heat network supply chain and new entrants. HeatNIC members have pledged to share data from their projects, with upcoming procurements, to give a better idea of the size of the market. The Procurement Pipeline shares additional information on the project design and procurement plans on these upcoming projects, and in doing so complements this pipeline.

2024 Q4 Active Capex Pipeline: £5,907m of which £4,219m relates to GHNF supported projects, £624m relates to HNIP supported projects and £1,064m relates to HNDU projects that are in development:



GHNF Applications

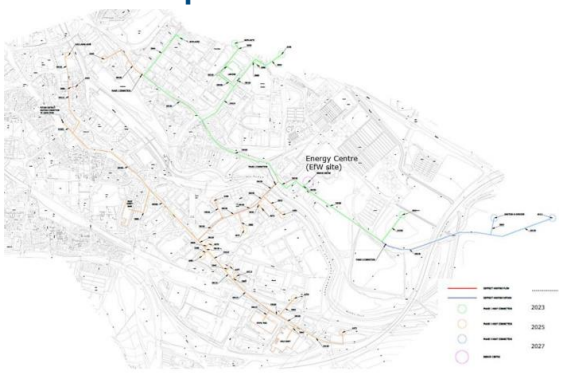
Original report date	2020
Latest update	2024

Aire Valley Heat & Power_CAP

Project Sponsor:

SSE Heat Networks LTD

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

ERF energy offtake. GHNF-funded. Consented in 2024. EPC contract delivery.

Original report date	2024
Latest update	2024

Barking Riverside_CAP

Project Sponsor:

London & Quadrant Housing Trust

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	36.87
Pipework / distribution capex (£m)	3.92
Other capex (£m)	0
Total capex (£m)	**40.79**

Annual heat demand (GWh)	44.23
Project IRR*	7.37%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

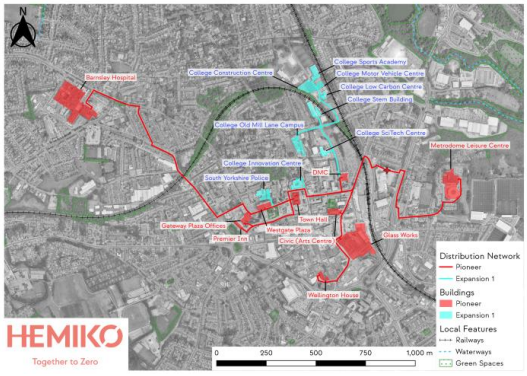
The works outlined in relation to this submission is a £41m project that will supply up to 78GWh of heat annually to the fully built-out Barking Riverside Heat Network. If the funding application is successful the project will go through a commercialisation period, with the aim to start construction by the end of 2025, with the first main phase of the energy centre complete by October 2026, and the connection to the EFW facility by April 2028. The project will be run by LQHT's delivery partner, Vital Energi, who will design, build, operate, and maintain the heat network. Future phases of the project may utilise waste heat from other sources and there is the potential to increase capacity to supply other consumers beyond the Barking Riverside site.

Original report date	2023
Latest update	2024

Barnsley Heat Network_CAP

Project Sponsor:
Hemiko

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	23.91
Pipework / distribution capex (£m)	20.96
Other capex (£m)	0
Total capex (£m)	**44.87**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:
Heat pump: air source

Project description:
The development of the Barnsley Heat Network is a new heat network in Barnsley town centre. This heat network shall be supplied by a 6?MW Air Source Heat Pump (ASHP) as well as a 2.3?MW Water Source Heat Pump (WSHP) that utilises heat recovered from mine water. The scheme will provide a total of 38 GWh/yr of heat to 19 building in the first two phases delivered within the GHNF timescales. The projected capex for the project is £45m. Hemiko will be setting up a project specific ESCO for the development of the Barnsley Heat Network. The ESCO will be responsible for delivering all the heat generating infrastructure, primary network up to and including each substation. We will continue to densify the networks and within our future expansion plans we will also utilise waste heat from the Ardagh Glass Factory. Hemiko will continue to invest alongside the initial phases. The network phases that are included within this application will be delivered between February 24 – August 28 (4 years). Procurement will start during the commercialisation stage, we already have an expression of interest out to local suppliers. We have engaged with Barnsley Council and the Highways team to kick off an initial pre-application for planning. Construction is due to start Aug 2024.

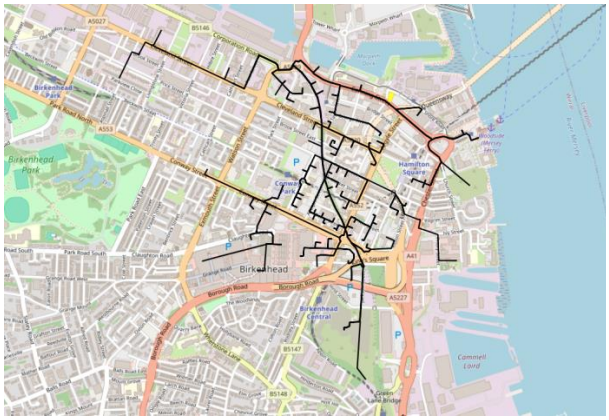
Original report date	2024
Latest update	2024

Birkenhead Heat Network_CAP

Project Sponsor:

Wirral Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**
Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: waste heat source

Project description:

The Birkenhead Heat Network is a £41m project to be developed in 3 phases. The built out network will supply 42GWh/yr to the connected buildings. An Outline Business Case for the project has been developed and endorsed by the Council's Senior Leadership Team (SLT). Subject to obtaining grant funding, procurement of a private sector partner is expected to begin in Autumn 2024, with a concessionaire agreement in place by the end of 2025. Construction of the network is expected to begin in the spring of 2026 with a two year build programme. The primary heat source for the network will be a water source heat pump with effluent from a wastewater treatment works acting as the heat source.

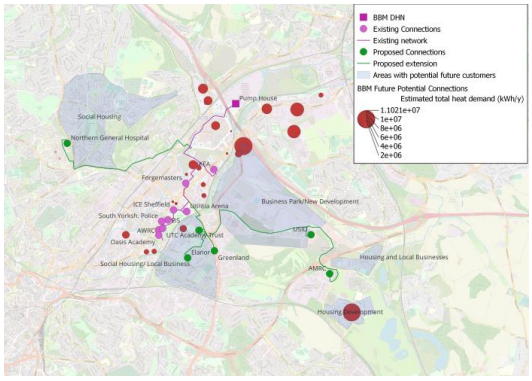
Original report date	2023
Latest update	2024

Blackburn Meadows Heat Network Expansion_CAP

Project Sponsor:

E.ON UK plc

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

E.ON's Blackburn Meadows biomass power plant, located in Sheffield, is a combined heat and power plant that became fully operational in 2015. It uses local recylced waste wood sourced locally to generate 30MWe electricity and 25MWth thermal energy. The existing 8km of district heating network supplies commercial connections within the Lower Don Valley region. The proposed project sees the network extend by an additonal 10km to supply the University of Sheffield at their Innovation District and Advanced Manufacturing Research Centre, and along that route Sheffield City Council's Darnall estate which is currently supplied by a gas led district heating network. The route is also being extended to the north, to supply the Northern General Hospital. The extended network will open up a wealth of further opportunities including 10k social and council homes around the Northern General Hospital, plus a wealth of commercial businesses along the route to the new University sites. E.ON are also working proactively with Sheffield City Council and DESNZ on the advanced heat zoning programme which will be proactively looking at how we create a bigger heat zone around Blackburn Meadows. This application is for both commercialisation and construction funding and procurement will commence following commercialisation and customer contracts signed. The total CAPEX is £37.8m, with the first heat on in January 2026 and final heat on in December 2026. The additional known connections are worth 33GWh per year.

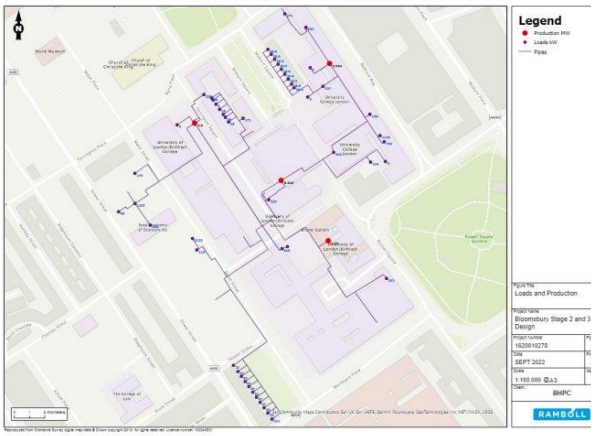
Original report date	2023
Latest update	2023

Bloomsbury Energy Network_CAP

Project Sponsor:

UoL

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	12.79
Pipework / distribution capex (£m)	5.16
Other capex (£m)	0
Total capex (£m)	**17.94**

Annual heat demand (GWh)	16.8
Project IRR*	3.67%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

This £18.9m project comprises refurbishment and replacement of the existing Bloomsbury Heat and Power decentralised energy scheme, which serves the southern half of the Bloomsbury campus in central London. The current scheme consists of gas CHP engines more than 20 years old, gas and oil-fired boilers more than 50 years old, and distribution pipework, some of which is over 80 years old. The technology will be replaced with low carbon air source heat pumps (ASHPs), with construction starting in 2024. The project is currently at commercialisation stage. The heat network will be owned and operated by a Consortium-owned SPV, comprising UCL, UoL and SOAS as shareholders. First stage of main contractor tender will take place in June/July, with the ITT process taking place from July to November. A principal Contractor appointed by the end of 2023. The Contractor will take over the operations and maintenance of the existing network during a transition phase between the old and new networks. Phase 1 of the scheme starts in September 2025, following £17.0m of investment into heat network infrastructure, delivering an initial 15.6GWh/year. Phase 2 starts in April 2028, following an additional £1.9m investment, delivering cumulative 16.5GWh/year. The third and final phase starts in April 2029, following a further £0.5m investment, amounting to a total heat delivery of 17.0GWh/year. In addition to the total £18.9m investment in heat network infrastructure, there will be an associated £16.1m investment in HV upgrade infrastructure to enable the heat network, along with £2.3m in capitalised financing costs.

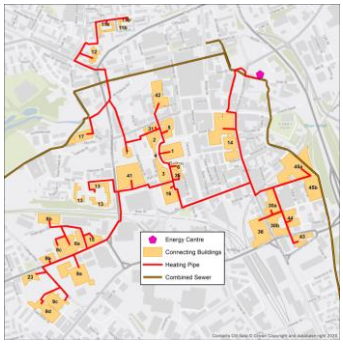
Original report date	2023
Latest update	2023

Bolton District Heating Network_CAP

Project Sponsor:

Bolton Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	18.29
Pipework / distribution capex (£m)	15.06
Other capex (£m)	0
Total capex (£m)	**33.35**

Annual heat demand (GWh)	23.27
Project IRR*	10%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

The Bolton District Heating Network is proposed to serve 23 offtakers across 33 buildings and developments, comprising 23.3 GWh of annual heat demand. The project will be delivered in a single phase, at a CapEx value of £33million, and will rely on heat extracted from the combined sewer running through the east of Bolton town centre, supplemented by air source heat pump capacity, as well as gas boilers for peaking and resiliency.

If the project's Application to GHNF is successful, the project team expects commercialisation to commence immediately (circa August 2023), and be undertaken over a 12-month period. Construction works are therefore expected to commence in Q4 2023 and be complete by Q4 2025, for a heat on date of 2026. The Procurement process will begin in circa November 2023 and will be conducted via Clear Futures, with whom Bolton Council already have an ongoing arrangement, which provides an effective mechanism for public sector bodies to deliver sustainable projects at an accelerated rate. They are able to do so via their pre-procured supply chain.

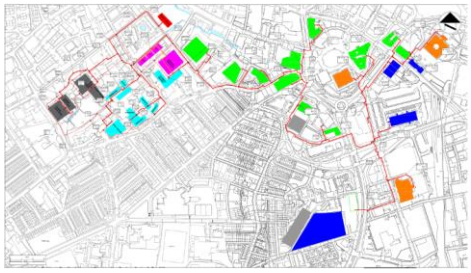
Original report date	2022
Latest update	2022

Bradford Energy Network (BEN)_CAP

Project Sponsor:

Bradford Energy Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	45.15
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

Bradford Energy Limited (a subsidiary of 1Energy) plans to build a low-to-zero carbon (LZC) heat to 34 non-domestic buildings and a new residential development (35 connections). Potential anchor customers include the University of Bradford, Bradford Council, Bradford College, the National Science and Media Museum, Alhambra Theatre, and the Bradford Live entertainment venue.

Heat will be generated by possibly the UK's largest air source heat pump (ASHP) installations (7.5MWth), coupled with 250m3 of thermal stores, and 24.8MWth of back-up gas boilers. The diversified peak heat demand is 20.8MWth. The ASHP will deliver 87% of the 37.8GWHth annual heat demand. The heat network is circa 5.5km to be installed primarily in public highways. The capex for phase one is £40.4m (not including £1m commercialisation).

Key Milestones

• Planning application submission: Nov 2022 – Aim to secure within 3-4 months. Procurement to run concurrently with the Planning Application, delivery contractor award in March 2023.

• RIBA stage 3 design: late 2022.

• Financial close: March 2023.

• Construction in Summer 2023 - running for 27 months.

• Operational phase: Early 2025.

• First and last property connected in March 2025 and October 2025 respectively.

• O&M and M&B contractor awards during the construction phase, likely Autumn 2024.

Our approach to procurement aligns with the MTC objectives, we have engaged the supply chain early as part of our initial capex pricing exercise for the purpose of this application, and defined our build and operations procurements as described in response to PS3.

Current status - following receipt of commercialisation funding in the Transition phase, we have progressed the design of the project to RIBA stage 2/3. Customers have been engaged , and Letters of Intent signed. We have progressed the project to a level where the project is ready to receive GHNF commercialisation and construction funding.

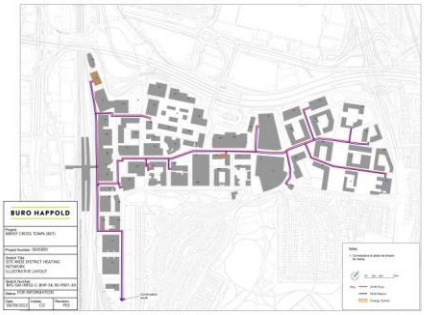
Original report date	2023
Latest update	2024

Brent Cross South Heat Network_CAP

Project Sponsor:

BXS Utilities Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	47.26
Pipework / distribution capex (£m)	12
Other capex (£m)	0
Total capex (£m)	**59.26**

Annual heat demand (GWh)	39.94
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Brent Cross Town, a?major regeneration scheme that will provide thousands of new jobs and homes,?and is situated at the crossroads of north London's road and rail systems. The £8 billion project is being developed in a joint venture between Barnet Council and Related Argent. The Brent Cross?scheme will offer 6,700 homes, workspace for 25,000 people, a new high street with restaurants, shops and leisure as well as schools and community facilities.

Vattenfall Heat UK was selected through a competitive bid process for the district heating and cooling supplier. The £50 million district network comprises of centralised plant in an energy centre to meet the 30MW heat and 20MW cool demand. Vattenfall's energy centre design will supply the entire development with low carbon heat, reducing the use of fossil fuels and minimising combustion to improve air quality.

Brent Cross Town is working towards the goal of being a net zero carbon town by 2030, addressing the global challenge of the climate crisis, and all parties are obliged to work towards reaching zero carbon. Related Argent and Vattenfall are ambitiously conceptualising all electric technical solutions to further reduce the carbon footprint from the original gas/electric plant mix, and are seeking funding from GHNF to support the innovation and evolution.

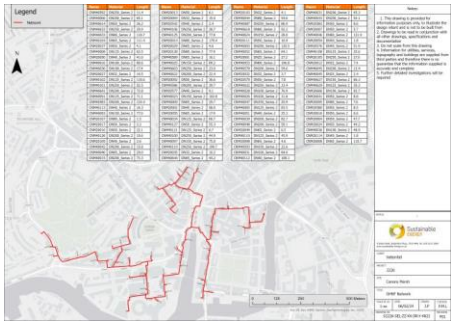
Original report date	2024
Latest update	2024

Bristol City Centre Heat Networks_CAP

Project Sponsor:

Bristol Heat Networks Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

This application is a combined application consisting of the Frome Gateway, Spike Island, Canons Marsh and St. Nicks' heat networks. These heat networks combined are called the City Centre Heat Networks (CCHN).

The phases are commercialisation (£XXXm total, £1m grant requested) leading to FID in QXXX 2024, construction towards the end of 2024 and heat on in Q1 2025.

The GHNF construction grant will support the early phases of the project, which will continue to grow at least into the mid 2030s, with a total construction capex of £XXXm, of which £XXXm will be spent by March 2027 using the £XXXm construction grant applied for. We forecast XXXGWh annual demand in 2027 rising to approx XXXGWh at full build out. However the technical potential is much greater than this so further growth in the longer term is likely. In Bristol we have the benefit of a Local Development Order, which allows us to install heat networks in the public highway without specific planning permission. We have commitment for land from Bristol City Council's portfolio for the local energy centres, for which we have favourable terms in our concession to secure. Planning permission will be required for these energy centre locations. We are developing a procurement strategy for the whole Bristol heat networks portfolio, which will be applied to City Centre Heat Networks. This includes the use of existing Vattenfall frameworks for certain elements, such as design and planning services. We have also commenced an extensive procurement piece for a buried heat network framework. This will support the delivery of our entire Bristol portfolio. The value of this framework is c£200m CAPEX over the next 5 years, across the whole Bristol portfolio. Over 50 suppliers have been identified, and the framework has been split into 3 packages; small <£5m, medium £5-10m and large >£10m, which will increase compitition and encourage small to medium suppliers to expand. We are also referencing the knowledge and experience from our European heat networks businesses to inform this framework procurement. By approaching the market at this scale, we are encouraging major UK - and potentially international - infrastructure contracting businesses to enter the UK district heating market – where, to date, they have been reluctant to do so.

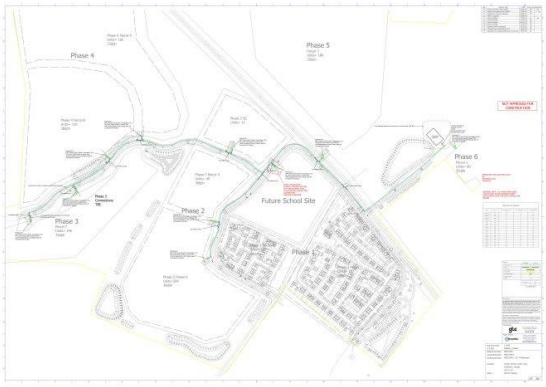
Original report date	2022
Latest update	2022

Chilton Woods, Sudbury_CAP

Project Sponsor:

GTC Infrastructure Ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	2.34
Pipework / distribution capex (£m)	3.46
Other capex (£m)	0
Total capex (£m)	**5.81**

Annual heat demand (GWh)	4.99
Project IRR*	11%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2022	2023

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

The project is a low density new housing development being built in Suffolk. It comprises of 890 residential properties and a school which will be built out over 6 years commencing in 2023. The development will be served by a low temperature heat network comprising of a highly insulated plastic network, an energy centre and heat interface units. The energy centre is fully electric and consists of two air source heat pumps, backup electric boilers and thermal stores.

The total capex for the project is projected to be £5.4m and annual heat consumption will be 5.43GWhs. Construction of the heat network has already commenced with the energy centre installation planned for mid-2023. First properties are expected to connect in August 2023.

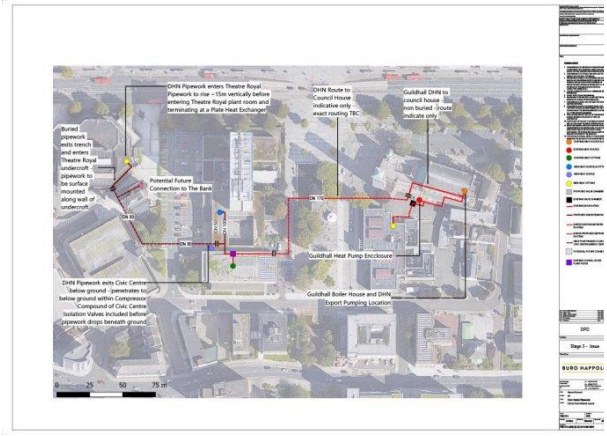
Original report date	2022
Latest update	2023

Civic Centre District Energy Scheme_CAP

Project Sponsor:

Plymouth City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0.51
Pipework / distribution capex (£m)	2.23
Other capex (£m)	0
Total capex (£m)	**2.73**

Annual heat demand (GWh)	2.43
Project IRR*	11%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

This project will expand an existing Plymouth City Council heat network serving the Council House and Guildhall, to support the redevelopment of the Civic Centre, which includes residential and commercial uses, but also to support decarbonisation of the Theatre Royal and Plymouth Combined Courts. The scheme will serve as potential enabling infrastructure for other nearby developments in the City Centre and Millbay. The extension include installation of 480kW of additional ASHP capacity with associated gas boiler back-up to support decarbonisation of entire heat network. Reservation of space and installation of valved connections to facilitate the future extension of the network and the potential connection to a city-wide scheme. The project comprises a new energy centre, located in the basement of the Civic Centre, with the installation of (400kW) additional air source heat pump capacity and associated equipment, in addition to the air source heat pump already being delivered on the existing network at the Guildhall, to deliver a low carbon heat solution for the connected buildings. A reduction in carbon emissions from the redeveloped Civic Centre, Theatre Royal and Plymouth Combined Courts of at least161 t/ annum will be achieved against a gas counterfactual.

£2.68m Capex and total scheme annual heat demand of 2.4GHw/a (95.5GWh over 40 year modelled lifespan)

Phase 1: 2024 -2025 | Extension to Civic Centre | £0.91m | 1.87GWh/a |

Phase 2: 2025 -2026 | Installation of 400kW ASHP & Extension to Theatre Royal | £1.8m | 2.44GWh/a |

Phase 3: 2026 onwards | operation of network

Procurement approach: design and build contract with an operation, defects, and maintenance period to ensure performance of network

Current Status of project: the project is at the end of the detailed project development phase and moving into the commercialisation phase in early 2023.

Procurement start: procurement is due to start in Q2 2023 with the final business case sign off and contract award occurring in Q3 2023.

Milestones: Contractor Q3 & Q4 2023 | construction to begin Q1 2024 | Testing and commissioning in Q3 2024 | Heat on Q4 2024

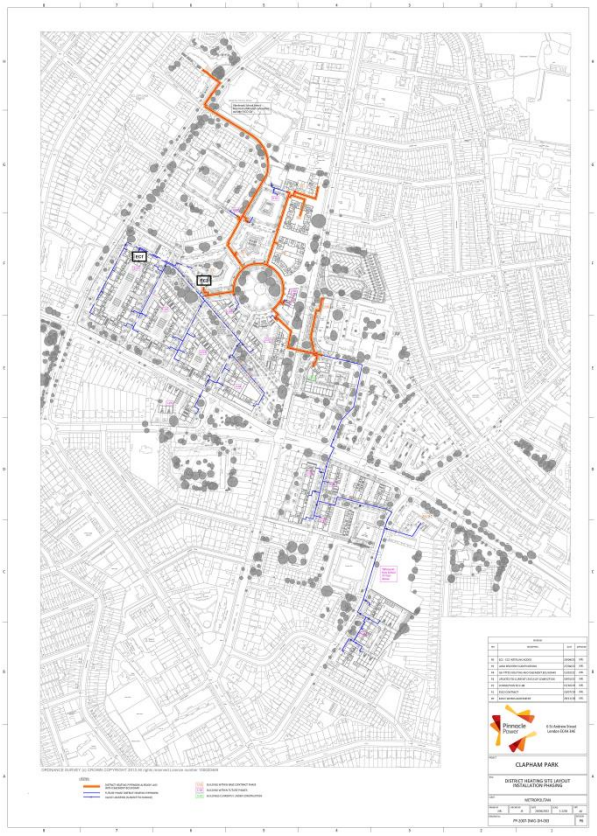
Original report date 2023
Latest update 2024

Clapham Park District Heating_CAP

Project Sponsor:

PP Esco Clapham Park Ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**
Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

The Clapham Park development is major regeneration project in South London being Developed by MTVH. The development has an existing heat network owned, built and operated by PP ESCO (Clapham Park) Ltd, with some 569 homes already connected and is being built out to ultimately connect 3,347 homes and 16 community and business customers. The scheme has planning and works are underway and will continue through to 2032. The remaining heat network capex is forecast at £21.2m while the annual heat demand at full build out is forecast at 16 GWh. The main energy centre, including the decarbonisation works, is expected to commence on site Q1 2024 and compete Q1 2025. Procurement for these works is expected to commence September 2023. Some 3MW high efficiency CO2 ASHP capacity will be employed in conjunction with 100m3 thermal storage and electric and gas resilience capacity. The primary network is optimised to minimise heat losses and the new blocks being constructed have direct connections and minimal laterals the secondary network to achieve very low heat losses in the blocks.

Original report date	Unknown
Latest update	Unknown

Clarion Housing Lavenders Estate Heat Network Connection _CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	2.45
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

The London Borough of Sutton owns Sutton Decentralised Energy Network Ltd (SDEN). SDEN has signed a HPA with Viridor (ERF heat) to purchase up to 15 MW of low carbon heat. Phase 1 of the heat network created by SDEN was to New Mill Quarter, a private new build residential development. This application relates to the first stage of Phase 2 which is to extend the heat netwok to a nearby existing residential development owned by clarion Housing and known as Lavenders. This extension is costing circa £2M and will involve the sale of 2.5 GWh of heat in bulk to Clarion on a price parity basis set against the avoided cost of heat from their existing gas fired boilers. HOT's have been signed with Clarion and the delivery of the network has been procured and the project will start construction following a GHNF award in late 2024, early 2025 and take approximately one year to complete

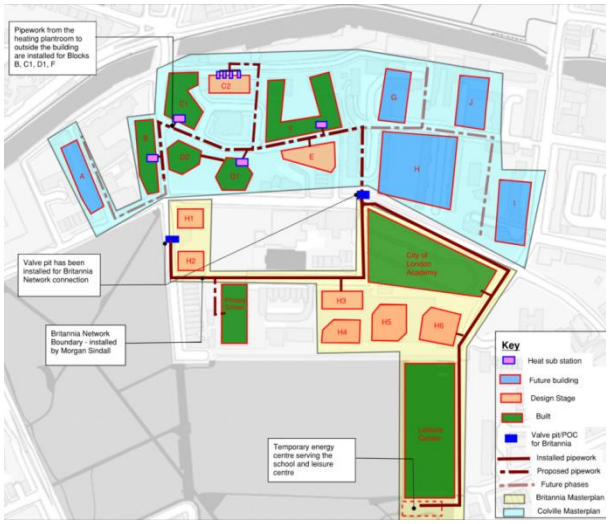
Original report date	2023
Latest update	2024

Colville and Britannia District Heat Network (CDHN) _CAP

Project Sponsor:

London Borough of Hackney

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	7.35
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

This application is for the Colville District Heat network under development by Hackney Council. The project will utilise air-source heat pumps - pivoting away from a previously CHP led scheme. The project will connect over 1400 homes, a leisure centre and 2 schools in the Hoxton area supplying 7.8GWh/yr of heat ; with the potential to expand to the wider Shoreditch area. The project requires a total investment of £13.38m. A DBOM contract will be procured to supply works and services to a LBH SPV. Procurement will commence in 2024 with construction beginning 2025.

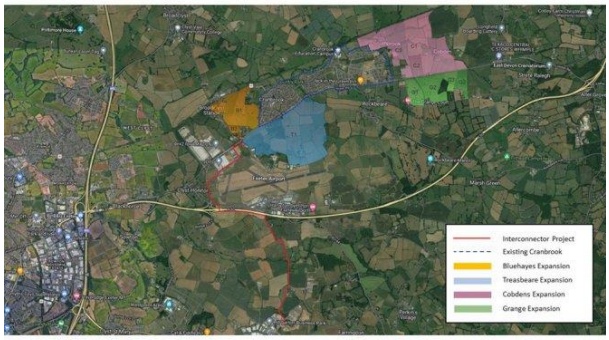
Original report date	2022
Latest update	2024

Cranbrook Heat Network Expansion _CAP

Project Sponsor:

East Devon District Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

Please see file “REF 1.8 Market Transformation Commitment” for a PDF format of our responses

The project is the expansion of the Cranbrook district heating network in East Devon, to supply heat to new development areas of an additional c4,500 homes and 24,500m2 of commercial space including 3 new schools at Cranbrook new town. The project will benefit from decarbonised heat by connecting to an Energy from Waste facility (EFW) in Hill Barton via an interconnect pipe to SkyPark energy centre “The Interconnector Project”. The interconnector will support the planned expansion of the Cranbrook new town through enabling the delivery of a Future Homes/Buildings Standard compliant energy solution. The project team have developed good working relationships with the Developers of the new homes and commercial spaces at Cranbrook as well as E.ON, the owner and operator of the existing network.

The project will be delivered by an ESCo. EDDC will act as broker and facilitate the procurement of the ESCo. The procurement will be carried out by the Cranbrook Developers. EDDC will maintain a level of influence, via a golden share approach, within the proposed commercial structure. Procurement Q2 2023, RIBA stage 3 design: Q1/2 2023.

Planning is already in place via the EDDC Local Development Order (LDO) for district heating dated July 2020.

The network length is c.98.6km, the total heat demand is 34.05 GWh/yr, the diversified Peak demand for the expansion area is 12.5MW. 96.9% of this demand will be met by three EFW units, and 3.1% from the existing gas CHP at Cranbrook Energy Centre. The total CHP heat capacity is 10.4MW.

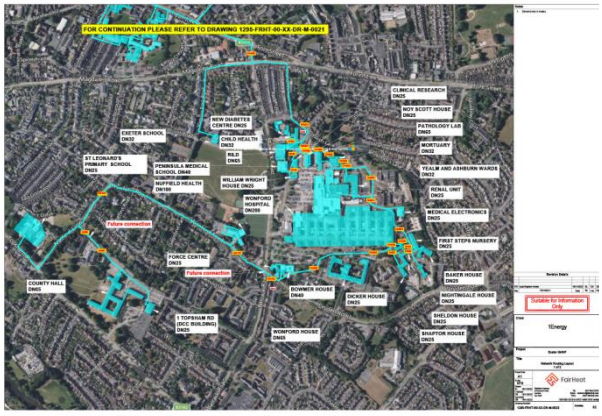
Original report date	2022
Latest update	2022

Exeter Energy Network_CAP

Project Sponsor:

Exeter Energy Ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	36.33
Pipework / distribution capex (£m)	70.78
Other capex (£m)	0
Total capex (£m)	**107.11**

Annual heat demand (GWh)	88.25
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

1Energy, with the full support of Exeter City Council and the Exeter City Futures team, is seeking to develop the Exeter Energy Network (EEN). A project specific Special Purpose Vehicle, Exeter Energy Ltd (EEL), will own and operated the EEN assets. The expected capital cost of the project is £108m and EEN will utilise 11.12 MW of Air Source Heat Pumps (ASHP), 9.57 MW of Water to Water Heat Pump (W-WHP), 2400m3 thermal stores, and 34.8 MW gas boiler backup / peaking to serve 39.87 MW of diversified demand at an average carbon intensity of 84.0 gCO2/kWh over 15 years.

The EEN design has been progressed to RIBA stage 2.

EEN plans to supply an initial load of 60.77 GWh/yr of heat to 110 buildings, mainly spread over five public anchor offtakers; University of Exeter, Exeter College, Exeter City Council (ECC), Devon County Council (DCC) and Royal Devon NHS Trust sites at Wonford and Heavitree hospitals. The University of Exeter is the largest offtaker at 28.38 GWh/yr of demand. However, we have modelled, the network growing, to include future expansion loads, to a total of 121 buildings and 92.67 GWh over 15 years. Network size c.19.89 km.

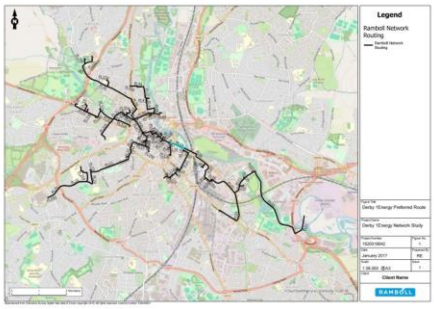
Original report date Unknown
Latest update Unknown

Derby Energy Network_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	45.79
Pipework / distribution capex (£m)	83.99
Other capex (£m)	0
Total capex (£m)	**129.78**

Annual heat demand (GWh)	107.64
Project IRR*	9.88%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2029

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: waste heat source

Project description:

Please see section PS1 of accompanying document 1.8 DEN MTC Responses

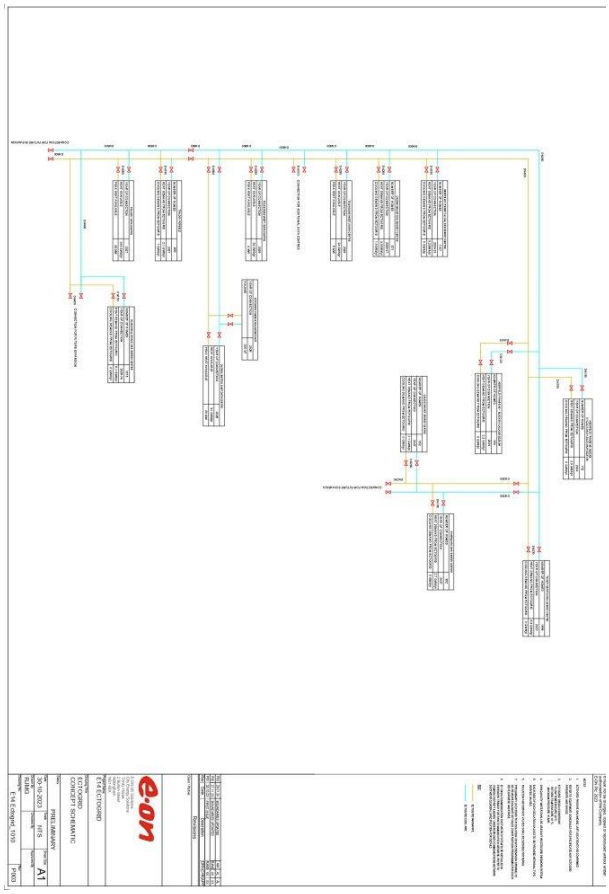
Original report date	2024
Latest update	2024

E14 Area Wide_CAP

Project Sponsor:

E.ON UK Infrastructure Services Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	29.03
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

E14 project is a network supplied by waste heat from three separate data centre buildings connected to seven separate residential developments. The core components are considered to be those that extract heat from the data centres and supply heat to plant rooms at each development. The total capital expenditure for the scheme including that on each development site up to each plant room is £83.1 Million of which £18.6 [inflated] million represents the core components that form this application. The demand of the seven developments in scope at full build out amounts to 31.1 GWh. Full build out is expected to occur for the last development by 2034. Each of the seven developers awaits a contractually binding offer in order to agree to connect to the network. The design of the network is currently at RIBA stage 2 with heads of terms discussions underway with the data centres with a view to contracting by the end of March 2024. Procurement of core elements during commercialisation phase will commence in July 2024 with procurement of core elements for civils construction phase commencing on 15th April 2025. Route mapping will commence on 20th October 2024. First heat on is for the Rivermark development 30th November 2025 likely involving involving a temporary supply solution. The technologies used will be multiple heat exchangers within the plant rooms of the data centres feeding a balancing unit. This in turn will supply an ambient loop made of high density polyethylene [HDPE] to each development. Each development will use a heat pump either located in a central plant room or in each apartment to upgrade the low temperature heat from the data centres up to those required for residential use.

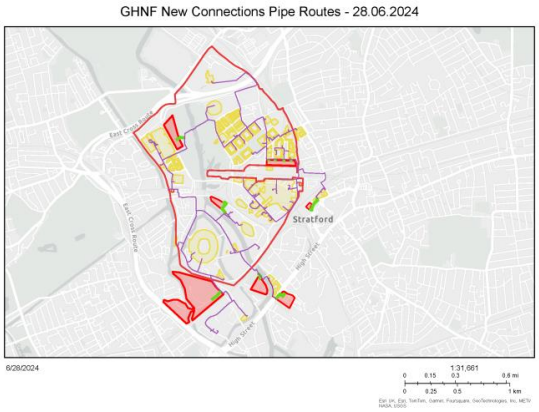
Original report date	Unknown
Latest update	Unknown

East London Energy _CAP

Project Sponsor:

In the first instance, our East London Energy Concession Partners, the London Legacy Development Cor

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	18.3
Pipework / distribution capex (£m)	5.2
Other capex (£m)	0
Total capex (£m)	**23.5**

Annual heat demand (GWh)	28.16
Project IRR*	12.03%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2025	2028

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The Project will allow for the extension of the existing East London Energy (ELE) network to 8 significant residential and commercial developments within the Olympic Park area. In addition, it will allow for the installation of two heat pump systems to enable the decarbonisation of the ELE network in line with the decarbonisation roadmap developed in collaboration with our Concession Partners, namely:

1. A chiller heat recovery heat pump system (2.4MWth) due to be operational in 2027, and

2. A river water source heat pump system (6MWth) due to be operational in 2028.

Finally, the Project will enable 'early adopters', existing customers with ambitious net zero commitments, to transition to net zero ready sleeved heat supply agreements ahead of the wholesale decarbonisation of the network. This application seeks both commercialisation funding, to the sum of c.£450k, and construction funding. The total estimated capex for this Project is c. £23.5m of which c. £5.2m is associated with the extension of the ELE network to the new connections. A further c. £18.3m is associated with the two heat pump systems. Combined, these heat pumps will supply 28.7 GWh of low carbon heat to the eight new connections, as well as 6 early adopters consisting of 14 existing connections. The project will be delivered in several phases of works:

- Commercialisation and development phases, including planning permission and permitting for the river water source heat pump system and RIBA Stage 3 design of the projects (2024-2025)

- Chiller heat recovery heat pump system design and installation (2025-2027)

- River water source heat pump system design and installation (2025-2028)

- Phased pipework extensions to new connections (2026-2029) Procurement for the RIBA stage 3 design of both heat pump systems will commence in November 2024 and procurement for the construction phase of the Project is set to commence in July 2025. We will look to procure a Design & Build partner or engage directly with Vital Energi as a partner.

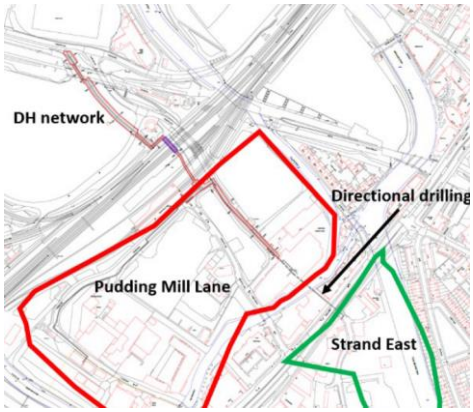
Original report date	2022
Latest update	2024

East London Energy_CAP

Project Sponsor:

East London Energy Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2023	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The estimated capex for this project is c. £4.5m on extending the East London Energy (ELE) district energy network c. 1.1 km to the Pudding Mill Lane site and c. £2.8m on the heat pump installation.

The new low carbon plant will commence generation of low carbon heat at ELE through the installation of a Water Source Heat Pump, extracting waste heat from the existing energy centre and sleeving this heat generation directly to new developments enabling growth of the network around the Queen Elizabeth Olympic Park and East London.

The project will be delivered in one phase as it is an extension to the existing ELE district energy network, where the plots have been granted planning and anticipate construction is required on the district energy network this year. The total heat demand for the base case is 2.7 GWh.

We envisage that procurement would commence in October 2022 and conclude in February 2023 with buried network, control panels and the civils element all to be procured. The heat pump will be procured in Q3 2022 to supply low carbon heat in Q1 2024, subject to lead in times. Construction of the network extension is now anticipated to start Q3 2024.

The two development plots, Anthology Phase 2 and Vulcan Wharf, have been granted planning based on a connection to ELE. These have all accepted offers of connection and a heat on date for these developments of Q3 2025 is targeted.

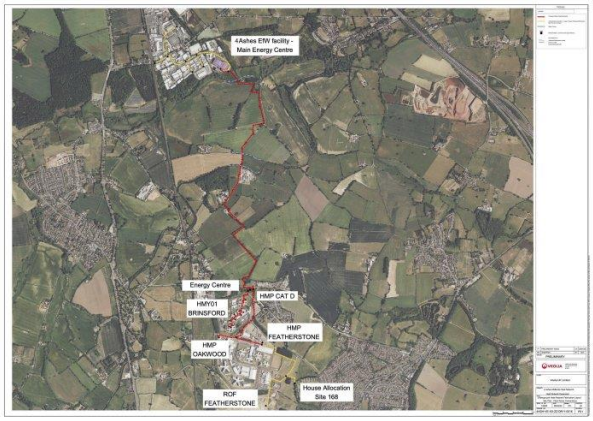
Original report date	2020
Latest update	2020

Four Ashes MoJ Heat Network_CAP

Project Sponsor:

VEOLIA ENERGY & UTILITY SERVICES UK PLC

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	11.21
Pipework / distribution capex (£m)	12.62
Other capex (£m)	1.14
Total capex (£m)	**24.97**

Annual heat demand (GWh)	20.98
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

Please see file “REF 1.8 Market Transformation Commitment” for a PDF format of our responses

The Veolia Four Ashes heat network project aims to provide low-carbon and efficient energy solutions to the Ministry of Justice (three) prison complex, with a projected capital expenditure of £25 million. The project will involve the installation of a strategic heat network and private wire including the construction of new facilities. It will incorporate 4.7km of pipework and a new energy centre, to connect the existing Energy Recovery Facility to the prison sites whilst providing full 24/7 guarantee.

The project is currently in the detailed development phase, with key milestones including the completion of a detailed design, securing heat offtake agreements with MoJ, and the commencement of construction. The design process is set to begin in January 2024 immediately after funds are made available, with construction expected to commence in December 2024. Heat will be supplied to the prisons from April 2026. Veolia’s internal service providers will manage and deliver the project to meet the high-quality standards expected.

The project aims to utilize the waste heat produced from the Veolia Four Ashes Energy Recovery Facility to provide space heating, hot water and electricity to the Ministry of Justice sites. The implementation of this initiative is expected to result in a significant reduction in the embodied carbon of the heating system, as compared to the use of natural gas, which is the current primary source of heat generation.

This strategic heat network project will provide a reliable, efficient, and sustainable heating solution for the area, delivering significant carbon savings and improving energy security for local residents and businesses alike.

Original report date Unknown
Latest update Unknown

Gateshead Town Centre extension_CAP

Project Sponsor:

University of Sunderland, Durham University, Newcastle University, Northumbria University, Teesside

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	10.76
Other capex (£m)	0
Total capex (£m)	**10.76**

Annual heat demand (GWh)	8.74
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: mine water

Project description:

Total project cost is £10.7m with a grant application of £3.52m, supplying 8.7GWh/yr. heat. Scheme is delivered by Gateshead Energy Company (GEC), procuring design / install contractors when grant outcome known (October 2024). Design to start January 2025, with construction contracts from August 2025. Below ground works will complete by July 2026, commercial connections completed March 2027 ahead of social housing connections Nov 2027. Heat is supplied from existing 6MW minewater heat pump already in operation thus reducing risk.

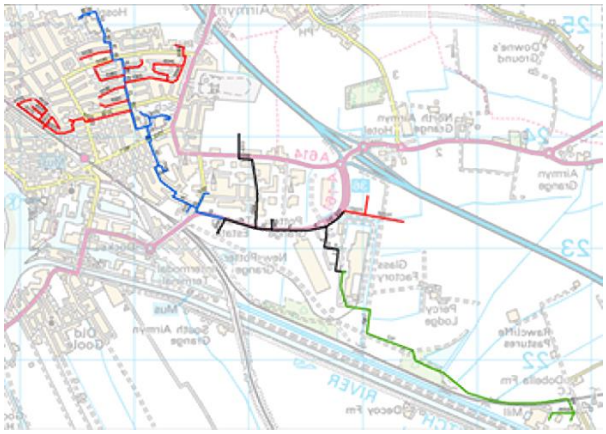
Original report date	2020
Latest update	2020

Goole District Energy Network _CAP

Project Sponsor:

East Riding of Yorkshire Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	4.85
Pipework / distribution capex (£m)	22.28
Other capex (£m)	0
Total capex (£m)	**27.13**

Annual heat demand (GWh)	39.92
Project IRR*	9%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

Goole DHN will recover high grade waste heat and steam from a float glass manufacturing plant and deliver this to a mixture of public and private sector customers to be used for heating and industrial processes.

Total CAPEX year = £27.1m. Phase 1: year = 2023, CAPEX = £25.3m, heat delivered = 3.35GWh/yr. Phase 2: year = 2029, CAPEX = £0.26m, cummulative heat delivered = 5.51GWh/yr. Phase 3: year = 2034, CAPEX = £1.3m, cummulative heat delivered = 17.13GWh/yr.

Procurement for commercialisation activities to begin imminently, for award in December 2022. Planning approval is to be obtained by the Council and commercialisation consultants.

The intention is a 2-stage procurement process, to begin in December 2022 with Stage 1 Design procurement. Tenders for Stage 2 Construction and O&M are anticipated for August 2023. Construction if Phase 1 is expected in December 2023, and first connections end of 2024.

Original report date	2023
Latest update	2023

Greenwich Peninsula ESCO District Heating Network Decarbonisation _CAP

Project Sponsor:

Greenwich Peninsula ESCO Ltd

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	8.37
Pipework / distribution capex (£m)	10.07
Other capex (£m)	0
Total capex (£m)	**18.43**

Annual heat demand (GWh)	31.78
Project IRR*	10%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

Greenwich Peninsula (GP) ESCO and Greater London Authority (GLA) has carried out an assessment of decarbonisation options for the network, to decarbonise the scheme by deploying a 5 MW heat pump which will provide the networks low carbon heat supply up to 2035 at which point a connection into the wider RBG network is planned to take heat from several different sources such as EFW and WSHP in the old Greenwich Power Station. As such the GP ESCO is now progressing this GHNF application to make the retrofit of the ASHP to the scheme commercially viable.

The required project hurdle rate is [10%] which we consider to be at the low end of the returns required to attract infrastructure investment to district heating projects. The total CapEx for the project is [£19,177,657] of which the grant covers 24% with the remaining funded by GP ESCO. Therefore this GHNF funding application for [£415,000] commercialisation funding and [£4,350,000] construction funding is for the deployment of a [5MW] Air Source Heat Pump (ASHP) onto the part developed Greenwich Peninsula (GP) ESCO Energy Centre (EC) as well as the further expansion of the network in a decarbonised manner.

Submit GHNF application 25/05/2023

GHNF clarification period 25/05/2023-27/07/2023

Commercialisation period 28/07/2023-07/09/2023

Detailed Design and Procurement – 28/07/2023-30/05/2024

ASHP Construction and Commissioning – 31/05/2024 – 05/09/2024

Distribution Network Build Out (that included in Application period) – 2025 - 2035

Please refer to the TEM file shared in section 1.06 for the spend profile and GWh profile.

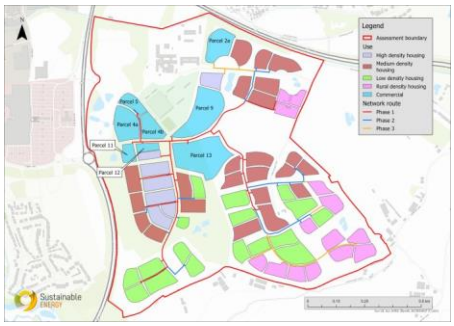
Original report date	2019
Latest update	2019

Handforth Garden Village Heat Network_CAP

Project Sponsor:

Cheshire East Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	5.67
Pipework / distribution capex (£m)	6.87
Other capex (£m)	0
Total capex (£m)	**12.54**

Annual heat demand (GWh)	6.29
Project IRR*	6%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Cheshire East Council is fully committed to pursuing district heating across the Borough and has invested significant resource in exploring potential opportunities. The North Cheshire Garden Village will create an exemplar new settlement in the borough. Once completed it will provide around 1,500 new residential dwellings, new mixed employment uses; a mixed-use village centre, school and extra care facilities. The developmend is to be supplied by a heat network to be served by 2.6MW of open-source ground source heat pump (GSHP) technology in respect to the main head load with 4.5MW of electric boiler capacity serving peak heat loads of 7.9GWh. This is to initially supply the 665 homes + connection to 4 commercial land parcels inc: school, extra care facility, hotel, public house and retail. The scheme has been estimated to cost over £13m and is seeing grant funding of £5.28m to meet almost 8GWh of heat demand per year and currently is scheduled to go for planning determination in January 2023.

Original report date	2018
Latest update	2024

Huddersfield District Energy Network_CAP

Project Sponsor:

Kirklees Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed

Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

Huddersfield DEN will recover heat from an existing council-owned EfW plant and deliver this to a mixture of public and private sector customers to be used for heating and hot water. A paralele private wire network will also supply electricity from the EfW to a subset of the same customer group.

Total CAPEX year = £22.6m. Phase 1: year = 2026, CAPEX = £15.1m, heat delivered = 7.6GWh/yr. Phase 2: year = 2029, CAPEX = £2.6m, cummulative heat delivered = 14.2GWh/yr. Phase 3: year = 2037, CAPEX = £2.6m, cummulative heat delivered = 21.7GWh/yr.

Kirklees is currently procuring a new Waste Services contract, which will include operation of the EfW. This procurement is including measures to secure long-term supply of heat and power from the EfW. Procurement of technical service providers to HDEN will be procured as a stand-alone exercise, as described below.

Original report date	2018
Latest update	2022

Hull District Heat Network_CAP

Project Sponsor:

Hull City Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	5.96
Pipework / distribution capex (£m)	18.96
Other capex (£m)	0
Total capex (£m)	**24.92**

Annual heat demand (GWh)	21.66
Project IRR*	10.18%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: waste heat source

Project description:

The Hull District Heat Network is a key component of Hull's Carbon Neutral 2030 strategy and this bid seeks to secure funding to develop the first phase of our journey towards city-wide decarbonisation of heat.

The £25.9m investment will deliver 22 GWh heat generated from Hull and East Riding domestic and commercial waste to 46 public and private sector customers.

Back up heat will be provided by a number of sources including gas boilers. Options to integrate planned solar and wind generation into the heat network are also being considered as part of a carbon reduction masterplan.

Feasibility and detailed project development have already been completed and the Outline Business Case was approved by Hull City Council (HCC) Cabinet in March (2022).

During commercialisation a special purpose vehicle will be established with Hull City Council as the sole owner. We will further develop the network and energy centre designs (to RIBA 3) and develop the full business case. Cabinet approval is expected in March to enable the project to progress to procure detailed design and capital works (D&B). Works are expected to start in September 2024 and the Network to be fully operational by the end of 2025. Operation and maintenance are expected to be procured under a separate contract(s).

We will work with local suppliers and training providers to develop and deliver a Market transformation strategy that will maximise economic and social benefits in the Hull area.

Two further phases are currently planned, however we expect the HDHN to develop and gain momentum over time as other connections become viable.

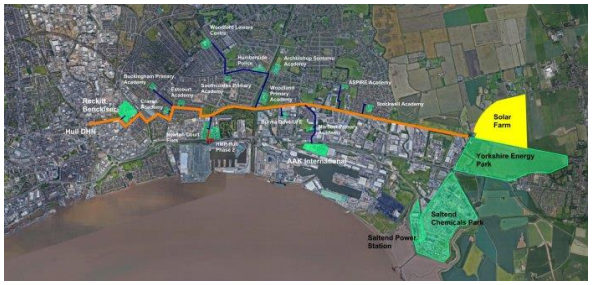
Original report date	2023
Latest update	2023

Hull East Heat Network_CAP

Project Sponsor:

Vital Energi Utilities ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	57.62
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

Hull East heat network is a £43m project that will supply 57.6GWh of heat in Phase 1 with waste from Saltend Chemicals Park. If the funding application is successful the project will go through a commercilisation period, with the aim to start construction in April 2024 and complete construction with-in 2 years. The project will be run by Vital Energi who will fund the remainder of the project as well as design, build operate and maintain the heat network. Future phases of the project may utilise waste heat from other sources and there is the capacity to supply many other customers.

Original report date	2022
Latest update	2022

Islington Council Bevin Court_CAP

Project Sponsor:

London Borough of Islington

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	2.86
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**2.86**

Annual heat demand (GWh)	2.41
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2023	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - decentralised (ambient loop)

Project description:

Bevin Court and Holford House are 2 existing blocks incorporating a total of 130 dwellings. These are currently both served by gas boiler plant at Bevin Court. The £1.95m project will decarbonise the supply through the installation of a cascade heat pump system of a combined installed capacity of around 2MW in total. 4 air to water heat pumps will generate low temperature hot water which will then we raised to 70C by 4 water source heat pumps. It also includes fitting HIUs in each dwelling. The heat network will use exisiting pip infrastructure. This estate is listed building and permission is currently being prepared. The consultancy procurement will start in late 2022 and project completion is due in Q1 2025.

Original report date 2022
Latest update 2024

Kingston District Heat Network (KDHN)_CAP

Project Sponsor:

Royal Borough of Kingston

Network Map:

This evidence is left as blank intentionally as RBK does not want the KDHN network map to be made public.

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**
Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2023	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

The Kingston District Heating Network (KDHN) project presents a practical, innovative, and strategic solution for Kingston to assist in reducing the carbon emissions of existing and new buildings. KDHN aims to:

Produce low carbon heat utilising the waste heat from Hogsmill Sewage Treatment Works with the full potential of >50 GWh per annum recoverable from the treated sewage effluent outfall (via a heat pump) and biogas CHP excess heat.

Deliver this heat to the 'Core Four' connections: Cambridge Road Estate (CRE), Kingston Hospital, Kingston University and new Kingston Leisure Centre – totalling ~28GWh/annum.

The expected capital expenditure required by the Core Four project is £31,843k, including a contingency to account for price uncertainty in the current market, and commercialisation costs. This application to the GHNF is for £12,359k which represents 39.75% of the initial capital cost. The balance is expected to be met through Community Infrastructure Levy (CIL), s106 receipts, connection charges and long-term borrowing by RBK.

The Core Four scheme is seen as a starter network, futureproofed to provide a springboard into future expansion to more residential and commercial buildings in Kingston Town Centre totalling 47 GWh per annum.

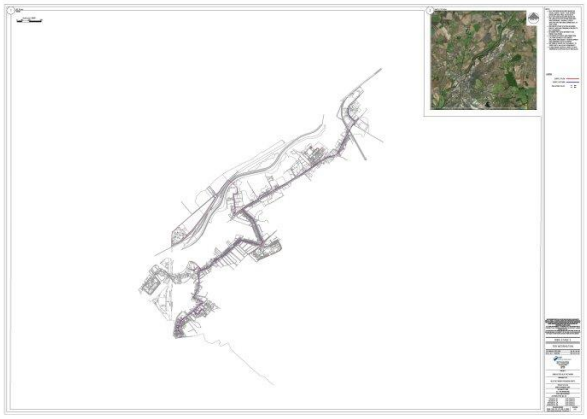
Original report date	Unknown
Latest update	Unknown

Kirk Sandall District Heat Network_CAP

Project Sponsor:

University of Sunderland, Durham University, Newcastle University, Northumbria University, Teesside

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not
	disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2026	2026	2028

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

Kirk Sandall Heat Network (KSHN) in Doncaster is being developed by SSE. Working with BH Energy Gap (BHEG) and Low Carbon to provide low-carbon heat from a residual waste fired Energy Recovery Facility to supply a heat network for the city of Doncaster. The project will utilise a proposed 12.5MW heat offtake system from the planned Kirk Sandall ERF to deliver approximately 65GWh of heat in two phases to customers across the surrounding area through a District Heat Network of approximately 13km of trenching work for for the overall network length and 26km of pipework including flow and return piping. Phase one includes a total of 42.6GWh consisting of approximately 12GWh for Doncaster Royal Infirmary, 3.2GWh for Yorkshire Water, 18.3GWh for all City of Doncaster Council loads and 9.5GWh for Saria Foods. Phase 2 of the DHN includes an additional 22.5 GWh of steam demand to Saria foods but has been excluded from the GHNF application.

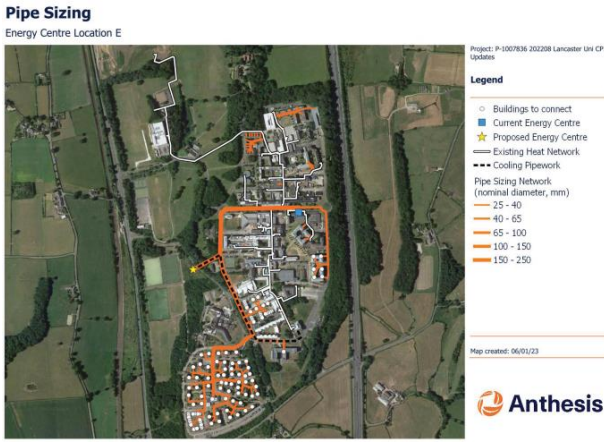
Original report date	2023
Latest update	2024

Lancaster University Net Zero_CAP

Project Sponsor:

Lancaster University

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	15.53
Pipework / distribution capex (£m)	9.28
Other capex (£m)	18.89
Total capex (£m)	**43.26**

Annual heat demand (GWh)	36.4
Project IRR*	8.15%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Lancaster University aims to achieve Net Zero for energy through an innovative heat network project, incorporating network extensions across the University's campus, a new Energy Centre with air source heat pumps and thermal storage and electrical infrastructure works. The project is supported by a 'Heat Pump Ready Buildings' programme, aimed at reducing operating temperatures for buildings connected to the heat network. A private-wire solar farm will be developed separately.

The energy centre will have a heating capacity of 8MW and will provide 100% of the University's heating and hot water requirements. The project will link together the existing district heat network which covers 60% of the campus with a new network, which also includes 3rd party owned student accommodation.

The project will extend the existing 28 GWh p.a. heat network to provide 36.4 GWh p.a. of low-carbon heat. Capital costs are estimated at £$43.56m (at RIBA Stage 3). Detailed design commenced in July 23, with a planning application submitted in February 24.

Vital Energi were appointed through a two-stage tender process in February 2024 as Design and Build contractor, with a operate and maintain contract for 3 years. Construction is due to commence on site, September 24. The Green Heat Network Fund is funding 50% of the construction work matched by the University. Heat-on is schedule for October 26.

Original report date	2022
Latest update	2022

Langarth Deep Geothermal Heat Network_CAP

Project Sponsor:

Cornwall Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	14.09
Pipework / distribution capex (£m)	75.85
Other capex (£m)	0
Total capex (£m)	**89.95**

Annual heat demand (GWh)	41.27
Project IRR*	10%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

The Langarth district heating network is a c£90m capital project connecting a new 3,800 unit development, together with an existing hospital, schools and college, to the United Downs Deep Geothermal Project approximately 5km away. This will be the UK's first deep geothermal heat network. The development is expected to be built at a rate of approximately 150 homes per year with completion expected in 2042. The total heat demand will be in the region of 50GWh/year. The project has been initiated by Cornwall Council but it is expected that a private sector ESCo will be procured to design, build, own and operate the network and customer connections. Key upcoming milestones include early development of the secondary heat main within the development from September 2023, and securing wayleaves and planing permission for the transmission main. The geothermal heat supply is expected to be connected in 2026, with a temporary biomethane supply from 2024.

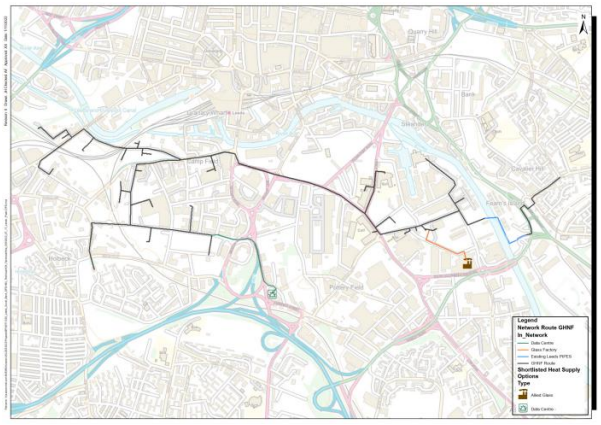
Original report date	2023
Latest update	2024

Leeds PIPES South Bank extension_CAP

Project Sponsor:

Leeds City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	19.2
Pipework / distribution capex (£m)	35.34
Other capex (£m)	0
Total capex (£m)	**54.53**

Annual heat demand (GWh)	64.21
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

The project is an extension to the now well established Leeds PIPES DHN. The extension will bring the network into the South Bank, one of Europe's largest brownfield regeneration schemes. It is the most significant investment in the network since the project started, with a proposed project capex of £55m, with £43.8m of spend occuring by the end of 25/26 FY, and a further £10.6m in 30/31 FY. The key timescales associated with the project are commencement of commercialisation in mid 2024, construction in mid-late 2025, with the bulk of construction completing by 2027. Additional connections will continue to be made indicated by the spend in 30/31. The current procurement approach is to run a min-competition under a framework to award the works for the design, build, operation and maintenance of the spine network itself. A further competition will be run, likely in parallel, for the construction of the energy centres. The project is currently going through the DPD stage, and will utilise a glass factory as the main heat source (waste heat), supplemented by a datacentre, the existing EfW of the PIPES scheme, and electric boilers.

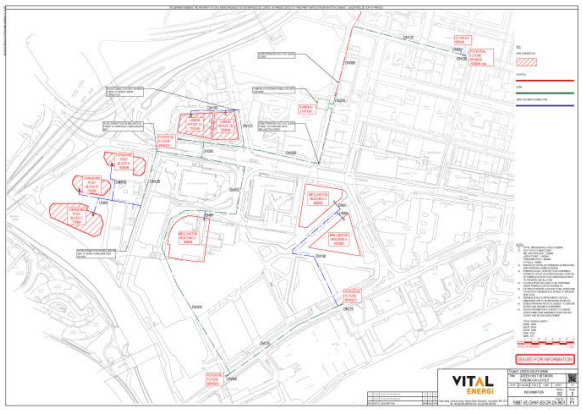
Original report date	2023
Latest update	2024

Leeds PIPES Wellington Street extension_CAP

Project Sponsor:

Leeds City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	10.06
Other capex (£m)	0

Total capex (£m)	**10.06**

Annual heat demand (GWh)	12.14
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

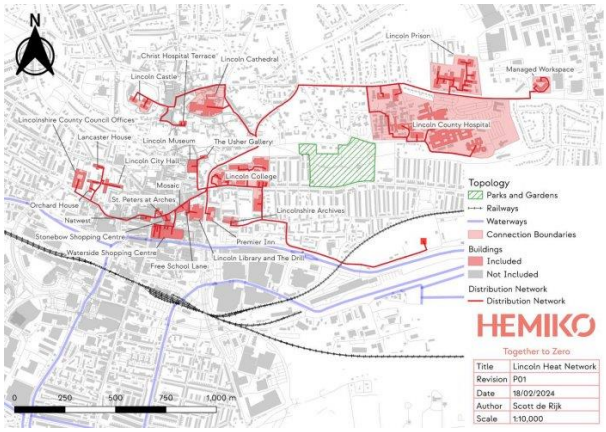
This is an extension to the Leeds PIPES DHN in the Wellington Street area of Leeds. The project has a capex of £10.21m, with £9.47m being spent by end of 24/25 FY, and the remaining £740k to be spent in 26/27 and 27/28 FYs. Therefore the bulk of the project will complete by March 2025. The works are planned to be awarded to the current DBOM contractor for the project, Vital Energi Utilities Ltd, with contract award planned for early summer 2024. Following this, the spine network will commence construction and so will a planned pumping station, with connections following over a number of years, the first in late 2024.

Original report date	2024
Latest update	2024

Lincoln Heat Network_CAP

Project Sponsor:
Hemiko

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:
Heat pump: air source

Project description:
The development of the Lincoln Heat Network is a new heat network in Lincoln city centre. This heat network shall be supplied by a 8MW Air Source Heat Pump (ASHP). The scheme will provide a total of c60GWh/yr of heat to 34 buildings in the first phase delivered within the GHNF timescales.

The projected capex for the project is c£72m. Hemiko will be setting up a project specific ESCO for the development of the Lincoln Heat Network. The ESCO will be responsible for delivering all the heat generating infrastructure, primary network up to and including each substation. We will continue to densify the networks and within our future expansion plans which will include assessing the feasibility of a EFW offtake (North Hykeham) for which we have provided a LoS from Lincolnshire County Council and we are engaged with GT/Star Energy currently exploring deep geothermal for future expansion. Hemiko will continue to invest alongside the initial phases. The network phases that are included within this application will be delivered between July 24 – Jan 29 (4 years).

Procurement will start during the commercialisation stage; we already have an expression of interest out to local suppliers. We have engaged with Lincoln Council, Lincolnshire Council, the Planning team and the Highways team to kick off an initial pre-application for planning. Construction is due to start Jan 2025.

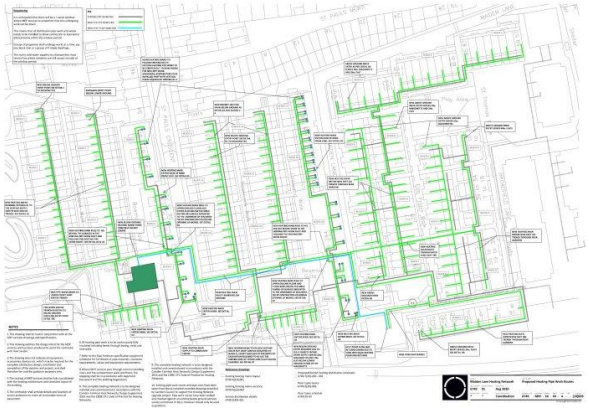
Original report date	2020
Latest update	2023

Maiden Lane_CAP

Project Sponsor:

Camden Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	4.13
Pipework / distribution capex (£m)	5.7
Other capex (£m)	0
Total capex (£m)	**9.83**

Annual heat demand (GWh)	6.09

Project IRR*	8%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Hybrid Energy Centre and Communal Heat Network on a 1970s LA Social Housing Estate. Project Capex is estimated as £ 15.3M outurn. The GHNF eligible costs are estimated to be £ 10.0M. The requiested GHNF Grant is £3.100M. The Project replaces the 1970 Heat Network with a modern low temperature hart network able to connect to an low carbon centralised ASHP and makes use of a more recent 2015 fossil Energy Centre to provide peak heat and backup. The size of the ASHP is optimised to balance space, CAPEX, REPLEX and OPEX and carbon emmissions. It is anticpated future fabric improveemnt will subsequently reduce the Heat Load. The existing boilers and CHP are reused to support the ASHP opertaion in terms of offsetting high electrical TRIAD costs.

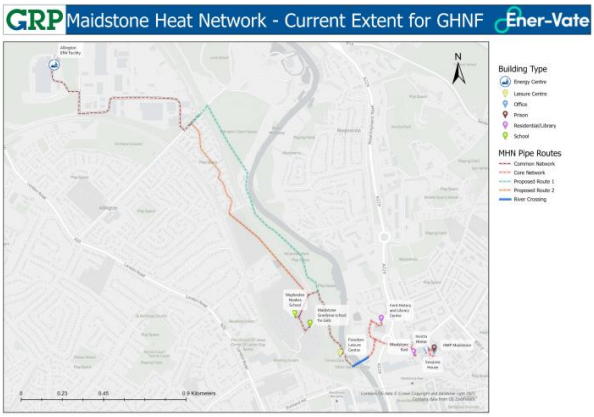
Original report date	2024
Latest update	2024

Maidstone DHN_CAP

Project Sponsor:

Allington Energy Networks Limited

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.36
Pipework / distribution capex (£m)	21.25
Other capex (£m)	0
Total capex (£m)	**24.61**

Annual heat demand (GWh)	12.73
Project IRR*	10.27%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

Maidstone DHN is a scheme being undertaken by FCC Environment Limited. The District Heat Network (DHN) scheme will be utilising heat from an FCC owned Energy from Waste facility. We intend to connect the DHN to 326 residential apartments, and over 80,000 sq m of local authority and public sector buildings. Additionally, in the future it is our intention to expand the DHN to decarbonise existing buildings and commercial properties in the Maidstone area.

Original report date	2022
Latest update	2024

Meriden Estate_CAP

Project Sponsor:

Watford Community Housing Trust

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2022	2023

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Meriden Estate is a housing estate consisting of 2 tower blocks and 4 low-rise blocks with a total of 252 apartments. It is currently served by a failing and end-of-life gas district system which is >50 years old.

Given their net-zero ambitions WCHT engaged with Cenergist who have undertaken a full options appraisal assessment to look at low carbon options which will also future proof against increasing gas prices for residents and provide sustainable and affordable heating and hot water for residents. As Principal Contractor, Cenergist will manage the overall procurement approach.

This proposed project is to replace the current system with a new a 3GWh/annum hybrid ASHP-GSHP solution to maximise the Coefficient of Performance and minimise carbon emissions. Total CAPEX of the proposed solution is circa £6m and will be completed in a single delivery phase. The project is currently in the design stages and will commence in May 2023, progress will then follow the below milestones until completion in December 2024.

Detailed design freeze:	07/2023
Borefield drilling start:	09/2023
Borefield drilling end:	04/2023
ASHP's procured and installed:	12/2023
Primary DH Network installed:	12/2023
Block distribution installed:	04/2024
Domestic heat connections commence:	06/2024
All customers heat on:	12/2024

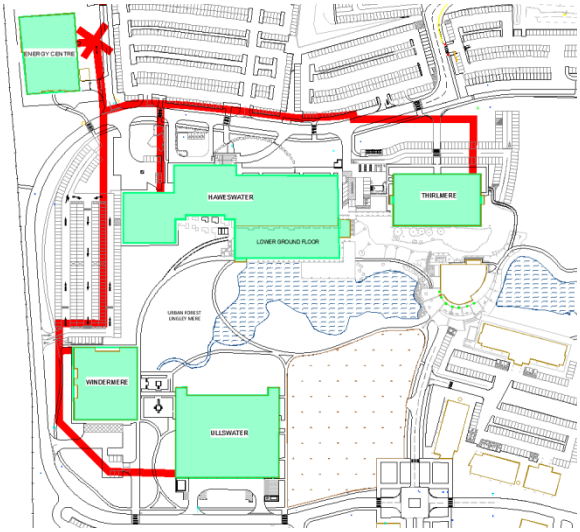
Original report date	2024
Latest update	2024

Mersey Biochar Heat Network_CAP

Project Sponsor:

Severn Wye Energy Agency Ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	4.67
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

The Mersey Biochar heat network is a £4.9m project which will deliver 4.7GWh of heat predominantly recovered from a carbon negative biochar facility. Heat is expected to be avaiilable by April 2027. If the funding application is successful the project will go through a commercilisation period, with the aim to start construction in April 2026 and complete construction with-in 1 year. The project will be run by Vital Energi who will design, build operate and maintain the heat network.

Original report date	2024
Latest update	2024

Milton Keynes Heat Network_CAP

Project Sponsor:

MILTON KEYNES ENERGY LIMITED

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	44.62
Pipework / distribution capex	82.42
(£m)	
Other capex (£m)	0
Total capex (£m)	**127.04**

Annual heat demand (GWh)	105.24
Project IRR*	9.53%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

Please see section PS1 of accompanying Word document 1.8 MKEN MTC Responses.docx

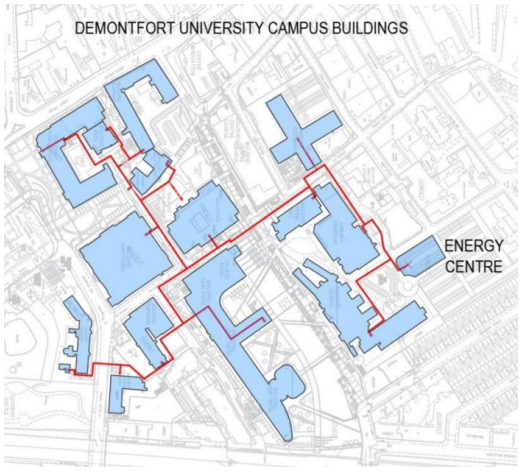
Original report date	2022
Latest update	2024

MyDMU Greenheat_CAP

Project Sponsor:

De Montfort University

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	11.86
Pipework / distribution capex (£m)	6.73
Other capex (£m)	0
Total capex (£m)	**18.6**

Annual heat demand (GWh)	11.87
Project IRR*	5.61%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Following the development and adoption of the university's Heat Decarbonisation Plan (HDP) and a successful application for GHNF support De Montfort University are developing a centralised low carbon heating solution for the central campus buildings, which amounts to 70% of the university's carbon emissions related to heating, or c2,300 tonnes CO2e per annum. This solution has been developed over the last year by the university, working in partnership with its consultants, Vital Energi Utilities Limited. It comprises of a 2.5MWth ASHP array, feeding into a new 2 km District Heat Network (DHN), serving 17 buildings across our compact city centre campus.

The scheme has now been designed to RIBA stage 3, including integration of the DHN into each building's plant room, with a tender specification ready for procurement. The solution generating c12GWh per year of renewable heat.

The programme for the scheme is outlined below.

1. Tender 3rd June 2024 to 4th 04th October 2024 – procurement will utilise single stage open tender via InTend portal.

2. Design and Build JCT contract. Planning permission in place for Energy Centre and Highways works with conditions.

3. Construction 21st October 2024 to 1st May 2026

The scheme has been designed to allow for additional thermal capacity to be added in the future with a view to extend the DHN to neighbouring organisations such as the Leicester Royal Infirmary and / or Leicester City Council's DHN.

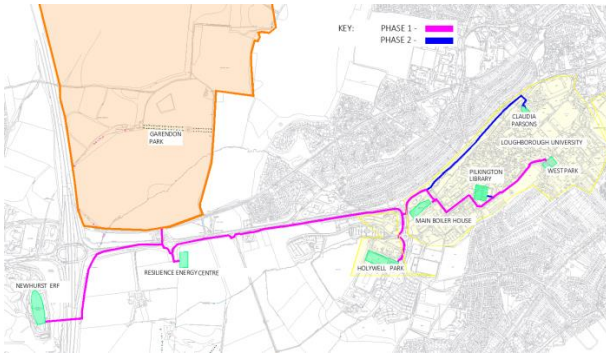
Original report date	2024
Latest update	2024

Newhurst Heat Network_CAP

Project Sponsor:

Vital Energi Utiltiies ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	61.58
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

Newhurst heat network is a £65m project that will supply 42GWh of heat in Phase 1 with waste from Newhurst Energy Recovery Facility to Loughborough Universty. If the funding application is successful the project will go through a commercilisation period, with the aim to start construction in December 2025 and complete construction with-in 2 years. The project will be run by Vital Energi who will fund the remainder of the project as well as design, build operate and maintain the heat network. We also plan to send the heat network to over 2900 new build residential properties at Garendon Park, along with Loughborough College, Loughborough Schools Foundation and other heat users in Loughborough.

Original report date	Unknown
Latest update	Unknown

North Crawley Heat Network_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	27.57
Pipework / distribution capex (£m)	40.54
Other capex (£m)	0
Total capex (£m)	**68.11**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2026	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The Hemiko North Crawley heat network will supply heat to the North Crawley area including London Gatwick Airport, adjacent buildings such as hotels, and connections in Manor Royal. The network will provide low-carbon and zero-carbon heat to 23 connections from 2027 onwards. The scheme is ambitious yet feasible with the capacity to decarbonise significant amounts of heat in North Crawley and beyond. The GHNF funding allows for this scheme to be commercially viable while kickstarting the decarbonisation of heat across North Crawley and surrounding area through expansion.

The two Energy Centres (ECs) with Water Source Heat Pumps (WSHPs) drawing heat from the Gatwick Stream at the Gatwick South Terminal EC, and from a data centre at the Manor Royal EC allow for the fastest possible decarbonisation of North Crawley while maximising efficiency and lowering operating costs through a high Seasonal Coefficient of Performance (SCOP).

The proposed network provides:

- Low carbon emissions that are primarily driven by the carbon footprint of the national grid but are lowered for this scheme through the use of high-SCOP heat pump technology.
- A low cost of heat to customers is than 34% cheaper than the relevant counterfactual.
- Large volumes of low-carbon heat provided to the North Crawley area with 46 GWh provided per year.
- Accelerated heat-on date and diversity in heat supply through the use of two energy centres.
- High energy density and low losses indicating a successful scheme.

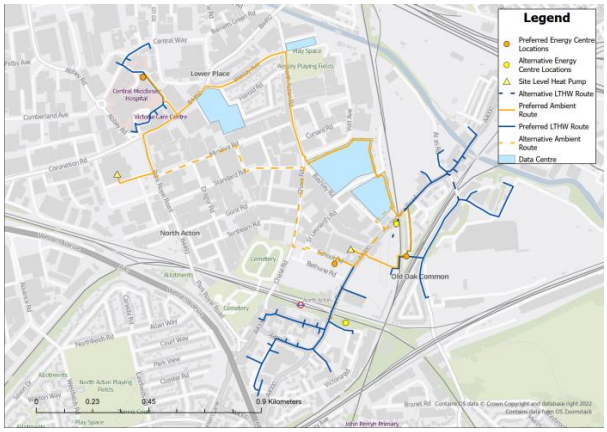
The project will procuring for various professional services and engineering design support for the commercialisation period in FYE25 and FYE26 with construction starting in FYE27 and continuing through to FYE30. Hemiko will be procuring various parts of the delivery of the project using local resource where possible. The procurement strategy is planned to be published in March 2026 and this will detail the packages of work that are being procured which likely include the likes of engineering design and construction for the energy centre and network.

Original report date 2022
Latest update 2024

Old Oak and Park Royal Energy Network _CAP

Project Sponsor:
OPDC

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	101.3
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:
Waste Heat Recovered from data centres

Project description:
The OPEN project will recover waste heat from the cooling processes of 2 new data centres to supply low carbon heating and hot water to homes and businesses within the OPDC region. The phasing information is as follows:

- Phase 1:

Year = 2027, heat delivered = 48.2GWh, CAPEX spend = £94.1m.

- Phase 2:

Year = 2030, cumulative heat delivered = 62.9GWh, CAPX spend = £26.1m.

- Phase 3:

Year = 2035, cumulative heat delivered = 85.5GWh, CAPEX spend = £6.2m.

- Phase 4:

Year 2040, cumulative heat delivered = 101.3GWh, CAPEX spend = £1.2m.

Original report date	2023
Latest update	2024

Oldham Low Carbon Heat Network_CAP

Project Sponsor:

Oldham Metropolitan Borough Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	12.29
Pipework / distribution capex (£m)	14.47
Other capex (£m)	0
Total capex (£m)	**26.76**

Annual heat demand (GWh)	26.16
Project IRR*	9.99%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Boiler - biomass

Project description:

The Oldham Low Carbon Heat Network (OLCHN) expands on the existing St. Marys Heat Network, supplemented by an additional new energy centre (Rhodes Bank Energy Centre). The scheme will reinstate a currently redundant 3.5MW biomass boiler at the existing St Mary's energy centre and utilise 1.8MW air source heat pumps located at the Rhodes Bank Energy Centre. Furthermore, it utilises 11MW top-up gas boilers, already operational within the existing heat network, and 250m3 of thermal storage for reliability and supplementary purposes.

The OLCHN encompasses a total of 27 connections, with two of them serving 1309 social houses. It spans across five phases, encompassing both new and existing council, public, commercial, and residential buildings, and amounts to ~30 GWh/annum in heat demand. The project also involves the installation of roughly 4.7 km of new pipework.

The scheme achieves an average carbon factor of 32 gCO2e/kWh over its projected 40-year lifetime, resulting in an carbon emissions reduction of 80% compared to business-as-usual.

A capital investment of £26.8 million will be required across the five phases. The project is planned to commence in the fourth quarter of 2023/24, with commercialisation preparations. Construction is scheduled to commence in the first quarter of 2025, with the first building connections anticipated in the first quarter of 2026 and first phase full-build out to be completed by Q3 2026.

Oldham Metropolitan Borough Council wish to procure a delivery partner to support in the delivery of their Oldham Green New Deal (OGND) strategy. The delivery partner will support with the delivery of various decarbonisation projects across the borough including the OLCHN project, which will constitute as the main "anchor" project for the new delivery partner and the first project to be delivered by the new delivery partnership with the council.

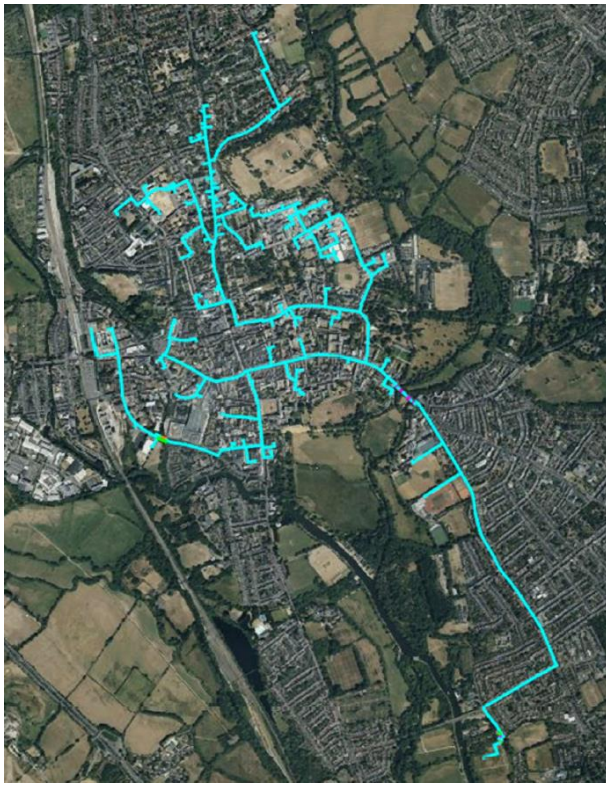
Original report date	Unknown
Latest update	Unknown

Oxford Energy Network - City_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	47.18
Pipework / distribution capex (£m)	74.31
Other capex (£m)	0
Total capex (£m)	**121.5**

Annual heat demand (GWh)	83.23
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2029

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

Please see section PS1 of accompanying document 1.8 OEN MTC Responses

Original report date	Unknown
Latest update	Unknown

Oxford Energy Network - Headington_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	27.38
Pipework / distribution capex	34.19
(£m)	
Other capex (£m)	0
Total capex (£m)	**61.57**

Annual heat demand (GWh)	48.74
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2029

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Please see section PS1 of accompanying document 1.8 OEN MTC Responses

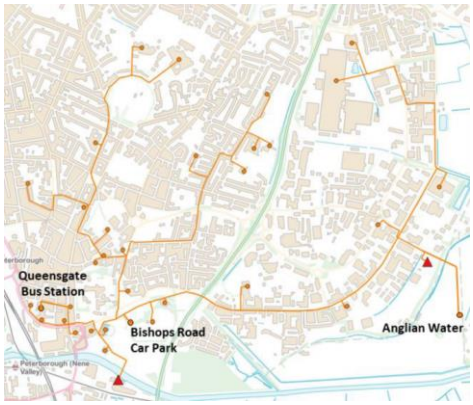
Original report date	2021
Latest update	2021

PIRI (Peterborough Integrated Renewables Infrastructure)_CAP

Project Sponsor:

Peterborough City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	22.11
Pipework / distribution capex (£m)	31.02
Other capex (£m)	0
Total capex (£m)	**53.13**

Annual heat demand (GWh)	23.71
Project IRR*	18%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

PIRI (the "Peterborough Integrated Renewables Infrastructure") project is a Council-led scheme which integrates a heat and non-heat approach to decarbonisation that will deliver enabling infrastructure across the city of Peterborough, with the primary generation asset being the Council-owned Energy Recovery Facility (ERF).

The project combines a heat network and private wire electricity network to support buildings and also delivers EV infrastructure, creating a holistic smart local energy system. The initial phases 1 and 2 which are the subject of this application, will have a total CAPEX of £47m for the Phase 1 and £25m for Phase 2 (£73m total CAPEX). It will cover 8.7km, connect 17 anchor heat off-takers (which includes Council offices), with a total annual heat consumption of c. 24 GWh/a, and 20 electricity off-takers with a total electricity consumption of c. 90 GWh/a. There are a total of 7 potential future phases and together with additional work referenced in this application such as Heat Network Zoning and the Local Area Energy Plan, there is significant potential for future expansion.

The project has taken 3 years from the initial Mapping and Masterplan to end of the DPD stage. The Commercialisation stage is expected to take c24 months, with Phase 1 construction planned for Septemberl 2024, with completion in 2025. Phase 2 construction will start in April 2026 and complete in 2027.

In order to support our application, the project team have developed a programme plan (see supporting evidence "1.4 Programme"). This sets out the expected project timescale (including procurement) and key milestones.

Original report date	2022
Latest update	2024

Rotherham Energy Network (REN)_CAP

Project Sponsor:

Rotherham Energy Limited

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	60
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Water source heat pump

Project description:

Rotherham Energy Limited (REL, a subsidiary of 1Energy) is planning to build the Rotherham Energy Network (REN) a low-to-zero carbon (LZC) heat network, distributing upgraded waste heat from Templeborough Biomass Power Plant (TBPP) to businesses and residents of Rotherham. REN will take waste heat from the cooling towers at TBPP, upgrade the heat to 80C using, water-to-water heat pumps (W-WHP), and distribute heat to over 70 connections over c.150km of pipework. Potential anchor customers include Rotherham Hospital, Rotherham College and Rotherham Council.

The capex for phase one is c.£60m (not incl. £1m commercialisation), the heat load is 60GWhth per year with an undiversified peak capacity of 33MWth.The W-WHP is 8MWth, coupled with 250m3 of thermal stores and 32MWth of (n+1) back-up and peaking gas boilers to meet peak load. The W-WHP will deliver 80% of the annual heat demand.

Key Milestones:

-Planning application submission: Q4, 2024 – aim to secure within 3-4 months.

-Procurement to run concurrently with the Planning Application.

-RIBA stage 3 design: Q3, 2024.

-Financial close: Q1, 2025

-Detailed Design for Construction starting Q1, 2025

-Onsite construction in Q2, 2025 - running for 24 months.

-Operational phase and first property connected: Q2, 2027.

-O&M and M&B contractor awards during the construction phase, likely Q3,2025.

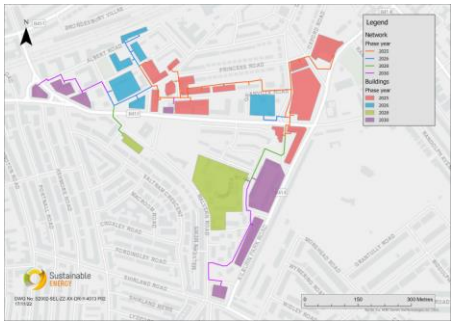
Original report date	2022
Latest update	2024

South Kilburn District Heating Network_CAP

Project Sponsor:

London Borough of Brent

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Contract value over the entire contract period: £36m. Capex: £17.1m (commercially sensitive) The South Kilburn District Heat Network, supports the South Kilburn Regeneration programme in providing a centralised heat hub for the area.

The term of the contract is for an anticipated build period between 2025 and 2032. The term of contract includes fifteen years operation period with the ability for the Authority to extend for an additional period up to 10 years. Following the installation of air source heat pumps (ASHPs), the completed network will supply low carbon heat via a buried network (spine trench length of 2.7 km) and its total annual heat demand is expected to be 20.8 GWh.

The Council is seeking a contractor to design, build, operate and maintain the 'South Kilburn District Heat Network' (SKDHN) to serve the South Kilburn regeneration area. SKDHN will be fully owned by the Authority and will be built out over four phases. The Authority will own the heat generating plant and distributing network to the heat exchangers.

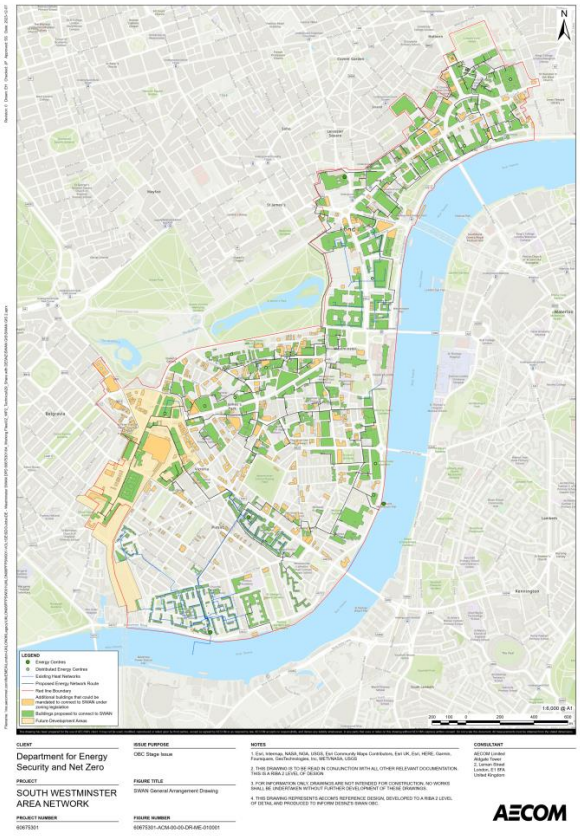
Original report date	2024
Latest update	2024

South Westminster Area Network (SWAN)_CAP

Project Sponsor:

SWAN ESCO ltd

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	241.04
Pipework / distribution capex (£m)	175.66
Other capex (£m)	0
Total capex (£m)	**416.7**

Annual heat demand (GWh)	379.81
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2026	2026	2028

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

Project SWAN is a heat network opportunity in Westminster. It has been developed to a concept design by the Department's technical, legal, financial and commercial consultants and envisages the decarbonisation of a significant portion of Westminster ranging from the London School of Economics down to Whitehall and fanning out to Victoria and down to Pimlico. Approximately 400GWh/year of heat is estimated to be delivered to key buildings identified with the primary heat source being the river Thames at an estimated capital cost of approximately £416m to be delivered by the private sector.

At this scale of heat supply it would be the largest low carbon heat network in England and potentially the UK. It would be the flagship project for heat network zoning policy that is due to come into force in 2025: with key Government buildings connecting to a low carbon heat network this would send a strong signal of our resolve to make heat networks an important strand within wider heat decarbonisation.

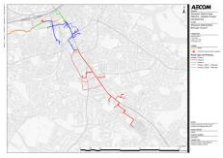
Original report date	Unknown
Latest update	Unknown

Stockport District Heat Network_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	26.76
Pipework / distribution capex (£m)	29.74
Other capex (£m)	0
Total capex (£m)	**56.5**

Annual heat demand (GWh)	59.4
Project IRR*	9.43%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

Stockport District Heat Network is a £56m project to supply 61GWh of heat to public buildings in the town centre and South to Stepping Hill Hospital. The network is based on an energy centre in the town centre with heat pumps using waste heat from the main sewer, backed up with gas boilers. The project is at Detailed Project Development phase, next steps are commercialisation starting later in 2024, procurement of delivery partner and construction starting early 2026.

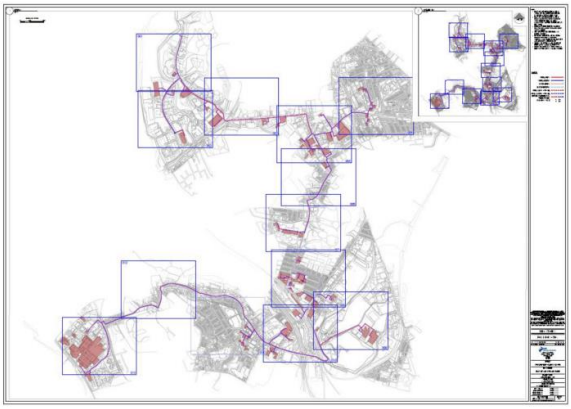
Original report date	2023
Latest update	2024

Stoke On Trent City Wide DH - Deep Geothermal_CAP

Project Sponsor:

SSE Heat Networks LTD

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2024	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

GT Energy are constructing 2 Geothermal wells at a depth of 3800m within the Etruria Valley of Stoke-on-Trent. SSE have agreed an MoU to deliver a heat network in the surrounding area using the heat suppled from the Geothermal Well.

Planning approved “shovel ready” geothermal district heat project. Key project size is detailed within the application form along with phased demand. Key milestones are detailed within the project programme uploaded. Procurement EPC will commence post notification of a succesful award from GHNF and look to move asap. Key construction timescales for the geothermal well have also been uploaded within the project programme folder detailing key date on when drilling activity commences.

SSE, in partnership with GT Energy, will design, build operate and maintain a heat network delivering zero carbon heating and hot water to nearby customers.

The development is expected to commence in 2024 in three phases

Original report date	Unknown
Latest update	Unknown

Sunderland Central_CAP

Project Sponsor:

In the first instance, our East London Energy Concession Partners, the London Legacy Development Cor

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	18.91
Pipework / distribution capex (£m)	26.77
Other capex (£m)	0
Total capex (£m)	**45.68**

Annual heat demand (GWh)	38.51
Project IRR*	9.2%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: mine water

Project description:

Innovative mine source district heating project, providing 39GWh low carbon heat to strategic partners, including NHS Trust, University of Sunderland and City Centre residential, serving as catalyst to the City's largest redevelopment site, Riverside Sunderland. The primary network measures 8.6km, 300m via a new high-level bridge as part of Riverside Sunderland.

Sunderland Central Ph1 is estimated at £36.7M and 39GWh, with future phases anticipated to reach upwards of £185M and 155GWh of mandated load under Zoning legislation, with longer term estimates suggesting somewhere in the region of 255GWh of annual heat demand.

Sunderland City Council are currently procuring a funder/operator via a novel procurement approach in the form of a Joint Development Agreement (JDA), whereby the future ESCO would fully commercialise the project with the Council. Upon reaching FID the operator would assume the right to deliver and operate Sunderland Central heat network in perpetuity under the terms of a Project Governance Agreement (PGA). The Council role under the PGA is that of a de facto regulator until a time Ofgem assumes this responsibility, at which point the only remaining items relate to ongoing Social Value/Market Transformation commitments and a super profit clause.

Original report date	Unknown
Latest update	Unknown

Trafford Civic Quarter DHN_CAP

Project Sponsor:

University of Sunderland, Durham University, Newcastle University, Northumbria University, Teesside

Network Map:

ImageBase64

Summary forecast financial information:

Energy generation capex (£m)	22.2
Pipework / distribution capex (£m)	13.88
Other capex (£m)	0
Total capex (£m)	**36.07**

Annual heat demand (GWh)	24.19

Project IRR*	8.48%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2026	2026	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

Trafford Civic Quarter District Heat Network is a c. £36m project to supply c. 27 GWh of heat to public and residential buildings with the first customers connecting to the network in 2027/28. The network will utilise heat pumps with a heat off-take from a main sewer and back-up gas boilers. The project is at Detailed Project Development (DPD) phase, next steps are commercialisation starting later in 2024, procurement of delivery partner and construction starting in 2026/27.

Original report date	Unknown
Latest update	Unknown

Tyseley Heat Network_CAP

Project Sponsor:

First phase - exploring opportunities with Manchester university, British geological Survey, GTEnerg

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	5.89
Pipework / distribution capex (£m)	22.65
Other capex (£m)	0
Total capex (£m)	**28.54**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2026

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: industrial heat

Project description:

The development of the Tyseley Heat Network is a new heat network in Small Heath, Birmingham. This heat network shall be supplied by a co-located data centre that will supply 2.5 MW heat that is upgraded with a water-source heat pump to serve the local area. The scheme will provide 16.2 GWh/yr of heat to c. 21 buildings in the first phase delivered within the GHNF timescales.

The projected capex for the project is £30.2 m. Hemiko will be setting up a project specific Energy Services Company (ESCO) for the development of the Tyseley Heat Network. The ESCO will be responsible for delivering all the heat generating infrastructure, primary network up to and including each substation.

Hemiko will continue to invest alongside the initial phases. The network phases that are included within this application will be delivered between December '24 – December '29 (5 years). Long term, Tyseley Heat Network will focus on supporting Heat Network Zoning in Birmingham City Centre by building a large transmission main that will connect the city centre to low carbon heat sources such as Birmingham BioPower.

Procurement will start during the commercialisation stage; we already have connections into local suppliers. Hemiko will take a staged competitive procurement approach beginning with Expressions of Interest and moving to more detailed assessments for packaged works. All specialist consultant packages will be competitively tendered against quantitative and qualitative criterion. Hemiko has engaged with Birmingham City Council, West Midlands Combined Authority, and Tyseley Energy Park who are all major players in the area.

Original report date	2022
Latest update	2024

Welborne Garden Village - Buckland Development_CAP

Project Sponsor:

Last Mile Heat Limited

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2023	2023

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Deep geothermal

Project description:

The Welborne Garden Village (WGV) project is opportunity to deliver up to 4.4 GWh of heat, hot water and cooling to 812 new build properties via individual, local heat pumps connected to an ambient heat network using a local Portsmouth Water reservoir as an energy source. The project is led by Last Mile Heat in partnership with Rendesco.

The WGV development has been recognised by the government as providing high quality and sustainable living for new communities. The development will be located outside Fareham in Hampshire, with Buckland Development as the Master Developer. Once it is complete, the site will comprise of 6,000 new build dwellings, 10 hectares of employment space, healthcare, a primary and secondary school, local retail, and leisure facilities.

Phase One of the development begins construction in 2023 and is mixed use, connecting 790 new build homes and 22 commercial premises providing a range of key services for the development. The high-profile development has full s106 planning permission from Fareham Borough Council (FBC) and has been widely publicised.

The proposed solution seeks £1,972,000 from the GHNF towards a total capital expenditure of £10,342,771, delivering excellent value for money by meeting and exceeding all of the GHNF gated metrics.

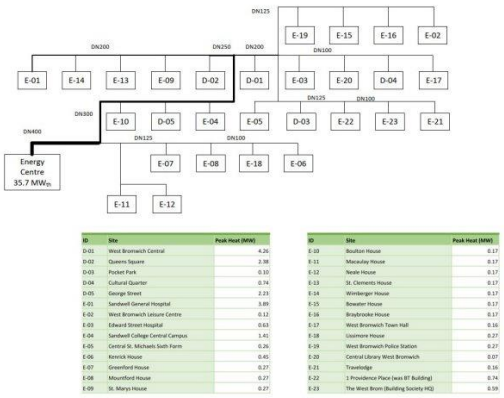
Original report date	2023
Latest update	2024

West Bromwich Heat Network _CAP

Project Sponsor:

Sandwell Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	34.88
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2024	2028

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

Project size: overall funding requirement is £40m

Phases / heat demand / date connect: Sandwell College (4.0 GWh) 2027; Sandwell General Hospital (12.8 GWh) 2027; Edward Street Hospital (1.9GWh) 2027; Council tower blocks (3.7GWh) 2027; Council corporate property (1.2GWh) 2027; Town centre redevelopment (10.8GWh) 2025-2038. Within these main phases a further 1.9 GWh of heat demand from other heat customers is expected to connect.

Project timescale: Commercialisation (start September 2023); Final Investment Decision / FID (December 2024); Enabling works (complete February 2025); Network D&B contract (start March 2025); First “Heat On” (June 2026); and last connection 2038.

Procurement approach: Network is to be delivered through a SPV, wholly or partly owned by the Council, that will contract with the private sector for its design, build, operate & maintenance.

Current status: the Project is at DPD stage, heads of terms with major heat customers and Enfinium (heat offtake) have been secured, and the OBC subject to Council approval on 12th July 2023.

Key milestones: procurement to start April 2024 and planning application submitted February 24 – both to be completed before FID in December 2024

Technologies being used: majority of heat is to come from Kelvin EfW plant being developed by Enfinium, due to become operational by end 2025. Top up (3.2%)/ back-up heat is to come, at least initially, from gas boilers as grid is too constrained for electric boilers.

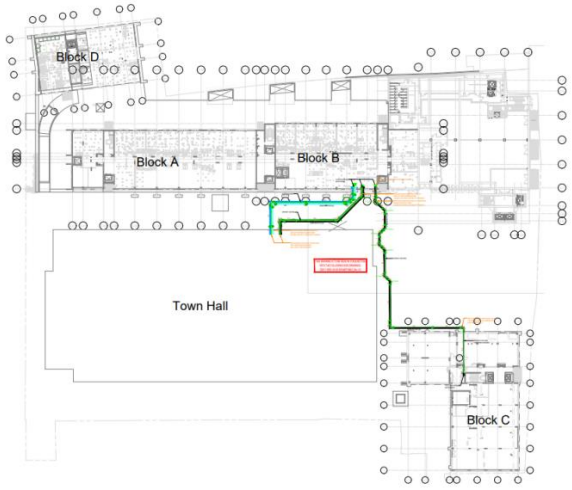
Original report date	2019
Latest update	2024

West King Street District Heat Network _CAP

Project Sponsor:

London Borough of Hammersmith & Fulham

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	3.6
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2024

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

The West King Street District Heat Network will be built in single phase and the total heat and cool demand estimated to connect to the network is 3.6GWh and 4.2GWh, respectively.

A 50/50 Joint Venture was created in the form of a Limited Liability Partnership named “West King Street Renewal LLP” (the LLP) on 4th March 2020 which includes London Borough of Hammersmith & Fulham (LBHF) and A2Dominion Developments Ltd (A2DD).

The LLP entered into a contract with Ardmore Construction Limited on 1st December 2020 to deliver 204 new homes, provide over 15,000 sqm of state of the art office and public space, over 10,000 sqm of commercial space, refurbish and extend the existing Grade II-listed Town Hall building and to install a site wide energy network to provide heating and cooling.

Planning was originally granted for a Combined Heat and Power (CHP) and gas fired boiler. In order to meet LBHF’s ambition to be net zero by 2030 and to comply with changes to Building Regulations a fundamental change was proposed to move from the CHP based solution to a Ground Source Heat Pump (GSHP).

The energy centre is anticipated to be commissioned by mid-June 2024.

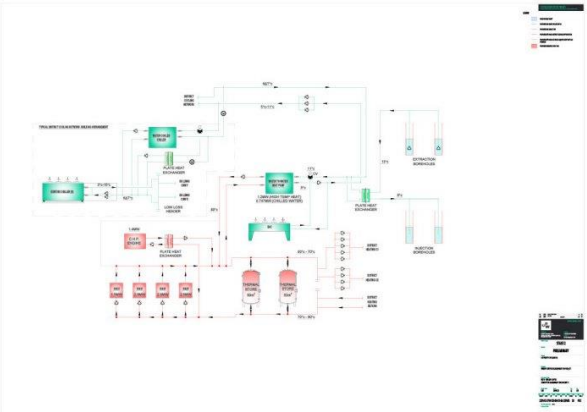
Original report date 2021
Latest update 2024

Whiteknights Energy Centre phase 1 decarbonisation_CAP

Project Sponsor:

University of Reading

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	2.85
Pipework / distribution capex (£m)	1.55
Other capex (£m)	0

Total capex (£m)	**4.4**

Annual heat demand (GWh)	10.81
Project IRR*	3.51%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2023	2023	2025

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: water source - decentralised (ambient loop)

Project description:

Project for first phase decarbonisation of Energy Centre, for an open loop ground source heat pump from the below-ground aquifer – providing approx. 40% of the current DHN heating load (10 GWh) and adding a small cooling network providing (2 GWh) p.a. to be delivered by December 2025.

The approach to procurement would be via the use of an Open or Restricted tender or the use of an appropriate framework to be compliant with Procurement regulations. Test boreholes have been completed and target yields achieved and the project is now progressing to tender

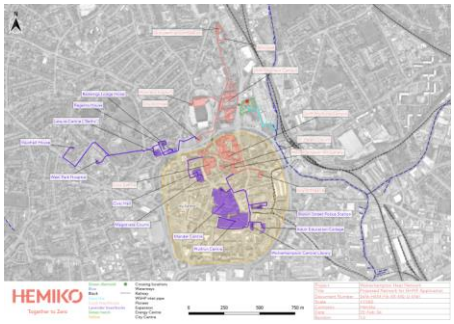
Original report date	2024
Latest update	2024

Wolverhampton Heat Network_CAP

Project Sponsor:

Hemiko

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	26.9
Pipework / distribution capex (£m)	32.18
Other capex (£m)	0
Total capex (£m)	**59.08**

Annual heat demand (GWh)	Not disclosed
Project IRR*	Not disclosed%

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2024	2025	2027

Project Contact Details:

Email:	BDM@tp-heatnetworks.org

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

The development of the Wolverhampton Heat Network is a new heat network in Wolverhampton city centre. This heat network shall be supplied by a mix of a 5.0 MW Air Source Heat Pump (ASHP) and 1.2MW Water Source Heat Pump (WSHP). The scheme will provide a total of 41.2 GWh/yr of heat to c. 23 buildings in the first phase delivered within the GHNF timescales.

The projected capex for the project is £61.6 m. Hemiko will be setting up a project specific Energy Services Company (ESCO) for the development of the Wolverhampton Heat Network. The ESCO will be responsible for delivering all the heat generating infrastructure, primary network up to and including each substation. We will continue to densify the networks and within our future expansion plans which will include assessing the feasibility of a wastewater treatment plan offtake (Severn Trent). Hemiko will continue to invest alongside the initial phases. The network phases that are included within this application will be delivered between July 24 – Jan 29 (4 years).

Procurement will start during the commercialisation stage; we already have an expression of interest out to local suppliers. We have engaged with Wolverhampton Council and the Highways team to kick off an initial pre-application for planning. Construction is due to start Jan 2025.

HNIP Applications – we are changing our templates and have been unable to update HNIP this quarter. For this quarter we have excluded core individual projects but the data is available within the excel template.

HNDU Development Projects

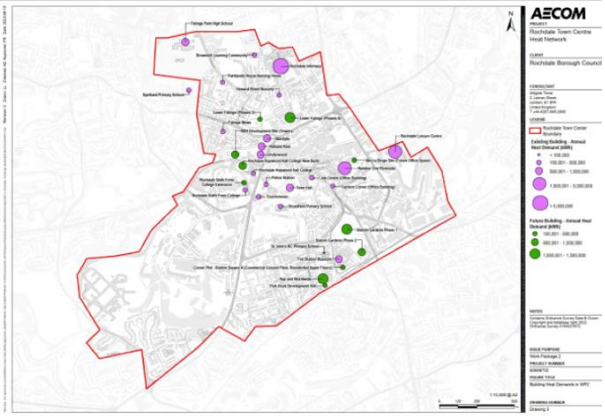
Original report date Unknown
Latest update 2025

HNDU Feasibility Rochdale Town Centre Heat Network

Project Sponsor:

Rochdale Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	10.5
Pipework / distribution capex (£m)	14.4
Other capex (£m)	11.45
Total capex (£m)	**36.35**

Annual heat demand (GWh)	30.7
Project IRR*	1,022.00%
Considering third party finance?	True

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2031	2032

Project Contact Details:

Organisation:	Unknown
Contact Name:	Mark Bramah
Email:	mark.bramah@rochdale.go
	v.uk

Technical Information:

Primary energy source:

Heat pump: sewer source

Project description:

A new District Heating Network (DHN) in the Town Centre area of Rochdale. The network will provide low carbon heat via a Sewer Source Heat Pump (SSHP) to multiple council buildings, other public sector buildings, as well as future planned developments.

Energy centre description:

A development site on Smith Street (previously Mecca Bingo) has been identified as the preferred Town Centre location for the energy centre. The site is located within the town centre near to some of the key anchor loads of the network and;

- It is situated in close proximity to a large sewer distribution along Smith Street.
- It is under the ownership of Rochdale Borough Council (RBC).
- It is located within an identified area for development.
- Importantly, it does not fall within any environmental designation areas.

Heat/cooling demand phasing description:

Based on techno-economic modelling, the network is anticipated to commence operation in 2026, encompassing all existing customers and completed developments by that time. Furthermore, the network will undergo expansion in two subsequent phases to accommodate future developments. The second phase is projected to take place in 2030, followed by a third phase in 2032. It will be useful to model a more detailed phasing breakdown when a construction programme for future developments has been produced; this could potentially be done at the detailed project development (DPD) or commercialisation stage.

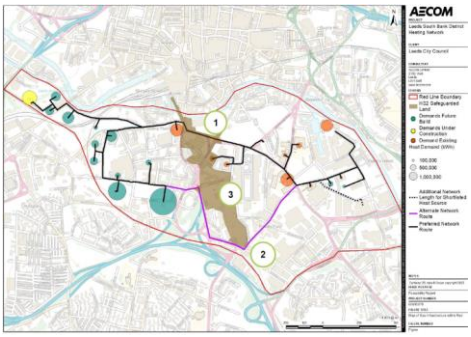
Original report date	2022
Latest update	2024

SouthbankWestEnergyNetwork_FES

Project Sponsor:

Leeds City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	19.2
Pipework / distribution capex (£m)	35.34
Other capex (£m)	11.28
Total capex (£m)	**54.53**

Annual heat demand (GWh)	55.21
Project IRR*	8.99%
Considering third party finance?	True

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2025	2025	2027

Project Contact Details:

Organisation:	Unknown
Contact Name:	Pete Midgley
Email:	peter.midgley@leeds.gov.uk

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

DHN interconnected to Leeds PIPES network, delivering low carbon waste heat recovered from an energy recovery facility. Backup, low-carbon heat from glass factory on South Accomodation Road. Will supply a number of future developments and existing public buildings in the South Bank area of Leeds.

Energy centre description:

The preferred location for an energy centre is close to the glass factory. The exact location is being explored at present.

Heat/cooling demand phasing description:

The model assumes that network operation will begin in 2027 when the first phase of the existing buildings will connect to the network, as well as those developments that are expected to be finished by this time. A second phase will begin in 2030 when the remaining developments will connect to the network in line with the anticipated build-out timescales.

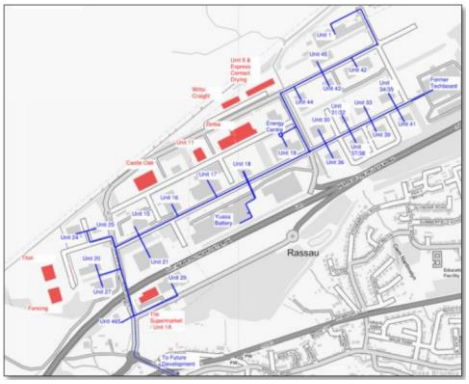
Original report date	2018
Latest update	2018

Ebbw Vale (Rassau)_FES

Project Sponsor:

Blaenau Gwent County Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	5.83
Project IRR*	9%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

CHP - gas

Project description:

Rassau Estate is an industrial park in Blaenau Gwent County. There is opportunity for a district heat network for businesses on the estate to be served by a CHP. Thirty-seven distinct loads were identified at Rassau Estate, and are exclusively private sector light industrial / manufacturing, distribution and commercial.

Energy centre description:

New energy centre would be located at Rassau Estate. Technology: CHP and back up boilers.

Heat/cooling demand phasing description:

All demand will be online day one.

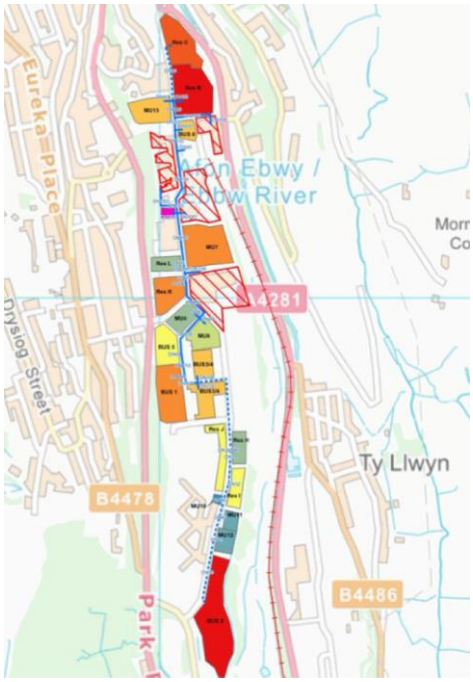
Original report date	2018
Latest update	2018

The Works_FES

Project Sponsor:

Blaenau Gwent County Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0.92
Other capex (£m)	0
Total capex (£m)	**0.92**

Annual heat demand (GWh)	43.59
Project IRR*	-4%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Boiler - biomass

Project description:

Opportunity to connect on local loads to the existing Works district heat network in the Ebbw Vale area.

Energy centre description:

Existing energy centre with CHP, biomass boilers and gas boilers. Located in Ebbw Vale.

Heat/cooling demand phasing description:

Loads are phased online over six years. Mixture of residential and commercial loads to be added over this time period. There are 19 loads added over seven years, three per year for the first five years, then two per year for the last two. Seven residential plots, five commercial plots and seven mixed use.

Original report date	2019
Latest update	2019

Bolton Town Centre Heat network

Project Sponsor:

Bolton Metropolitan Borough Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	13.8
Pipework / distribution capex (£m)	8.6
Other capex (£m)	0
Total capex (£m)	**22.4**

Annual heat demand (GWh)	9.66
Project IRR*	1%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2021	2021	2027

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Ramboll was commissioned by Bolton Council to undertake a techno-economic study on the feasibility of developing a new heat network serving Bolton Town Centre. Kew Consult was commissioned to undertake commercial and financial work and Womble Bond Dickinson were commissioned to undertake legal work.

Energy centre description:

The energy centre is proposed to be located at Black Horse Street Car Park, in Bolton town centre.
Ramboll modelled this to include:

• 2 No. Gas Engine CHP's – 2.0MWe (Total installed capacity 4.0MWe, operating between 2023-2037)

• Thermal Storage – 250m3 (Phase 1 – 2023)

• ASHP 1 – 2.0 MWth (2038 onwards)

• ASHP 2 – 2.0 MWth (2038 onwards)

Heat/cooling demand phasing description:

There are 3 phases to the project including both existing and future developments. The estimated years of connection for each phase are 2023, 2025 and 2027.

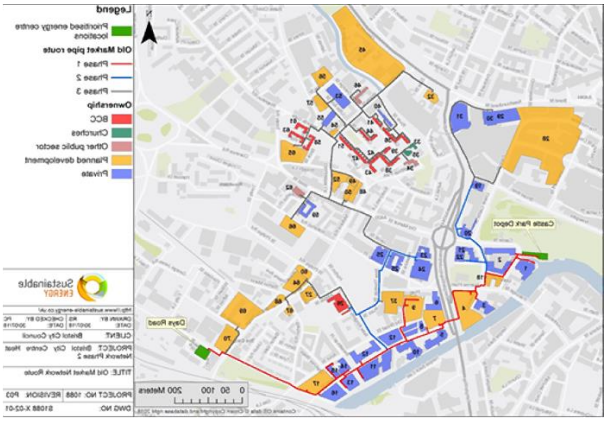
Original report date	2018
Latest update	2018

City Centre Phase 2_FES

Project Sponsor:

Bristol City Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	2.39
Pipework / distribution capex (£m)	10.86
Other capex (£m)	1.12
Total capex (£m)	**14.37**

Annual heat demand (GWh)	39.27
Project IRR*	6%
Considering third party finance?	True

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2020	2021

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

Bristol City Council_s ambition for the city to be carbon neutral by 2050 led to the council_s desire to implement heat networks throughout the city. This network is served by a WSHP and gas CHP engine (which supplies electricity to the HP) located at Castle Park Depot, abstracting water from the Floating Harbour. The phase 1 network comprises of many large planned development sites and commercial buildings. The proximity of the network to the Floating Harbour and significant planned development heat loads results in a prime opportunity for a district heat network.

Note on Bristol's Heat Network Investment Strategy: Bristol City Council is seeking external investment of up to £1 billion to support a city-scale low carbon, smart energy infrastructure programme which includes investment in the Bristol Heat Network. For more information please visit www.energyservicebristol.co.uk/prospectus/

Energy centre description:

The Castle Park Depot energy centre includes a combination of gas CHP, WSHP and peak and reserve gas boilers, integrated with thermal storage tanks. The gas boilers will be used to provide heat at times of peak demand and when network temperatures are required to be higher than the heat pump set point, or as a reserve heat source during times of gas CHP or WSHP maintenance or failure. Controls will prioritise heat from the gas CHP unit and WSHP using thermal stores with priority over the gas peak and reserve boilers to maximise the use of low carbon technologies.

Heat/cooling demand phasing description:

The phase 1 network option connects routes of high linear heat density to privately owned sites and planned developments. Phase 2 connects Hannah More Primary School (owned by BCC) and additional private sector and planned development sites. The phase 3 network extends to a significant number of connections including lower linear heat density routes, longer term planned developments and surrounding existing sites.

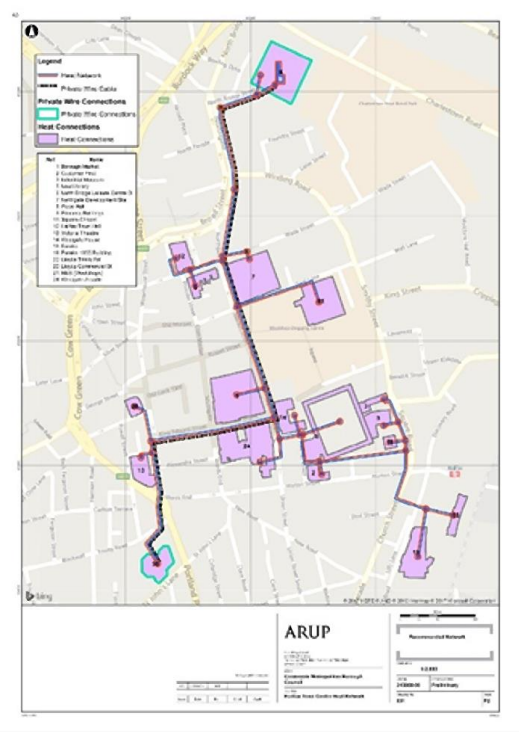
Original report date	2017
Latest update	2024

Halifax Town Centre_FES

Project Sponsor:

Calderdale Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	Not disclosed
Pipework / distribution capex (£m)	Not disclosed
Other capex (£m)	Not disclosed
Total capex (£m)	**Not disclosed**

Annual heat demand (GWh)	4.5
Project IRR*	Not disclosed%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2019	2020	2021

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

CHP - gas

Project description:

The network is designed around CMBC buildings incorporating all viable CMBC owned buildings in the Town Centre, including the Town Hall, Piece Hall, Northgate Development Site and North Bridge Leisure Centre Development amongst others. The scheme also connects to key private consumers in the area.

Energy centre description:

Both gas CHP and ground source heat pump solutions have been modelled. Gas CHP was not deemed suitable due to key stakeholders' net zero ambitions. Three sites for ground source heat pumps have been considered, as no single site is likely to supply enough heat for the proposed network.

Heat/cooling demand phasing description:

A three-phase build has been proposed. Both Council and third party assets are considered as connections. Financial case work has shown barriers to delivery in that current deployment costs and grants are not sufficient to return a positive IRR on the project. Work is currently paused pending changes in market conditions.

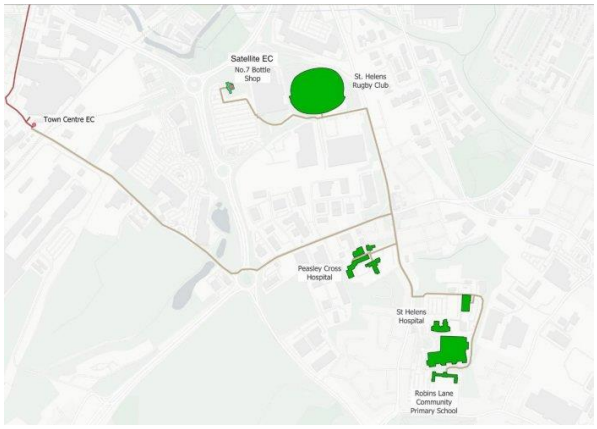
Original report date	2024
Latest update	Unknown

Cannington Shaw Heat Network_FES

Project Sponsor:

St Helens Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	0
Project IRR*	10.4%
Considering third party finance?	True

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2026	2026	2028

Project Contact Details:

Organisation:	Unknown
Contact Name:	Andy Cutts
Email:	andycutts@sthelens.gov.uk

Technical Information:

Primary energy source:

Heat pump: waste heat source

Project description:

Project purpose to establish feasibility of a heat network in the Cannington Shaw area of St Helens. There are two approaches for consideration:

1. Extension from the proposed town centre heat network.

2. Standalone heat network, with a new energy centre located next to No.7 Bottle Shop redevelopment.

The project concluded that an extension from the proposed town centre heat network is the preferred solution. The option also includes an additional satellite energy centre located at No7 Bottle Shop redevelopment, based on a gas / hydrogen ready CHP heat generating asset.

The project metrics presented are based on the extension to Cannington Shaw, and only consider building connections for this area.

Energy centre description:

The town centre energy centre is based on using waste heat offtake from a local industrial site, Pilkington's Greengate site. The waste heat supplies a WSHP that is the main heat generating asset for the network. Natural gas (hydrogen ready) boilers provide top-up.

The No7 Bottle Shop redevelopment satellite energy centre, is based a natural gas (hydrogen ready) CHP. This heat generating assets provides additional heat and improve resilience of the network.

Heat/cooling demand phasing description:

A Detailed Project Development (DPD) study for the town centre, was in October 2023. From the DPD, 5no building connections are proposed across 3 phases, with a total heat demand of 7.8 GWh/a.

The Cannington Shaw extension TEFS proposes an additional 5no building connections, with a total heat demand of 10.2 GWh/a. Therefore total building heat demand on the St Helens network is c.18.0 GWh/a

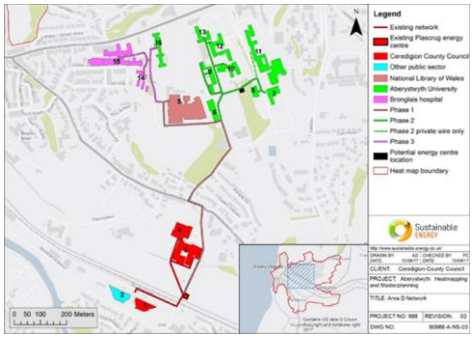
Original report date	2017
Latest update	2017

Aberystwyth_MAP

Project Sponsor:

Ceredigion County Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	1.77
Pipework / distribution capex (£m)	2.17
Other capex (£m)	0
Total capex (£m)	**3.94**

Annual heat demand (GWh)	19.28
Project IRR*	4%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Boiler - biomass

Project description:

There is potential to extend the existing district heating network at Plascrug (currently connecting Ceredigion County Council (CCC) offices, Welsh Government offices, Ysgol Penweddig and Plascrug Leisure Centre) extending to include the National Library of Wales, Aberystwyth University and Bronglais Hospital. The network would be served by the existing biomass boiler, gas CHP and an additional biomass boiler. The project would have a material impact on heat decarbonisation in Aberystwyth. Benefits for CCC include reducing carbon emissions, potential revenue generation, reducing operational / energy costs, utilising local energy sources, improving energy security, and reducing fuel poverty.

Energy centre description:

The network would be served from 2 energy centres; the existing Plascrug energy centre and a new energy centre at Aberystwyth University. Plascrug would house the 500kWe gas CHP engine and backup boilers required for phase 1. For additional network phases, backup boilers would need to be housed at Aberystwyth University. Gas CHP units for additional network phases would be located in containerised units adjacent to the existing Plascrug energy centre. For the full phase 3c network, an additional area of approximately 300m2 would be required adjacent to the Plascrug energy centre and approximately 220m2 at Aberystwyth University.

Heat/cooling demand phasing description:

Phase 1 will extend the existing network to the National Library of Wales and connect existing heat network connections to private wire. Phase 2 will connect key buildings at Aberystwyth University. Phase 3 will then connect Bronglais Hospital and Pantycelyn (an additional Aberystwyth University building).

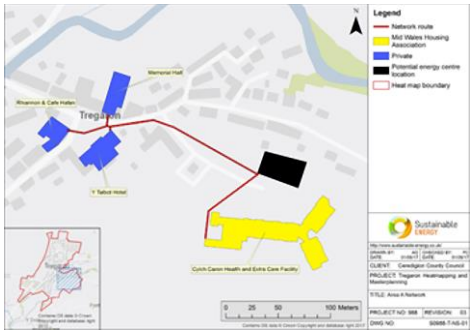
Original report date	2017
Latest update	2017

Tregaron_MAP

Project Sponsor:

Ceredigion County Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0.23
Pipework / distribution capex (£m)	0.16
Other capex (£m)	0
Total capex (£m)	**0.4**

Annual heat demand (GWh)	1.05
Project IRR*	7%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Boiler - biomass

Project description:

A district heat network in this area would supply heat to Cylch Caron planned development, Y Talbot Hotel, Rhiannon and Café Hafan, and the Memorial Hall by means of a biomass boiler. The network will provide benefits to Ceredigion County Council (CCC) including generating revenue, local carbon reduction, and utilising local energy sources, through woodchip purchase. The network could also potentially improve energy security and resilience against rising energy prices.

Energy centre description:

An energy centre and woodfuel delivery area to accommodate a 250 kW biomass boiler would require a land area of approximately 1,000 m2. It has been assumed that this would be located adjacent to the Council-owned car park to the north of the Cylch Caron development.

Heat/cooling demand phasing description:

No potential viable network extensions have been identified. The network has therefore been presented as a single phase.

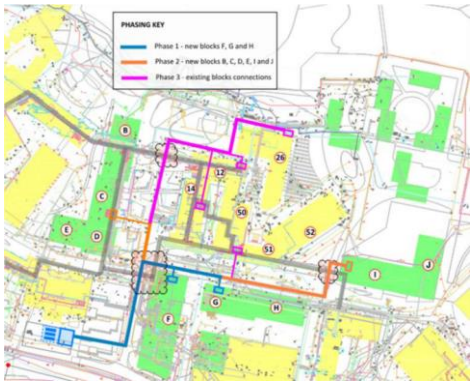
Original report date	2020
Latest update	2020

Alderley Park_DPD

Project Sponsor:

Cheshire East Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	5.83
Pipework / distribution capex (£m)	1.35
Other capex (£m)	0
Total capex (£m)	**7.18**

Annual heat demand (GWh)	2.58
Project IRR*	2%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2025

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

Network at Alderley Park - Ambient loop solution utilising WSHPs in buildings and aquifer water used via PHEX, ASHPs and CHP wasted heat in energy centre.

Energy centre description:

New energy centre proposed to be built to the south of the site to accommodate all equipment. Phase 1 assumes same energy centre location and specifications to account for future expansion

Heat/cooling demand phasing description:

Phase 1 – Serving buildings F, G and H, 4 boreholes initially. Two abstraction and 2 return

Phase 2 – Connection of B, C, D, E, I and J with additional capacity from open loop boreholes (another 4)

Phase 3 – Ambient loop extended to laboratory (existing) buildin. Continual energy saving through improved network and building efficiencies

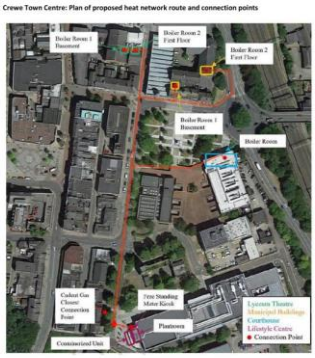
Original report date	2015
Latest update	2015

Crewe Town Centre_DPD

Project Sponsor:

Cheshire East Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	11
Project IRR*	2%

Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Heat and Power from CHP, with gas back up. Heat to be provided to Lifestyle Centre, Courthouse, Lyceum Theatre and Municipal Buildings. Electricity sold to Lifestyle Centre, Lyceum Theatre and Municipal buildings via a private wire network.

Energy centre description:

Energy Centre to include 360kWe (389 kWth) CHP, 600 kW gas boiler, and 50m3 thermal store. Potential EC location in an extension of the plantroom of the Lifestyle Centre. The extension footprint to house scheme energy plants is proposed over two floors.

Heat/cooling demand phasing description:

Peak heat demand will be met by existing and new CHP and supplementary gas boiler. Heat network will be installed as a single phase but has been sized to allow expansion into planned developments in close proximity to the network.

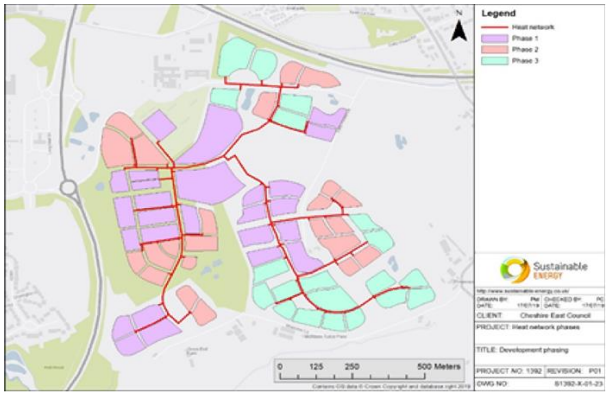
Original report date	2019
Latest update	2019

North Cheshire Garden Village_FES

Project Sponsor:

Cheshire East Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.18
Pipework / distribution capex (£m)	4.83
Other capex (£m)	0.52
Total capex (£m)	**8.53**

Annual heat demand (GWh)	15.28
Project IRR*	-1%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	1905	1905

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

The Garden Village at Handforth network serves the proposed garden village developments and is served by a ground source heat pump (GSHP) located at the centre of the development site. The network connects the garden village developments only that are to be designed for DH connection and allows for lower network temperatures. BGS borehole records suggest the site is a suitable location for GSHPs.

Energy centre description:

The energy centre is located in Parcel 9 of the development, at the centre of the site, near the village centre. The energy centre is to include 580 kW GSHP and a 389 kWth gas CHP installed in phase 1 and additional 580 kW GSHPs installed in phase 2 and 3 to serve the later development phases.

Heat/cooling demand phasing description:

The network phasing follows the development phasing. Phase 1 connects the majority of the village centre, including the primary school and the extra care facility. The high density housing located towards the centre of the site is also connected in phase 1. Phase 2 connects the remaining village centre buildings and further residential parcels. Phase 3 connects the remaining and primarily lower density housing.

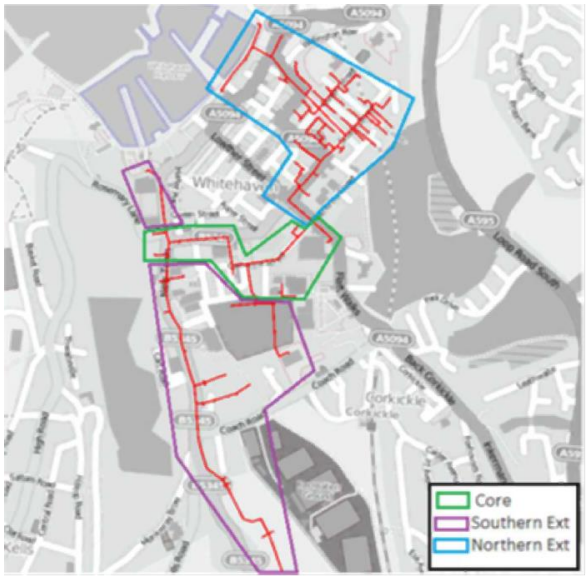
Original report date	2016
Latest update	2016

Whitehaven Minewater Heat Kells Lane_FES

Project Sponsor:

Copeland Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	6.03
Project IRR*	4%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2021	2021

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: mine water

Project description:

Feasibility shows that minewater-fed network for Whitehaven town centre is technically feasible though financial performance is very poor, and without RHI payments the scheme is highly unlikely to make an operating surplus. Analysis shows that a low temperature scheme, serving only new developments with low temperature heating systems would make a profit, and without grant funding approaches an investible IRR. Such a scheme is dependent on buildings that do not yet exist so scheme development will need to wait until their construction is more certain.

Energy centre description:

Suitable locations for an energy centre to house a 4MW minewater heat pump and ancillary equipment were identified. The preferred site – Castle Meadows car park – is council-owned and is in close proximity to a suitable minewater abstraction borehole and the key heat loads.

Heat/cooling demand phasing description:

For the low temperature network, connections begin in 2021; Civic Quarter replacement, Plot 1 of The Ginns, Plot 1 of the Meadows, 13 Quay St developments. 2022: Plots 2 and 5 the Ginns, Plot 2 at 6 The Meadows. 2023 Plot 3 at the Ginns, and Plot 3 at 6 the Meadows, Preston St Gateway developments. 2024: Plot 4 at 6 the Meadows. 2025: Plot 4 The Ginns. 2026: Plot 5 at 6 The Meadows.

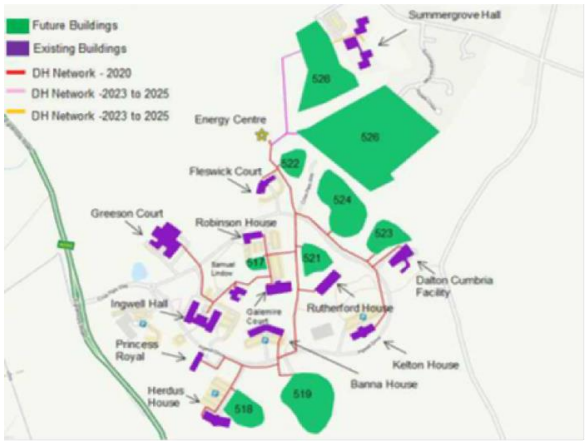
Original report date	2016
Latest update	2016

Whitehaven Westlakes Science Park_FES

Project Sponsor:

Copeland Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.67
Pipework / distribution capex (£m)	4.04
Other capex (£m)	2.72
Total capex (£m)	**10.43**

Annual heat demand (GWh)	5.1
Project IRR*	-2%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2020

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: mine water

Project description:

The preferred option is for a network to supply the Westlakes Science Park, though the IRRs are unlikely to be investible even with HNIP funding. It has been advised that further funding be sought in addition to HNIP. (p.116). Investigations considering viability of connecting the Eastern Whitehaven cluster did not improve the economics. The Westlakes Science Park is a majority private sector proposal, that would serve non-domestic loads.

Energy centre description:

A new energy centre site to the north side of Westlakes Science Park has been identified as the preferred option. The network would be supplied by 2x 1180kWth gas CHP engines. (p.62)

Heat/cooling demand phasing description:

The network is proposed in 3 phases. The first connections (a selection of existing and planned buildings) are planned in 2020, the second phase includes the proposed buildings known as Plot 526, and the third phase, Summergrove Hall is planned for after 2025.

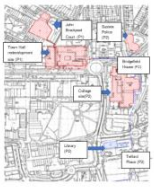
Original report date	Unknown
Latest update	2024

Town Centre Heat Network_COM_CST

Project Sponsor:

Crawley Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	6.14
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**6.14**

Annual heat demand (GWh)	14.85
Project IRR*	3%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2020	2022

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

CHP - gas

Project description:

The first phase of the Crawley Town Centre heat network construction was completed in May 2022. The heat network serves the new Town Hall and commercial offices (11,700 m2) as well as two adjacent new residential developments with a total of 128 units. Total heat demand of 1.3 GWh. Feasibility study for phase 2 expansion (heat demand 10.5 GWh) to start in Spring 2022.

Energy centre description:

The main heat source is a 133kWe gas fired CHP. The energy centre has been constructed as phase 2 ready as far as possible, so that the phase 1 investment can be maximised.

Heat/cooling demand phasing description:

128 new residential units connected in May 2022 with the New Town Hall and Commercial offices connected in October 2022. Further development on the site for remaining residential units are in feasibility stage. Phase 2 connections include a police station, a library, a college and new residential and commercial developments that are all located within the town centre zone covered by the Local Plan Heat Network Planning Policy ENV 7.

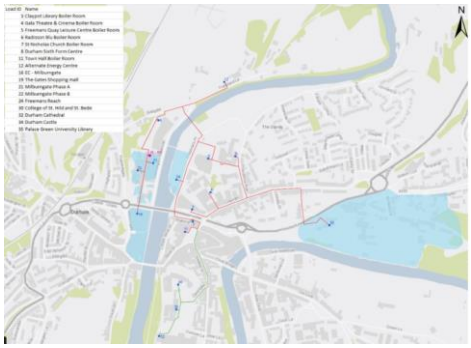
Original report date	2017
Latest update	2017

Durham Town Centre_FES

Project Sponsor:

Durham County Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	4.94
Pipework / distribution capex (£m)	4.38
Other capex (£m)	1.84
Total capex (£m)	**11.15**

Annual heat demand (GWh)	4.06
Project IRR*	3%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2019

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The core scheme is based upon new and existing public and private sector development on the east and west side of the River Wear. River Source or Sewerage Source Heat pumps are to be the primary heat generators. CHP will not be considered.

Energy centre description:

A number of energy centre locations have been considered. The feasibility was based upon the energy centre being located in the Milburn Gate development. The best economically performing option of the preferred scenarios is for 2x1MW River Source Heat pump.

Heat/cooling demand phasing description:

The heat demand for the Town Centre North and Northern Quarter is 4055MWh in 2019, rising to 8,267MWh in 2020, 11,647MWh in 2021 and finally 14,769MWh in 2022. The Council is unlikely to develop a private wire network.

Original report date	Unknown
Latest update	2024

Durham University_FES

Project Sponsor:

Durham University

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	1.23
Total capex (£m)	**0**

Annual heat demand (GWh)	37.58
Project IRR*	0%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2026	2027

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

Since initial heat network proposals, the university has developed a strategic case for decarbonising heat, as such, former conclusions that a CHP only system would be preferable have been revised.

Energy centre description:

It is likely that a heat network serving the university would be split into several sections with several energy centres to allow for a phased approach.

Heat/cooling demand phasing description:

The scheme is divided up into clusters-the Northern, Western and Southern clusters. These clusters will be connected in phases as follows. North cluster 4.7 MW with potential heat recovery from onsite data centre. West cluster in year, 5.3 MW thermal output and Southern Cluster 8.2 MW thermal output. This phasing arrangement and timetable has been used for theoretical demonstration purposes, and the real timetable will depend on the University construction timetable.

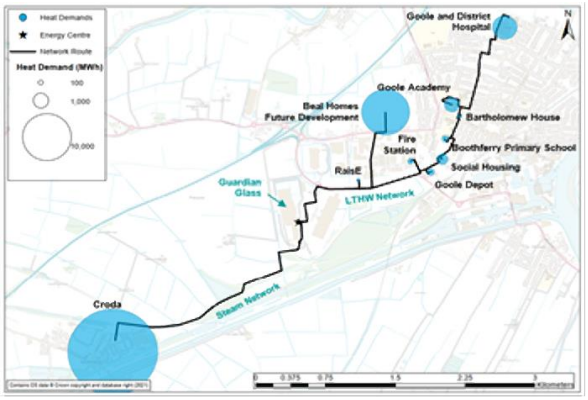
Original report date	2020
Latest update	2020

Goole District Energy Network_DPD

Project Sponsor:

East Riding of Yorkshire Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.23
Pipework / distribution capex (£m)	19.08
Other capex (£m)	4.82
Total capex (£m)	**27.14**

Annual heat demand (GWh)	30.76
Project IRR*	6%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2023	2024

Project Contact Details:

Organisation:	Unknown
Contact Name:	Ben Smith
Email:	Ben.smith@eastriding.gov.uk

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

The Goole District Heat Network will harness waste heat from a glass manufacturing plant (Guardian Glass) to supply LTHW heat and process steam to a mixture of residential, commercial and industrial sites. The network makes use of heat that is currently rejected to the atmosphere to faciliate the decarbonisation of public and private sector buildings in and around Goole.

Energy centre description:

Energy centre located on the Guardian Glass site nearby to the source of waste heat. EC contains gas boilers for peaking and back-up along with 75m3 of thermal storage and water treatment etc.

Heat/cooling demand phasing description:

The Goole District Heat Network has been modelled over 3 phases (heat on 2024, 2030 and 2035). Connection dates principally based on ages of existing plant but most buildings expected to connect in phase 1.

Original report date	2016
Latest update	2016

East Runcorn Daresbury Energy Network_FES

Project Sponsor:

Halton Borough Council

Network Map:

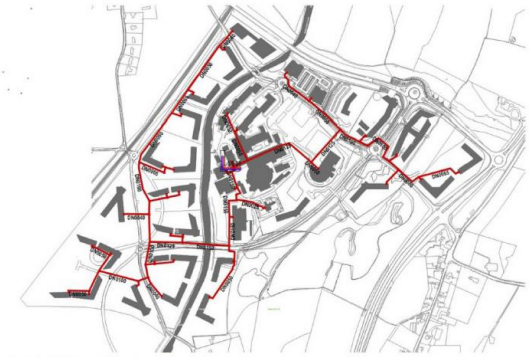


Figure 2-4 SIC Gas CHP heat network

Summary forecast financial information:

Energy generation capex (£m)	3.45
Pipework / distribution capex (£m)	4.77
Other capex (£m)	1.9
Total capex (£m)	**10.12**

Annual heat demand (GWh)	13.65
Project IRR*	6%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2034

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Boiler - EfW

Project description:

Over the next twenty years the construction of a new community in East Runcorn - with up to 2800 new homes alongside new schools and retail buildings, and the expansion of the existing Science and Innovation Campus and Business Park - represents a significant opportunity to develop a shared energy network.

Energy centre description:

Gas CHP is assumed to provide baseload heat, hot water and power, with 3.3 MW (thermal) CHP and 5.8 MW of gas boilers required once all consumers are connected. Absorption chillers are considered for use to supply cooling to the Science and Innovation Campus data centre.

Heat/cooling demand phasing description:

First stage connection forecast (as at 2016) to connect in 2018 with 4.5MW of thermal capacity installed (estimated 1.16GWh p.a. heat demand). This increases to installed capacity of 8MWth in 2026 (estimated 9.92GWh p.a. heat demand) rising to full capacity of 9MWth in 2031 (estimated 12.56GWh p.a. heat demand).

Original report date	2024
Latest update	Unknown

PaddingtonVillage_DPD

Project Sponsor:

Liverpool City Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	5.07
Pipework / distribution capex (£m)	1.16
Other capex (£m)	0
Total capex (£m)	**6.23**

Annual heat demand (GWh)	1.09
Project IRR*	0%
Considering third party finance?	True

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
1899	2026	2021

Project Contact Details:

Organisation:	Unknown
Contact Name:	Simon Mansfield
Email:	Simon.Mansfield@liverpool.gov.uk

Technical Information:

Primary energy source:

Heat pump: waste heat source

Project description:

The Paddington Village DEN was built through 2020/21 to serve the first (Central) phase of the new development, located in Liverpool's Knowledge Quarter. It is currently served by gas CHP, however this project has identified that the most cost effective way to decarbonise the network is via install of heat pumps which utilise waste heat from a data centre, provided by Deep Green.

Energy centre description:

The existing energy centre sits below the multi-storey car park. This energy centre is suitably sized for the new heat pumps to sit in the spare & existing CHP bays. There is also space on the roof of the car park for DACs, which will act as a backup heat source for the heat pump package should heat from the data centre notbe available.

Heat/cooling demand phasing description:

The extension of the network to the rest of Paddington Central & South takes over 12 years. For the purposes of this form, it is kept as one phase.

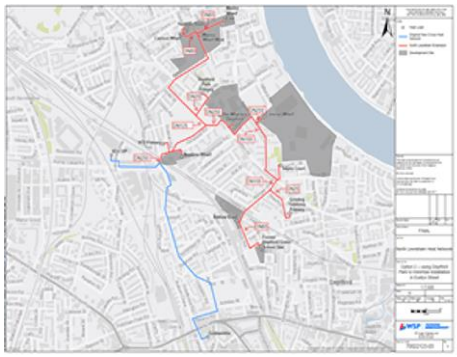
Original report date	2017
Latest update	2017

North Lewisham Heat Network_FES

Project Sponsor:

London Borough of Lewisham

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	47.11
Project IRR*	15%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Boiler - EfW

Project description:

The opportunity is to connect the SELCHP energy from waste facility to a number of new developments in the north Lewisham area. The North Lewisham continues from the point of interface with the New Cross study, which is the junction of Surrey Canal Road and Grinstead Road. The pipework running between SELCHP and this interface point (i.e. down Surrey Canal Road) was assessed in the previous feasibility study and the sizing included an allowance for the loads included in this North Lewisham extension study.

Note that the use of two different heat network names across the two studies gives the impression that there would be two separate heat networks – the New Cross and the North Lewisham heat networks. These two names are used to define two separate studies, focusing on two areas of what would be the same heat network if all loads connected.

Energy centre description:

n/a - all heat to be supplied by SELCHP.

Heat/cooling demand phasing description:

The scope of this feasibility assessment is therefore to build upon the analysis undertaken in theNew Cross Heat Network feasibility assessment to include the following development sites: The Wharves, Deptford; Cannon Wharf; Marine Wharf East; Marine Wharf West; Yeoman Street; Neptune Wharf; Convoys Wharf; Arklow Road. Annual heat demand is estimated at 47GWh.

LBL planning officers and local housing associations will also be consulted to determine whether there are additional sites that should be considered for connection.

Original report date	2022
Latest update	2022

Chatham Maritime_FES

Project Sponsor:

Medway Council

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	66.66
Project IRR*	2%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

Network 2 encompasses Network 1 consumers north of Chatham town centre, key consumers including Medway Campus, Royal School of Military Engineering, Medway council and Chatham Historic Dockyard properties as well as an expansion including the Medway Maritime Hospital and Brompton Academy. The network is supplied by water-source heat pumps utilising the Medway River as source of heat.

Energy centre description:

The energy centre is located on the riverside at H1 development site or in an identified existing building in Chatham Historic Dockyard. The EC houses the WSHP units, peak/backup gas boilers and heat storage.

Heat/cooling demand phasing description:

Apart from the H1 development, all other consumers within the area are existing consumers. Consumers can be connected to the network immediately as the network is built. Hospital and Bromspton Academy are connected last (year 3)

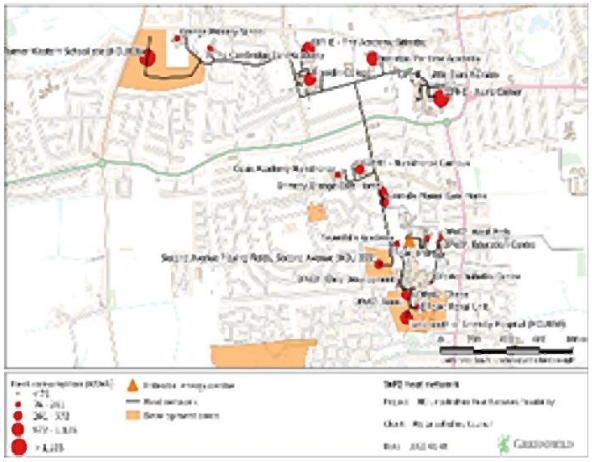
Original report date	2020
Latest update	2024

GIFHE(peak)_FES

Project Sponsor:

Northern Lincolnshire and Goole NHS Foundation Trust

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	15.16
Pipework / distribution capex (£m)	1.96
Other capex (£m)	3.25
Total capex (£m)	**17.11**

Annual heat demand (GWh)	20.69
Project IRR*	1,150.00%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2022

Project Contact Details:

Organisation:	Unknown
Contact Name:	simon tighe
Email:	simon.tighe@nhs.net

Technical Information:

Primary energy source:

Waste heat recovered (no heat pump)

Project description:

Heat network serving the main Diana Princess of Wales Hospital replacing the existing steam boilers to LTHW heat network. Future phases to include hospital satellite buildings, Grimsby Tec Partnership and surrounding heat demands This OBC is for the NHS Trust to take forward, rather than the original project sponsor, NELC.

Energy centre description:

Energy centre is proposed to be located on the estate of Diana, Princess of Wales Hospital in the existing main boiler house and adjacent land. The energy centre is proposed to employ 1 x 1.5MW ASHP and 1 x 1.8MW GSHP and 2 x 4.5MW gas boilers The heat pumps will be located in the existing Diana Princess of Wales boiler house and existing steam boiler and gas CHP removed. Acoustic enclosure will be located on land adjacent to the boiler house.

Heat/cooling demand phasing description:

Phase 1 will be the hospital main site, phase 2 remaining satellite buildings on the DPoW site and then future phases built out by distance and demand. See network map.

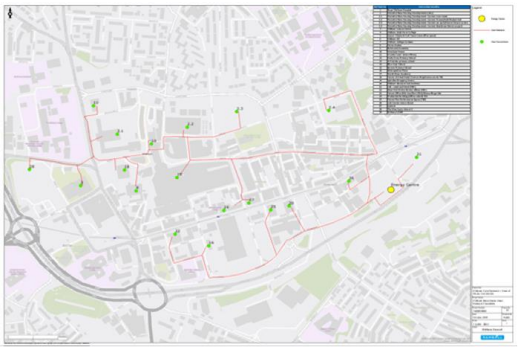
Original report date	2020
Latest update	2020

Oldham_MWSHP Town Centre_Scenariro 1A_FES

Project Sponsor:

Oldham Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	6.82
Pipework / distribution capex (£m)	5.51
Other capex (£m)	5.35
Total capex (£m)	**17.68**

Annual heat demand (GWh)	12.5
Project IRR*	0%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
2022	2023	2024

Project Contact Details:

Organisation:	Unknown
Contact Name:	Andrew Hunt
Email:	andrew.hunt@oldham.gov.uk

Technical Information:

Primary energy source:

Heat pump: mine water

Project description:

Ramboll was appointed by Oldham Metropolitan Borough Council (OMBC, the Council) in June 2020 to undertake a techno-economic feasibility study for a new District Heating Network (DHN). The aim is to supply with low carbon heat the Oldham Town Centre redevelopment area, including ground source heat using mine water from disused coal mines beneath the town centre as the main energy source. Throughout the study, Ramboll has closely engaged with Oldham Council to inform its work, especially regarding new developments in the Civic Quarter and regeneration areas of the Town Centre.

Energy centre description:

The Energy Centre is assumed to be located at the Rhodes Bank site. This site was identified as the preferred location for a borehole by the Coal Authority. If the trial borehole is not successful, an alternative location would be the Woodstock Street site. The footprint of the Energy Centre is 25m x 16m (LxW), 400m2. The Energy Centre houses 4 MW MWSHP, 3No. 3.5 MW gas boilers (1 of these to be installed for Phase 4), 1No. 480kW summer gas boiler, DH pumps, pressurisation units, expansion vessels and ancilliary equipment. 2No. 100m³ thermal stores are located outside the Energy Centre main building.

Heat/cooling demand phasing description:

The core connections were assessed for when they could practically connect to a district heating network. The DHN is proposed to be built in 5 phases, from 2023 to 2027 with heat supply date being 2024. Existing commercial buildings proposed to be connected to the district heating were given a connection date of 2024 (Phase 1). For new developments, the Client provided indicative connection year. Potential new housing developments have been assumed to connect in 4 phases between 2025 and 2028.

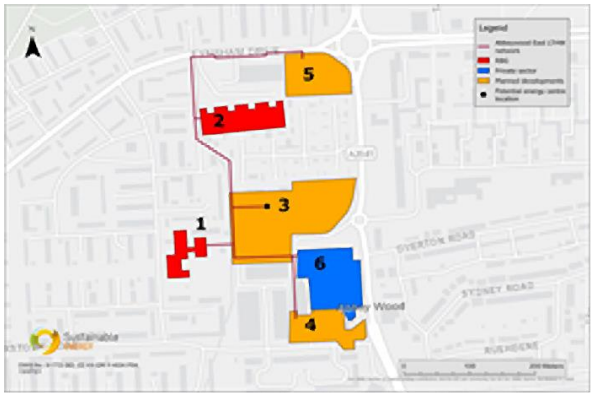
Original report date	2021
Latest update	2021

RBGreenwichAbbeywoodE_FES

Project Sponsor:

Royal Borough of Greenwich

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	1.55
Pipework / distribution capex (£m)	0
Other capex (£m)	0.51
Total capex (£m)	**2.06**

Annual heat demand (GWh)	6.05
Project IRR*	3%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2023	2024

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

A cluster of heat demands around the Cross Quarter development has been identifed as a potential heat network being served by the proposed tranmission main.

Energy centre description:

The preferred energy centre location is within the Cross Quarter development. Further engagment with the developers are required to secure this EC location.

Heat/cooling demand phasing description:

• Phase 1: connects existing buildings including Boxgrove Primary School, Thistlebrook Industrial Estate and Sainsbury_s as well as the Cross Quarter planned development

• Phase 2: connects key planned developments, these include the Land at Felixstore Road and Cross Quarter developments

Original report date	2021
Latest update	2021

RBGreenwichDecentralised Energy_FES

Project Sponsor:

Royal Borough of Greenwich

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	7.65
Pipework / distribution capex (£m)	4.7
Other capex (£m)	1.08
Total capex (£m)	**13.44**

Annual heat demand (GWh)	16.76
Project IRR*	5%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2023	2024

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The Charlton area has been identified as a regeneration area and there is an opportunity to serve the large amount of new developments with a heat network

Energy centre description:

An energy centre located within the RBG Commercial development is currently the preferred option. This will house a _3.5MW water source heat pump abstracting from the Thames.

There is an alternative EC location on the riverside which is currently owned by Cory and has been indicated as potentially available for rent. This should be explored further as the project progresses.

Heat/cooling demand phasing description:

• Phase 1: connects short term key planned developments including Stone Foundries, 9 Herringham Road and existing sites such as Sainsbury_s Thameside and Royal Greenwich Trust School.

• Phase 2: connects medium term planned developments including VIP Trading Estate, RBG Commercial, RBG Residential and Proposed 3FE School site.

• Phase 3: no additional heat demands are connected, but a connection to the proposed transmission main is made.

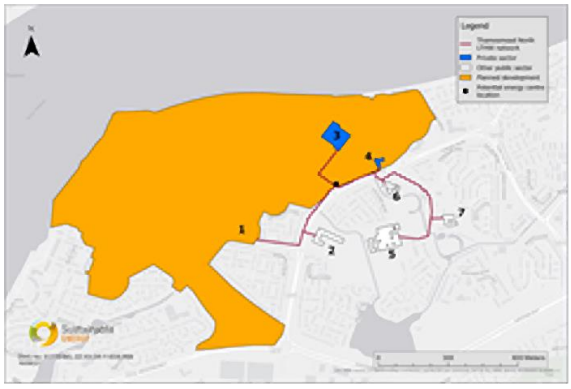
Original report date	2021
Latest update	2021

RBGreenwichThamesmeadN_FES

Project Sponsor:

Royal Borough of Greenwich

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	7.06
Pipework / distribution capex (£m)	0
Other capex (£m)	6.86
Total capex (£m)	**13.91**

Annual heat demand (GWh)	22.17
Project IRR*	21%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2031	2032

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

The Thamesmead North area is the location of the Thamesmead Waterfront development of 15,000 homes. This has been identified as an area for a potential heat network which could connect existing buildings, allowing them to decarbonise in the most cost effective manner.

Energy centre description:

The preferred energy centre location is in the shopping centre car park, however further disucssions with developers of Thamesmead Waterfront are required to determine if housing the energy centre within the development is a viable option.

Heat/cooling demand phasing description:

• Phase 1: connects the first third of the Thamesmead Waterfront development alongside existing sites such as Woolwich Polytechnic School for Boys, Hawksmoor School and Thamesmead Medical Associates.

• Phase 2 & 3: each connect another third of the Thamesmead Waterfront

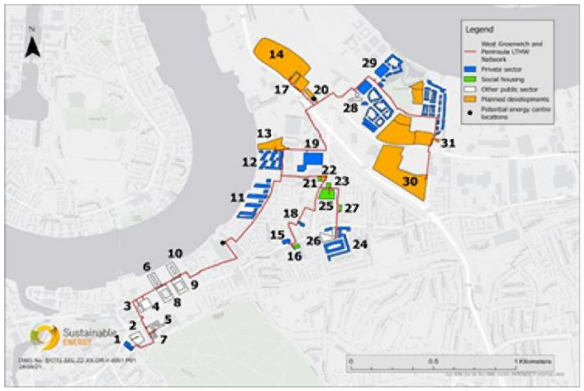
Original report date	2021
Latest update	2021

RBGreenwichWestGrPen_FES

Project Sponsor:

Royal Borough of Greenwich

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	16.63
Pipework / distribution capex (£m)	0
Other capex (£m)	9.46
Total capex (£m)	**26.09**

Annual heat demand (GWh)	29.27
Project IRR*	2%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2023	2024

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

A network serving several existing comunally heated developments, Greenwich University and Maratime museum.

The main heat source will be a water source heat pump, and the network will connect to the proposed transmission main from Cory EfW when available.

Energy centre description:

Two proposed energy centres:

Greenwich Power Station houses a 5MW heat pump in phase 1 and an additional 5MW heat pump in phase 3.

The Pinnacle Power/KnightDragon energy centre houses the required peak and reserve boilers and is also the connection point for the proposed transmission main in 2040.

Heat/cooling demand phasing description:

• Phase 1: connects short term key planned developments including Greenwich Millennium Village phases 3, 4 and 5 and Site Between A102 and Millennium Way, as well as key existing sites including Greenwich Wharf, Enderby Wharf phase 1 and Greenwich Millennium Village phase 1 and 2.

• Phase 2: connects the medium term planned developments Enderby Wharf phase 2 and 87 Blackwall Lane

• Phase 3: connects long term planned developments including Site Between A102 and Bugsby_s Way, Knight Dragon and Millennium Retail Park

Original report date	2021
Latest update	2021

RBGreenwichWoolwichTC_FES

Project Sponsor:

Royal Borough of Greenwich

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	9.94
Pipework / distribution capex (£m)	29.06
Other capex (£m)	0
Total capex (£m)	**39.01**

Annual heat demand (GWh)	19.44
Project IRR*	2%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2033	2034

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: water source - centralised

Project description:

The Woolwich Town Centre has been identified as an area of high heat density with a mix of existing buildings and planned developments.

Energy centre description:

The energy centre at the Monk Street car park site will house a _5MW water source heat pump abstracting from the river Thames. The energy centre size is limited by the available footprint and so the scheme will be restricted in size until a connection to the proposed transmission main is made.

Heat/cooling demand phasing description:

• Phase 1: focuses on connecting short term planned developments, in the case of Woolwich Town Centre this is defined as any planned development assumed to be connecting before 2030. These include Mortgramit Square, Island Site and Woolwich Leisure. This phase also connects existing buildings such as Plantagenet House, Woolwich New Road 47 and Woolwich Dockyard

• Phase 2: connects more existing buildings, including both private and public sector owned connections, such as Gill Court, Former Woolwich Theatre and Ogilby Housing Society Site

• Phase 3: connects long term planned developments such as Burrage Road/Spray Street, Royal Artillery Barracks and Former New Look

Original report date	2021
Latest update	2025

2019/20 HNDU_ Notting Dale Heat Network DPD

Project Sponsor:

Royal Borough of Kensington and Chelsea

Network Map:

Summary forecast financial information:

Energy generation capex (£m)	2.4
Pipework / distribution capex (£m)	9.44
Other capex (£m)	2.26
Total capex (£m)	**14.1**

Annual heat demand (GWh)	6.94
Project IRR*	Not disclosed%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	2026	2029

Project Contact Details:

Organisation:	Unknown
Contact Name:	James Caspell
Email:	James.Caspell@rbkc.gov.uk

Technical Information:

Primary energy source:

Heat pump: air source

Project description:

The Lancaster West Estate (LWE) is located within the Notting Dale Ward, in the Royal Borough of Kensington and Chelsea (RBKC) and is currently undergoing a comprehensive refurbishment to deliver on a government promise to “Deliver a model social housing estate for the 21st century where residents can live in affordable comfort”. The deep energy retrofit will improve the energy performance of the Council’s housing stock, whilst the Notting Dale Heat Network project will provide a new zero-carbon heat network for up to 826 existing homes on the Lancaster West Estate (75% social rent); Kensington Leisure Centre and Baseline Studios (start-up business units). The two existing heat networks, which supply 80% of homes on Lancaster West Estate, are over 40 years’ old and time expired. The lack of individual control in people’s homes is a significant source of resident complaints, alongside frequent outages.

Energy centre description:

The new heat network’s energy centre will use a large Air Source Heat Pump and electric boiler, to make the Notting Dale Heat Network 100% zero-carbon by 2030. Having been co-designed with residents, the renewable heat network is a key strategic asset in the council's plans for the Estate to become carbon-neutral by 2030. It will also create a launchpad for significant heat network expansion, with the opportunity for wider roll-out able to help the council deliver a net-zero carbon Borough by 2040. The project is supported by HNDU, HNIP and the GLA’s Local Energy Accelerator.

Heat/cooling demand phasing description:

The buildings will be connected to the Notting Dale heat network across four phases, as shown below:

- Phases 1 and 2 would come online in Spring 2025
- Phase 3 would come online in April 2026
- Phase 4 would come online in April 2029

The phasing schedule was developed in line with the requirements of the refurbishment programme, technical viability, commercial aspects, and RBKC’s strategic objective to be carbon neutral by 2030.

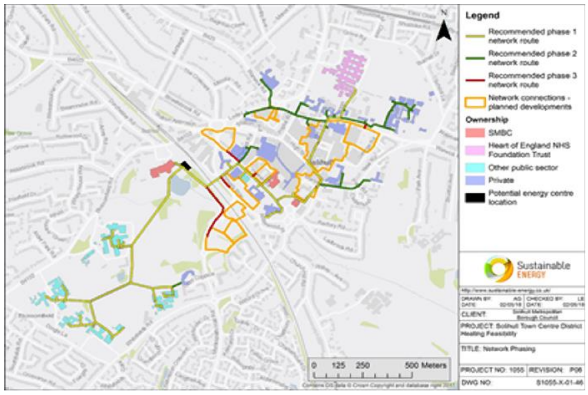
Original report date	2018
Latest update	2018

Solihull Town Centre_FES

Project Sponsor:

Solihull Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	4.6
Pipework / distribution capex (£m)	15.27
Other capex (£m)	0
Total capex (£m)	**19.48**

Annual heat demand (GWh)	18.98
Project IRR*	4%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2027

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

Solihull Town Centre has been identified as an area of high enough heat density to support a heat network.

Energy centre description:

The energy centre would contain a 1.7MW air source heat pump a 1.6MWe CHP, and 7.5MWth of auxiliary boilers for phase 1. In phase 2, a 776kWe CHP, a 1.7MW heat pump and 1.5MWth of auxiliary would be added. In phase 3, approximately 5-6MW of auxiliary and 1.7MW heat pump would be added to the network, although most likely not at the energy centre but in one of the developments connecting to the network in phase 3.

Heat/cooling demand phasing description:

The proposed network would connect up council buildings, schools and a few private sector buildings in phase 1. A small private wire network would also be part of phase 1, serving Solihull College, council buildings and a private sector building. Phase 2 adds several private sector connections, and phase 3 connects proposed developments.

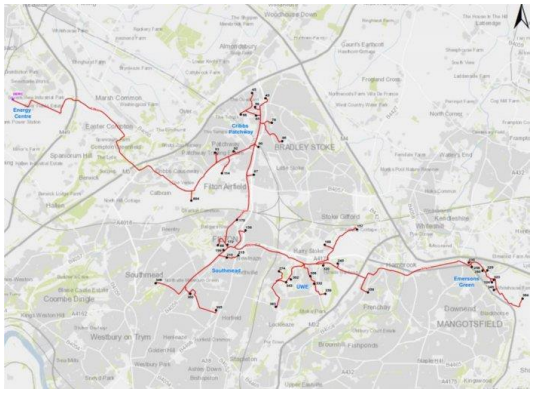
Original report date	2015
Latest update	2015

SERC EfW heat supply_MAP

Project Sponsor:

South Gloucestershire Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.05
Pipework / distribution capex (£m)	27.83
Other capex (£m)	3.03
Total capex (£m)	**33.91**

Annual heat demand (GWh)	0
Project IRR*	0%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

A heat network is proposed to connect the significant heat loads in Cibbs Patchway, Southmead and UWE to the Sita Severnside energy recovery centre. With baseload heat estimated at 137.8GWh per year and potential additional annual heat loads of 33.2GWh the project offers an estimated heat density of just under 9MWh per meter of pipe installed and an undiscounted payback of 9 years.

Energy centre description:

Not provided

Heat/cooling demand phasing description:

Cibbs Patchway is estimated to provide 49GWh p.a. of existing heat demand with a potential further annual 9.3GWh. Southmead is estimated to provide 33.3GW p.a. of existing heat demand with a potential further annual 22.9GWh from GKN Aerospace and Airbus. UWE is estimated to provide an annual 55.4GWh of heat loads. As such total heat loads assessed in the area have been estimated at 170GWh per year.

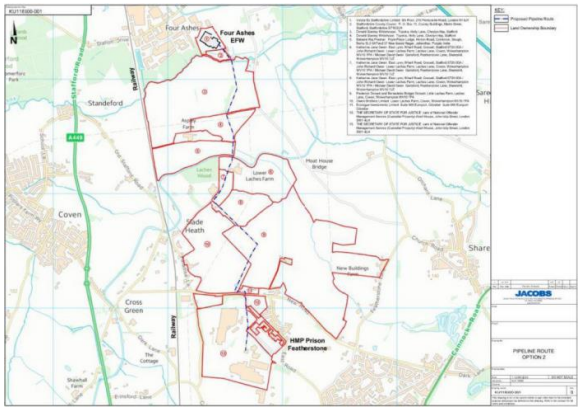
Original report date	2015
Latest update	2015

Veolia Energy from Waste_FES

Project Sponsor:

Staffordshire Moorlands District Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	12.16
Project IRR*	7%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Industrial heat - EFW

Project description:

Staffordshire County Council (SCC) contracted with Veolia Environmental Services (Veolia) for the delivery of a 300,000tpa Energy Recovery Facility (ERF) at Four Ashes Industrial Estate, Staffordshire. This facility became fully operational in 2014. The plant is Combined Heat and Power (CHP) enabled and the turbine has the capacity to provide up to 18.5MWth hourly which has the potential to be exported through a Heat Network (HN) Scheme. The Council is investigating the feasibility of a HN and private wire connection between the ERF and a prison cluster (located 2.5km from the ERF), which includes HMP Featherstone, HMYOI Brinsford and HMP Oakwood. Due to the nature of the operation of the three prisons, there is a demand for heating over a 24-hour period throughout the year, although this naturally fluctuates with the season, occupancy etc. Relative to other HN schemes (providing domestic hot water) this project offers the potential to supply constant and relatively predictable base load heating requirement over a 40 year period.

Energy centre description:

The HN scheme considered includes modification of the existing ERF to accommodate a new heat recovery system, HN heat exchanger, pipework and associated pumps, end users heat delivery substations and the modifications to the prisons' existing boiler plant to accommodate the heat delivery substations.

Heat/cooling demand phasing description:

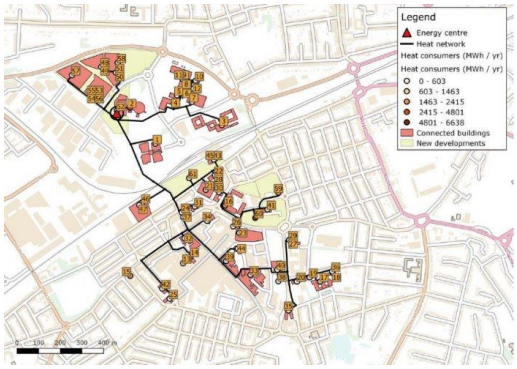
Not available

Original report date	Unknown
Latest update	Unknown

North Star and Town Centre_FES

Project Sponsor:
Swindon Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**0**

Annual heat demand (GWh)	45.47
Project IRR*	8%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	2027

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:
CHP - gas

Project description:
North Star is located to the north of Swindon town centre, the two areas divided by the London to

Bristol rail line. The North Star area is a focus for major redevelopment involving the redevelopment

of the Oasis Leisure Centre, the construction of an indoor ski facility, arena and associated leisure and retail development.

Energy centre description:
3 x 5.8MWth gas CHPs plus 22.3MWth of gas boilers proposed to supply the full network. Absorption chillers considered for supplying cooling to the ski facility. The figures presented reflect the heat only scheme. The inclusion of cooling is still estimated to provide a positive return (6.2_ PIRR over 40 years) but is slightly lower than the heat only scheme.

Heat/cooling demand phasing description:
Within the Town Centre area 35 buildings were identified with sufficient heat consumption and proximity to a probable heat network route (from the North Star site) to enable connection to a heat network. Assumed connections include the station and Kimmerfields developments. These developments present an ideal opportunity where

their phasing can coincide with the establishment of a network, particularly Kimmerfields which present a major load from a mix of commercial and residential properties.

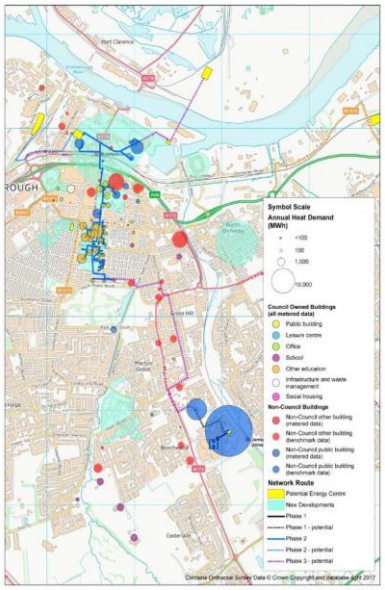
Original report date	2017
Latest update	2017

Middlesbrough_DPD

Project Sponsor:

Tees Valley Combined Authority

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	0
Pipework / distribution capex (£m)	0
Other capex (£m)	0
Total capex (£m)	**30**

Annual heat demand (GWh)	44.37
Project IRR*	0%
Considering third party finance?	False

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

CHP - gas

Project description:

New gas CHPs in each of the town centre and hospital, connected via a heat network. Private wire network around the town centre. Potential to connect both the heat and private wire networks to local AD biogas CHP, biomass and waste industrial heat sources.

Key core off-taker partners identified and actively supporting the development of the project are: James Cook University Hospital, Teesside University and Middlesbrough Council. A number of other potential off-takers have been identified in the Outline Business Case - October 2017 (OBC) for inclusion in the scheme and discussions are on-going. This creates a potential for c52,000MWh pa thermal demand and c53,000MWh pa electrical demand.

Energy centre description:

In the OBC the town centre energy centre location is proposed on Richmond Street, on the western edge of the Middlehaven Regeneration area. The site is approximately 6,000m² and is bound on its north, south and west sides by roads, with further open space to the west of the site. This site is located north of the A66 and is considered suitable for gas CHP, standby boilers. The site is also well suited for the potential connection to one of two existing AD CHP plants, a biomass plant (under construction) or a WSHP. The hospital energy centre will be at the existing boiler house (within the hospital complex) or immediately adjacent (depending on access issues).

Work has started on developing the Full Business Case and is currently at the pre-procurement stage. A review of the proposed energy centre location is on-going as the proposed site may now not be available.

Heat/cooling demand phasing description:

In the OBC a 3 phase build out was proposed: Hospital CHP scheme, town centre DE scheme, then the heat connection between the two.

The current pre-procurement work is reviewing this proposed phasing approach to ensure that it still meets the needs and timescales of key partners for replacement of existing infrastructure and / or proposed new developments which have the potential to be connected to the network.

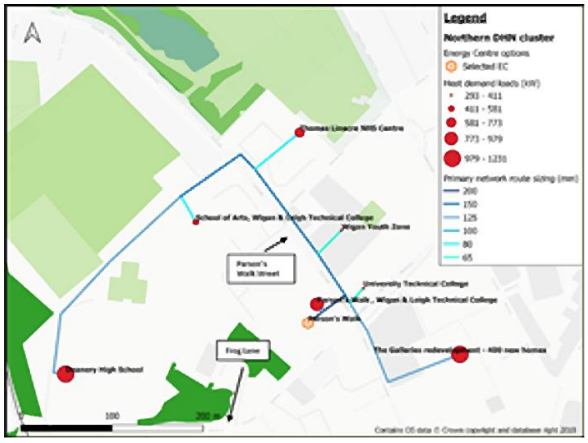
Original report date	Unknown
Latest update	2025

Wigan Town Centre_FES

Project Sponsor:

Wigan Metropolitan Borough Council

Network Map:



Summary forecast financial information:

Energy generation capex (£m)	3.35
Pipework / distribution capex (£m)	2.34
Other capex (£m)	0
Total capex (£m)	**5.69**

Annual heat demand (GWh)	6.11
Project IRR*	5.2%
Considering third party finance?	

** Real pre-tax pre-finance post-Grant*

FID	Construction Start	Heat On (initial)
Unknown	Unknown	Unknown

Project Contact Details:

Organisation:	Unknown
Contact Name:	Not disclosed
Email:	Not disclosed

Technical Information:

Primary energy source:

Heat pump: ground source

Project description:

New district heating network in Wigan Town Centre.

This project is currently inactive and will require a redesign if to be considered further.

Energy centre description:

EC located in Wigan & Leigh Technical college.

Heat/cooling demand phasing description:

Existing CHP will be used until end of life. This will be replaced by a heat pump.