
Euston Area Plan

Energy Masterplan Report

December 2013

Issue 2

Energy Consulting

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Executive Summary

This report presents the findings from the energy masterplanning work conducted for the Euston Station area, in the London Borough of Camden.

Method

- The study aims to identify the potential opportunities to connect a mix of new and existing buildings in the Euston area to a district heating network as a means of providing the community with low cost, low carbon heat.
- The heating requirement of each of the identified buildings was either provided by Camden, via gas consumption data for existing buildings, or else estimated using industry standard benchmarks for new buildings to allow all to be included within a pre-feasibility model.
- This model has been used to estimate high level economic indicators for the proposed network.
- Outputs from the model have been used to make initial recommendations regarding the scheme.

Findings

The results of the study indicate that there is potential for a district heating network in the Euston area for the following reasons:

- The high level of planned redevelopment in the area over the next 15 years.
- The proportion of publicly owned or occupied buildings in the area which would suggest availability of suitable anchor heat loads.
- There is adequate diversity in the building use heat profiles that would support a CHP arrangement of capacity up to around 2.4 MWe, depending on the extent of the linking heat network, with a capital cost of £29.5 million.

Findings (continued)

- Initial assessments suggest that the investment could deliver a carbon saving in the order of 6,100 tonnes, equating to around £4,850/tonne of CO₂.
- Initial pre-feasibility modelling of an indicative network in the area has indicated a scheme could potentially deliver a positive NPV, utilising a discount rate of 12%, typical of third-party financing.
- Potential customer connection charge have been derived at a minimum of £1,000/dwelling and £1,000/kW for non-domestic.
- A phased approach is unlikely to be realistic given the constraints of the site and the anticipated long build-out period.

Recommendations for next steps

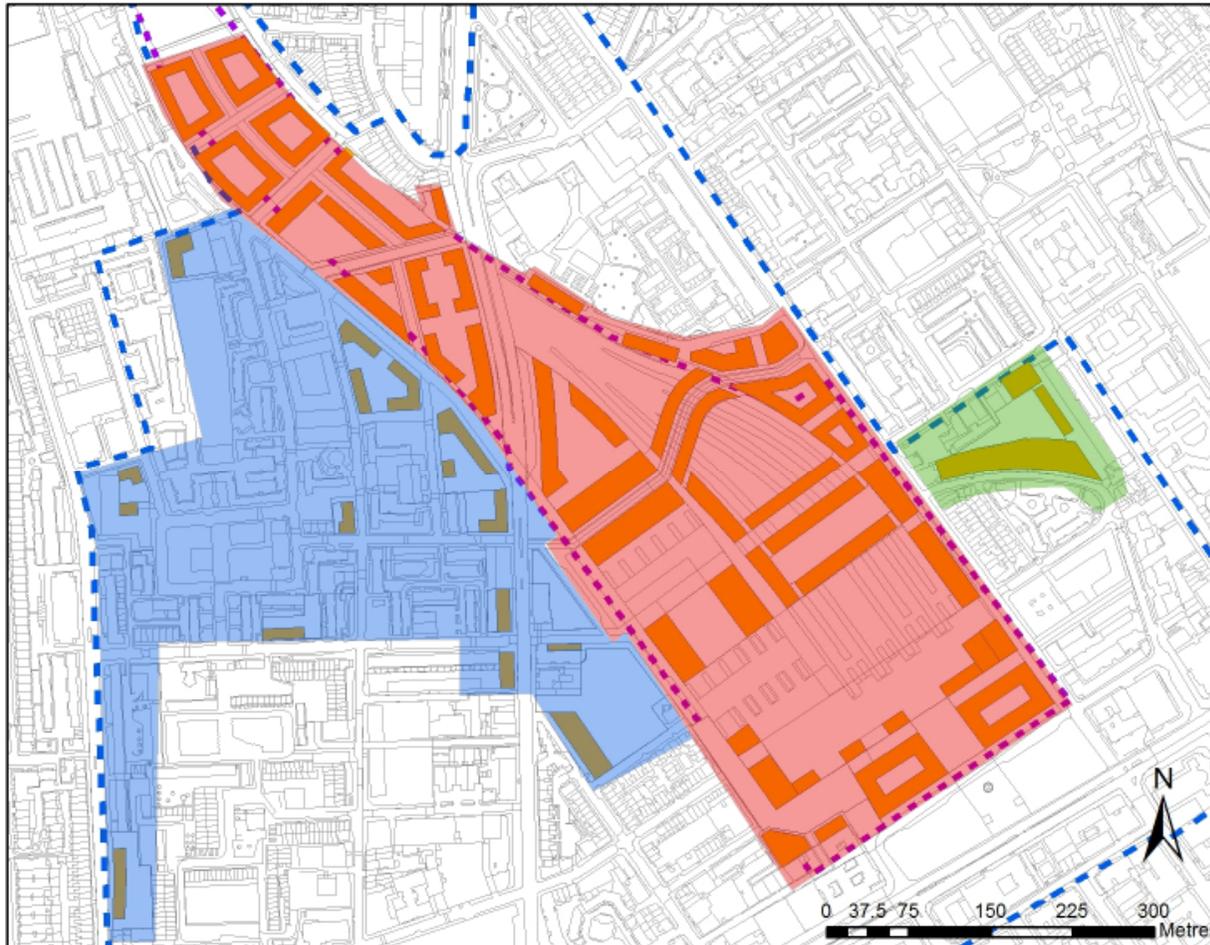
The recommendations for progressing Decentralised Energy in the Euston area are as follows.

- A full feasibility study should be undertaken to examine in detail the technical design and operation of a network, its funding options and financial performance.
- The schedule of identified steps and area for safeguarding (set out on page 22) should be implemented to ensure the opportunity to establish a district heating network is not missed.

Area Overview

An Area Action Plan (AAP) is currently being compiled for the Euston area.

Being compiled by a combination of Camden, the Greater London Authority (GLA) and Transport for London (TfL), the AAP area covers Euston Station and its tracks, which would be expanded to the west as a result of the High Speed 2 (HS2) project, plus surrounding areas incorporating predominantly council-owned residential areas and part of Euston Road.



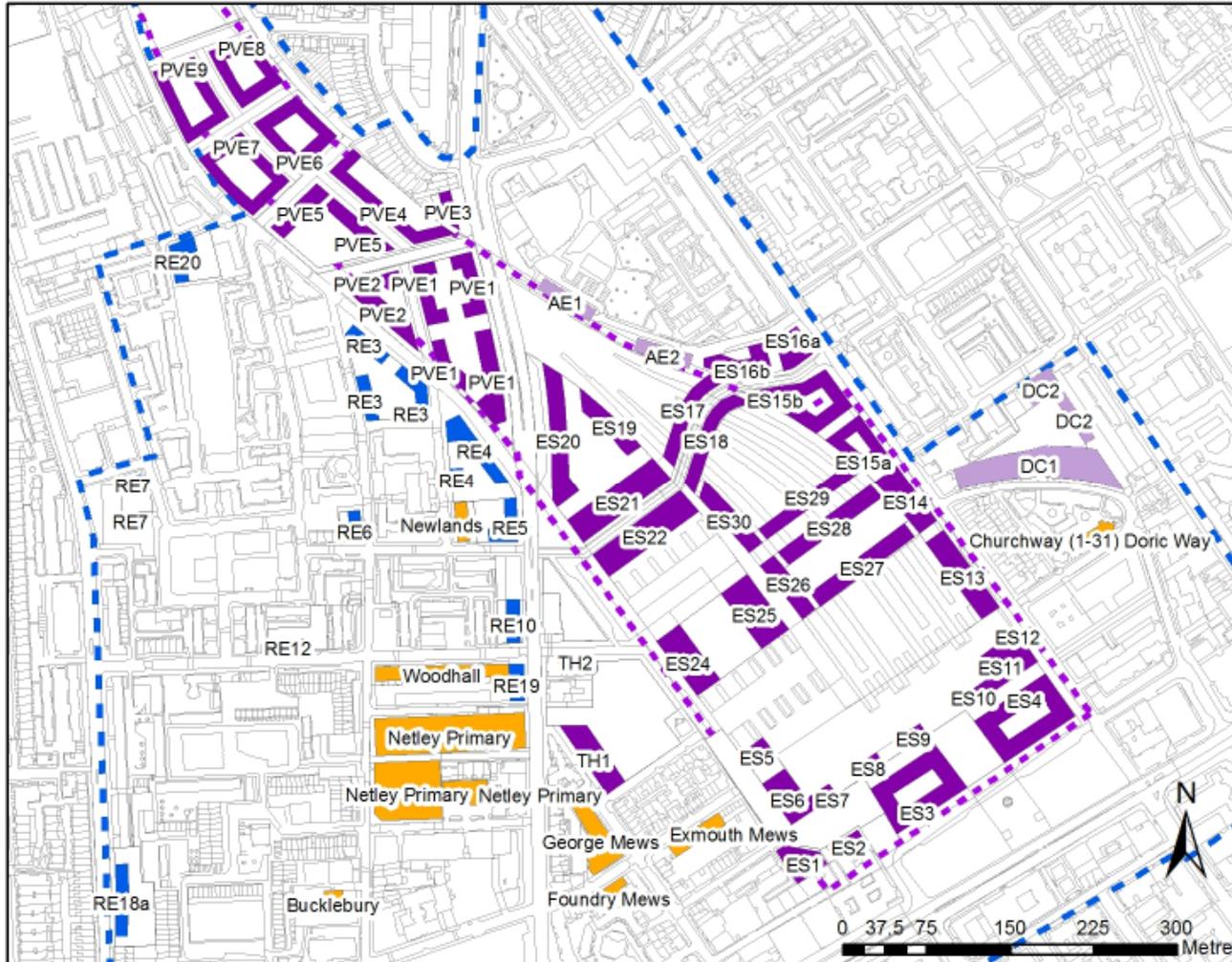
- For the purposes of this study, the development proposed in the Euston Area Plan has been subdivided into three clusters, as shown opposite:
 - Regent's Park Estate
 - Euston Station, tracks and cutting
 - Somers Town
- Each cluster is planned for build-out during different phases over the next 15 years.
- Across the Euston area, up to approximately 3,800 new homes are planned across the three clusters.
- Additional new non-residential / commercial floor area of up to 280,000 m² GFA is proposed.
- Together the clusters comprise around 70 new buildings.
- This high level of redevelopment presents an opportunity to align the energy needs of the community, whilst also addressing targets for carbon reduction.

Legend

- | | |
|------------------------------------|----------------------|
| Area Action Plan Boundary | Regents Park Cluster |
| Euston Station, tracks and cutting | HS2 Cluster |
| Planned Development | Somers Town Cluster |

Buildings Included In Analysis

Both the proposed new and a number of existing buildings were included within this study, for analysis and inclusion in modelling a District Heat Network.



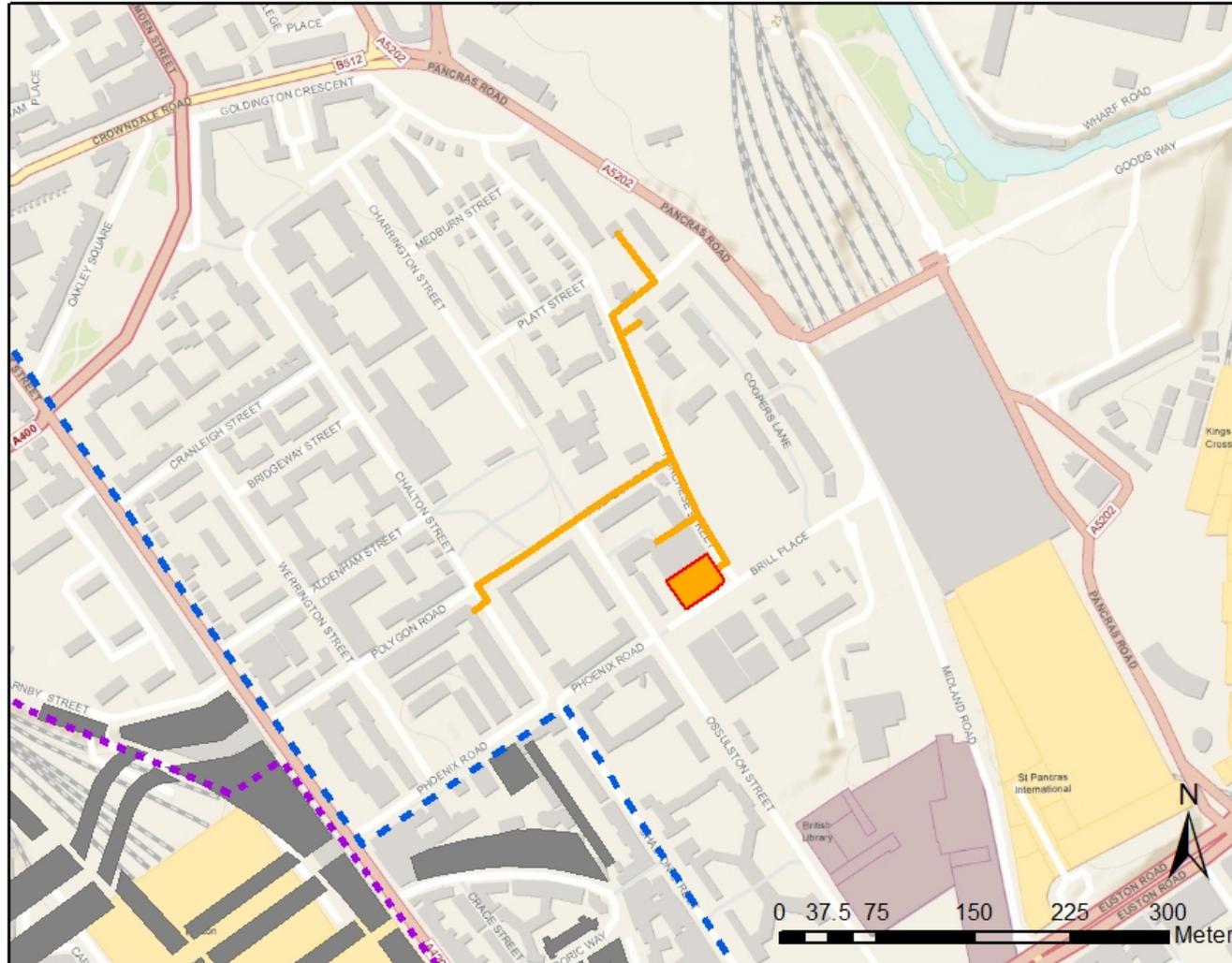
- Total estimated annual heat consumption figures per cluster are as follows:
 - Regent's Park : 2.8 GWh/yr
 - Euston Station: 25.8 GWh/yr
 - Somers Town: 1.7 GWh/yr
- Additional existing buildings identified by Camden comprise an annual heat consumption of 5.5 GWh/yr.
- All buildings indicated by reference numbers opposite have been identified by Camden for redevelopment or renewal over a 15 year period.
- Away from the Euston Station site, planned new buildings are primarily residential, though the presence of additional mixed use developments provides a diversity of heat use profiles.

Legend

- Area Action Plan Boundary
- Euston Station, tracks and cutting
- Constructed by 2016
- Constructed by 2019
- Existing Buildings

Existing CHP and Community Heating Schemes

In addition to a CHP engine installed and operating within the new Kings Cross development, a new community heating network is planned within the Somers Town area, with CHP plant to be located within Phoenix Court.



Phoenix Court Scheme

- The Phoenix Court scheme will see 4 existing Camden estates linked by a new DH network, served by a combination of new boiler and CHP plant to be installed within the Phoenix Court building.
- As part of the Phoenix Court scheme, provision is to be made for future additional loads to connect to the network.
- As can be seen, this scheme is to be located just to the east of the Somers Town and Euston Station clusters.

Kings Cross Development

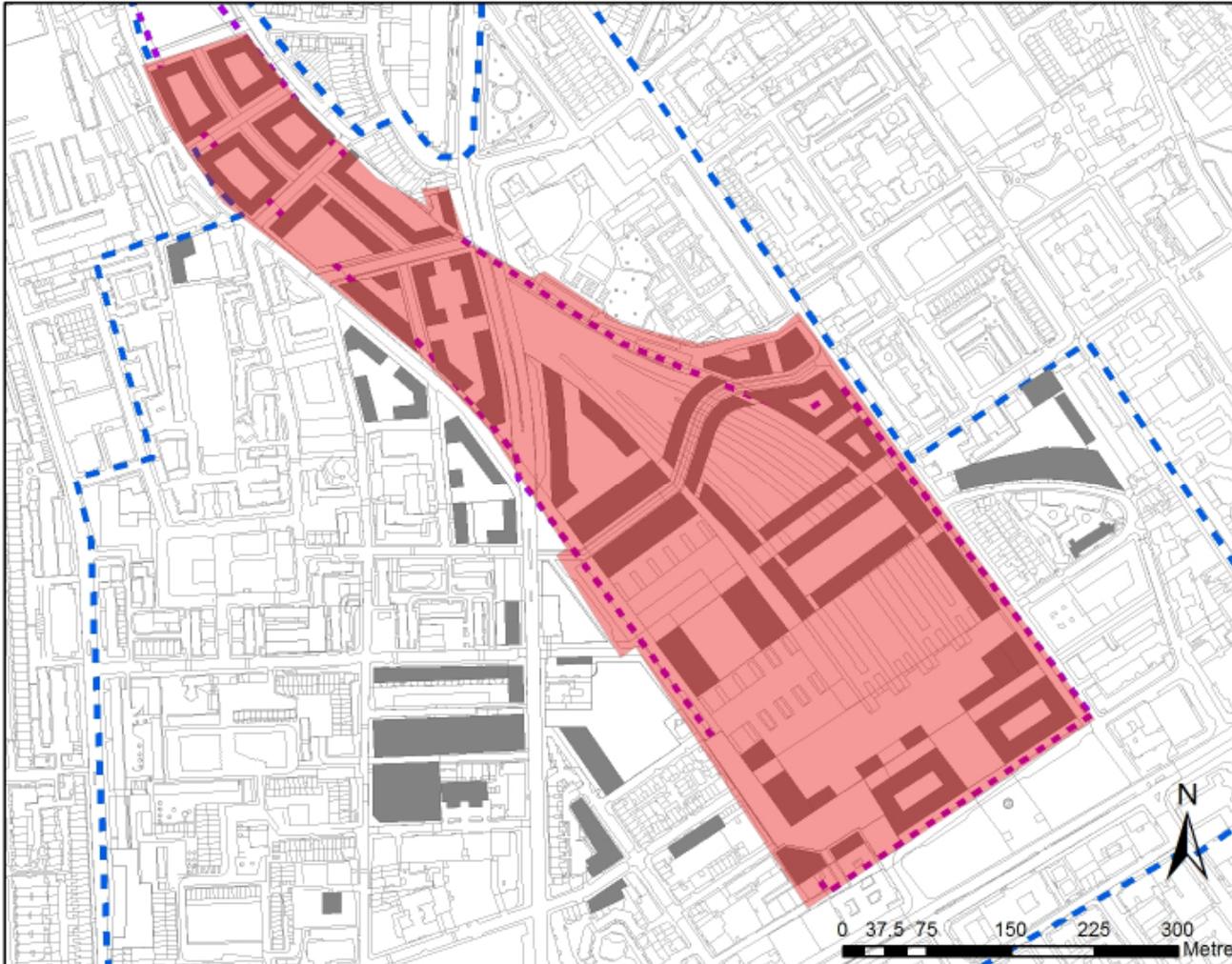
- Given its more remote location, and the intervening presence of St Pancras station, the existing Kings Cross heat network is not deemed suitable for interconnection to any buildings within the Euston area considered within this study.

Legend

- ▭ Area Action Plan Boundary
- ▭ Euston Station, tracks and cutting
- ▭ Planned Development
- ▭ Phoenix Court Energy Centre
- ▭ Phoenix Court DHN Pipework

High Speed Two in Camden

Proposals for High Speed Two include Euston Station as its London terminus. Under these proposals, the station would be expanded to the west to incorporate new platforms and tracks.



HS2 Timescales

- At the time of writing, it is expected that the redevelopment of Euston Station would commence in 2015. The construction of over-site development would be delivered over a 10-15 year period thereafter.

Site Mix

- Plans for the redevelopment of Euston Station, tracks and cutting will comprise provision of up to 270,000 m² GFA new commercial building, alongside more than 3,000 new homes.

Site Ownership

- No details were known at the time of writing regarding the split of site ownership for the Euston Station, tracks and cutting site or how this might impact its redevelopment.

Legend

- Area Action Plan Boundary
- Euston Station, tracks and cutting
- Identified Heatloads
- HS2 Cluster

Aims of Pre-Feasibility Work

The aim of this study is to develop an initial, high level understanding of the potential for a DH Network in the Euston area.

If deemed viable, a network could supply low cost, low carbon heat to customers in the area around Euston Station. The energy masterplan looks to answer several key questions:

- What are the high level technical figures for a DHN scheme in the area, such as system capacity plus thermal and electrical outputs?
- What are the estimated potential carbon savings?
- Could heat be provided to customers at rates lower than currently available through gas costs and conventional heating means?
- What are the principle financial indicators and results of a representative scheme in the area, including NPV, Discount Rate and Capex?
- What are the key risks that would impact to the scheme being developed?
- What are the important factors to be considered by the Mayor of London and the London Borough of Camden in the short term?
- What are the next steps required to move the project forward?

Details of Modelling Approach

<i>Equipment CAPEX Assumption</i>	<i>Value</i>	<i>Units</i>	<i>Notes</i>
Gas-fired CHP	825	£ / kW _e	For unit(s) with capacity greater than 1 MWe
Gas Boilers	66	£ / kW _{th}	For boilers with capacity between 1 MW _{th} and 4 MW _{th}
Pipe Network	2,820	£ / m	Assumes 350mm transmission pipe diameter under hard urban ground conditions
	1,860	£ / m	Assumes 100mm individual building connection pipe diameter under hard urban ground conditions

<i>Equipment performance assumptions</i>	<i>Value</i>	<i>Units</i>	<i>Notes</i>
Domestic / Non-Domestic gas boiler operational efficiency	85	% efficiency	New centralised boilers - Assumed to be constant over boiler lifetime
	80		Existing boilers - Assumed to be constant over boiler lifetime
CHP Operational thermal efficiency	42	% efficiency	Assumed to be constant over CHP lifetime
CHP Operational electrical efficiency	43	% efficiency	Assumed to be constant over CHP lifetime

<i>DH Revenues assumptions</i>	<i>Value</i>	<i>Units</i>	<i>Notes</i>
DH Network domestic Heat Sell Price	4.5	p/kWh	Intended to represent a saving over gas equivalent.
DH Network Non-domestic Heat Sell Price	3.9	p/kWh	Average Heat price calculated from on DECC Quarterly Energy price range, taking into account an 80% boiler efficiency. This applies to the all non-domestic heat loads of the DH Scheme
CHP Export to Grid Electricity Sell Price	4.5	p/kWh	As per DECC guidance on Feed in Tariffs export price

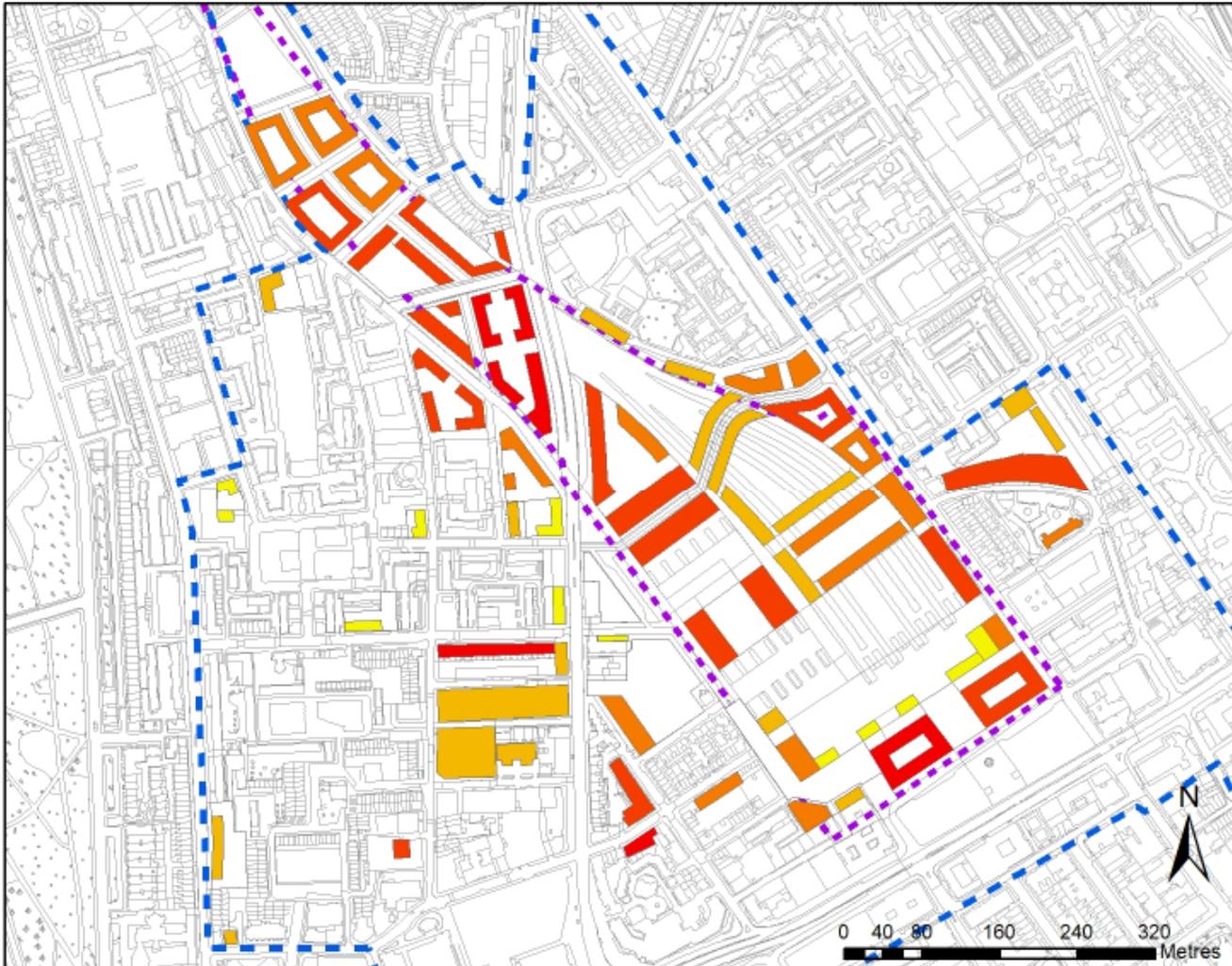
<i>Other Economic assumptions</i>	<i>Value</i>	<i>Units</i>	<i>Notes</i>
Discount Rate	12	%	Rate is based on the Treasury discount rate (3.5%) plus a risk premium 2.5%
Natural Gas Cost for Energy Centre	2.79	p/kWh	Based upon gas price previously provided by Camden (for Phoenix Court CHP scheme work).
Main Gas Supply CO ₂ Emission factor	0.206	kgCO ₂ / kWh	Source: SAP 2009
Grid Electricity Supply CO ₂ Emission factor	0.591	kgCO ₂ / kWh	Source: SAP 2009

Note:

For the purposes of this report, all modelling inputs are assumed to constant over the 25 year period assessed.

Predicted Heat Loads

Heat loads of all buildings are indicated in the map below. These estimates are based on the size and planned use of each building, using industry recognised benchmarks, plus gas consumption data provided for existing buildings.



- As is shown, a large proportion of buildings with the largest anticipated heat loads are situated within the Euston Station and tracks site.
- This cluster also features the greatest mix of residential and non-residential loads.
- It can also be seen that some of the more outlying buildings, in the west of the Regent's Park Cluster, are among those with the smaller heat loads.

Legend

 Area Action Plan Boundary

 Euston Station, tracks and cutting

HeatLoad (kWh per annum)

 0 - 83000

 83001 - 360000

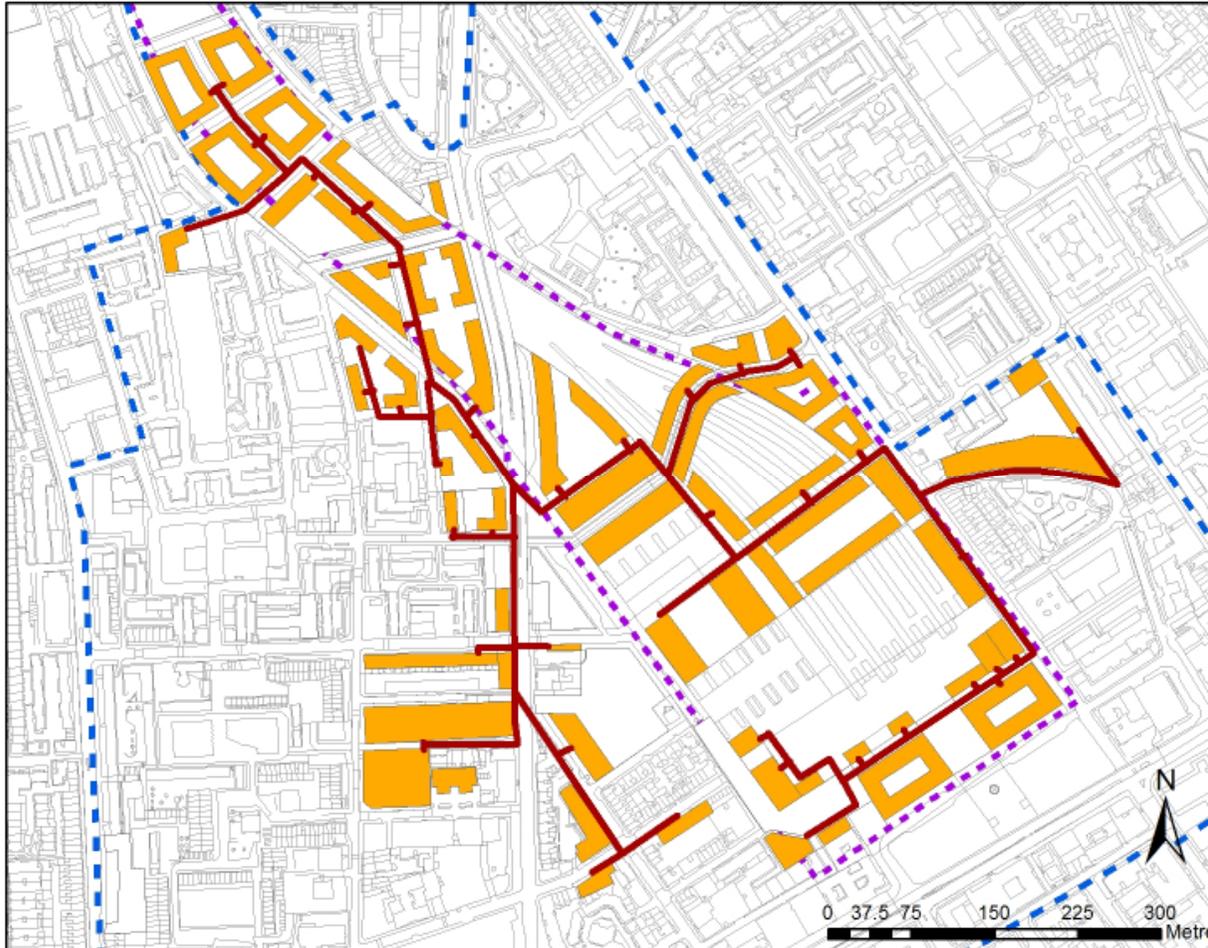
 360001 - 710000

 710001 - 1330000

 1330001 - 3000000

Potential Network Masterplan

This map shows the potential pipework layout connecting all of the buildings selected for use in subsequent modelling work.



- The required trenching for pipework is assumed to be hard urban dig at, related high cost.
- There may be opportunities to reduce these trenching costs through collaboration with existing (or planned) buried utilities and services, especially within the Euston Station cluster.
- The proposed routing aims to reduce length of runs within major roads, in order to minimise the disruption caused during installation.
- The route is also intended to utilise anticipated railway crossing, to come forward within and as part of the Euston Station redevelopment.
- This routing has not been cross-referenced against the location of existing utilities and services during this study and is therefore indicative only.

Legend

— Proposed Network

--- Area Action Plan Boundary

--- Euston Station, tracks and cutting

Buildings

■ Connected Heatloads

Note: it has been assumed for this assessment that the routing of buried distribution pipework throughout the new Euston Station footprint is feasible. Given that the buildings to the North end of the site will be positioned above the railway tracks, early consideration would need to be given to how this additional infrastructure could be accommodated into the trenching and services spaces being provided within the station design.

Details Of Modelling Approach

To understand the commercial feasibility of a large DH scheme in the area, modelling was undertaken to determine the required CAPEX and future cost of supplying heat to the buildings connected to a DHN.

This initial modelling undertaken into the potential cost of a heat network in the Euston Station area was carried out using Arup's pre-feasibility tool. This tool has been developed to provide indicative results for the cost and key design estimates for DHNs.

It is, however, not a design tool and further detailed modelling will need to be undertaken in order to fully understand the costs and revenues as well as more details of the system and plant sizing and design.

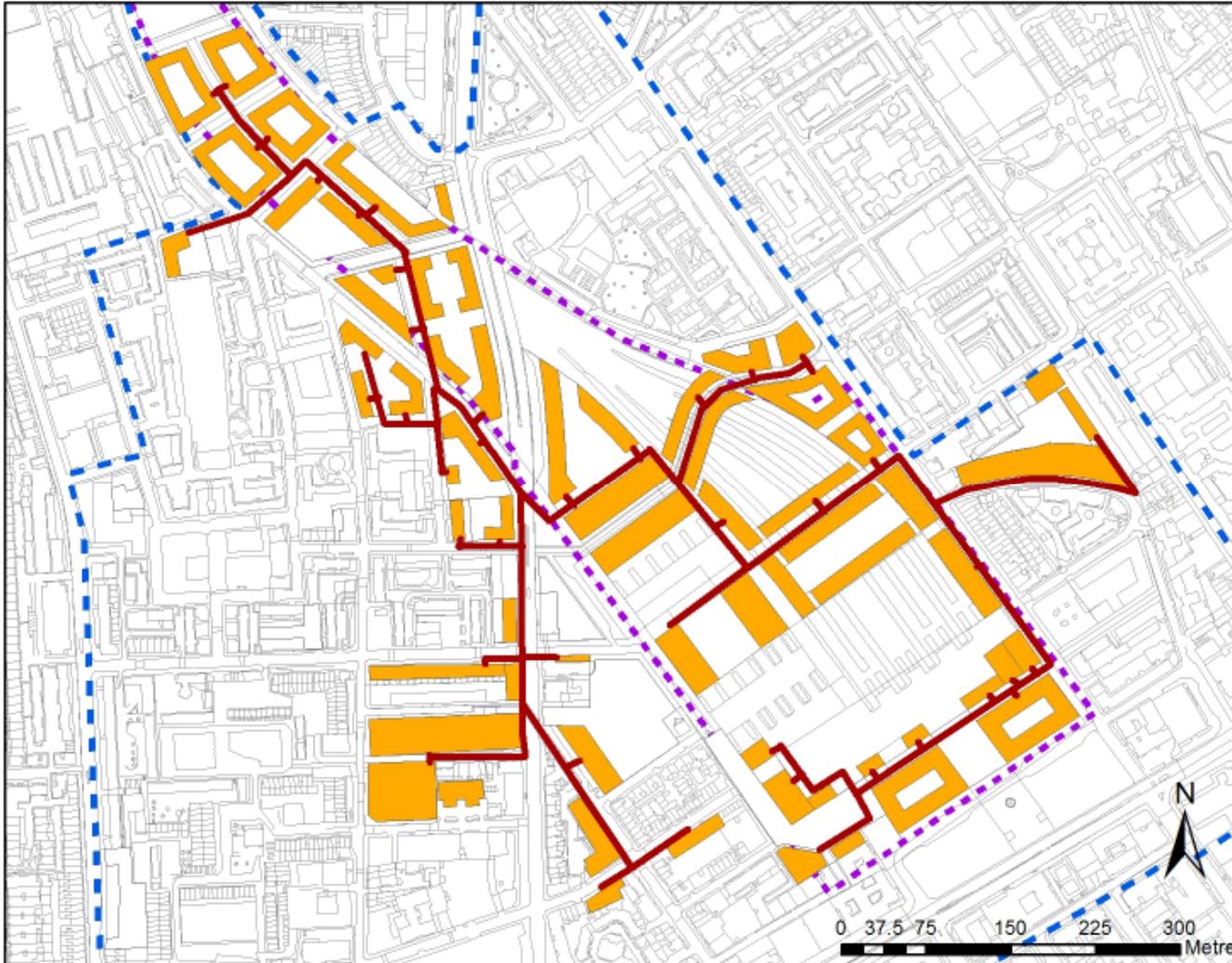
The assumptions made within this model are as follows:

- Costs for the energy centre assume land is available and include costs for construction and commissioning, but not purchase of the land.
- The price of gas is in real terms.
- Domestic and commercial customers pay separate tariffs for gas (and would therefore pay different heat tariffs).
- Assumed gas boiler efficiency for existing buildings is 80% (gross).
- Calculation of CHP size is based on benchmarked heat loads for developments.
- All electricity is assumed to be sold back to the grid at £0.045/kWh. Electricity retail sales are therefore not included within assessed incomes.
- A discount rate of 12% has been applied.
- Additional management and administration costs of 5% are applied to the scheme(s).
- Costs for trenching assumes all dig will be hard urban type.
- CO₂ emissions factors have been sourced from SAP 2009.

The anticipated levels of connection charge required for both domestic and non-domestic buildings will be calculated and will represent one-off payments to be received in the year that buildings would first received heat from the scheme.

Network Phasing: Option 1

Option 1 connects all of the identified buildings to a notional DH network, with the following pages showing a potential phased build-out of the scheme to eventually reflect this scenario post 2029.



Option 1

- Option 1 comprises the connection of buildings over the course of 2 distinct phases.
- A combination of proposed new and existing buildings identified by Camden, a total of 56 buildings, would be connected under the Option 1 network scenario.

Legend

— Proposed Network

Buildings

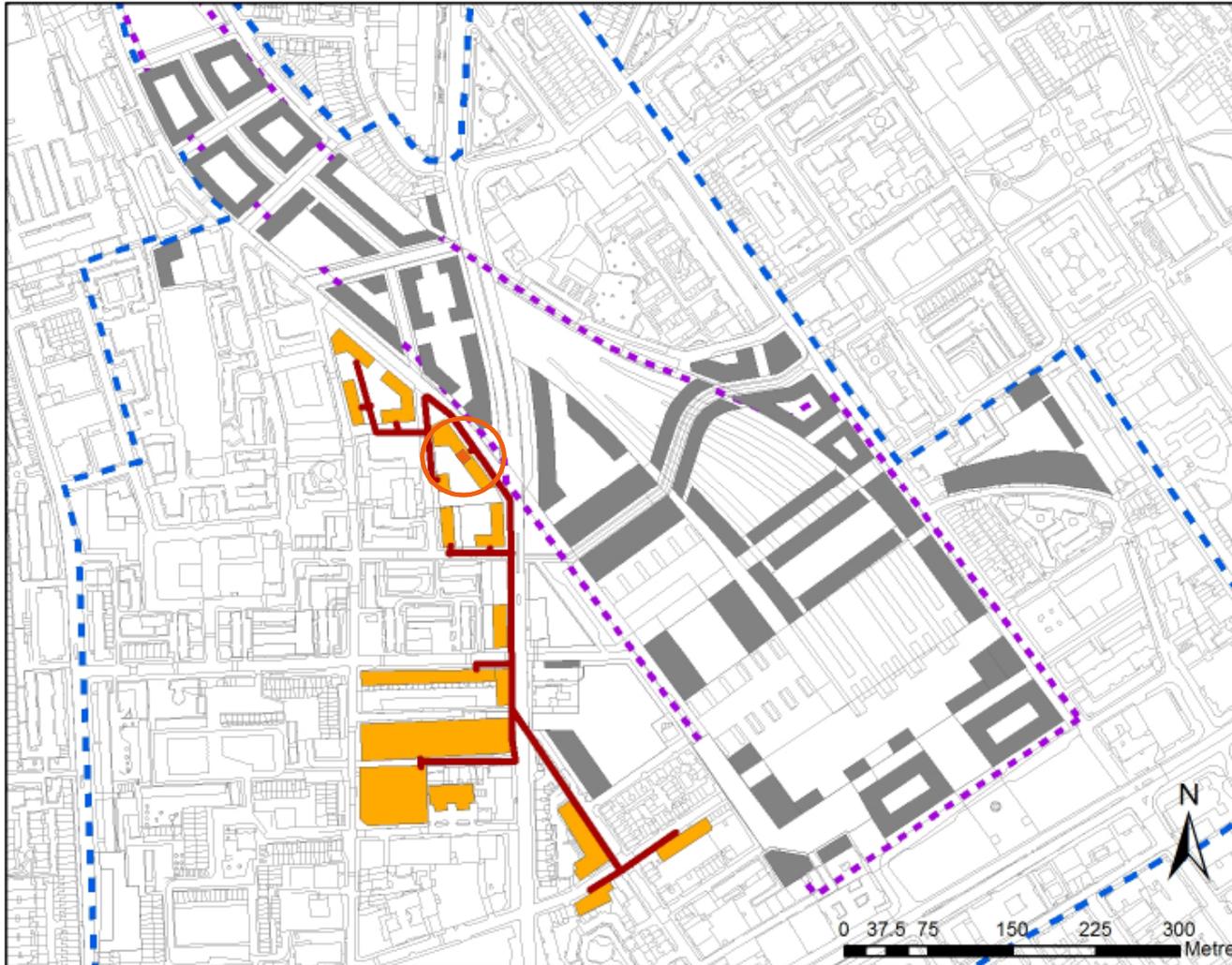
■ Connected Heatloads

--- Area Action Plan Boundary

--- Easton Station, tracks and cutting

Network Phasing: Option 1 – Phase 1 (2022 to 2029)

The image below indicates the possible extents of a first Phase of network build-out, connecting to a combination of existing and nearby new buildings.



Phase 1

- An initial network has been assessed to link existing buildings to nearby new buildings within the Regent's Park Cluster, comprising a total of 15 buildings.
- Network layout and feasibility heavily dependent upon build-out timings for these buildings.
- Temporary location for heat generation plant suggested in or around the new 'RE4' building within the Regent's Park Cluster, as indicated.
- Length of pipework installed during Phase 1:
 - 2,000 m
- Heat supplied by network at end of Phase 1:
 - 6,800 MWhr/yr

Legend

Buildings

■ Other identified buildings

Network Options

■ Phase 1 Heatloads

■ Potential location for temporary energy centre

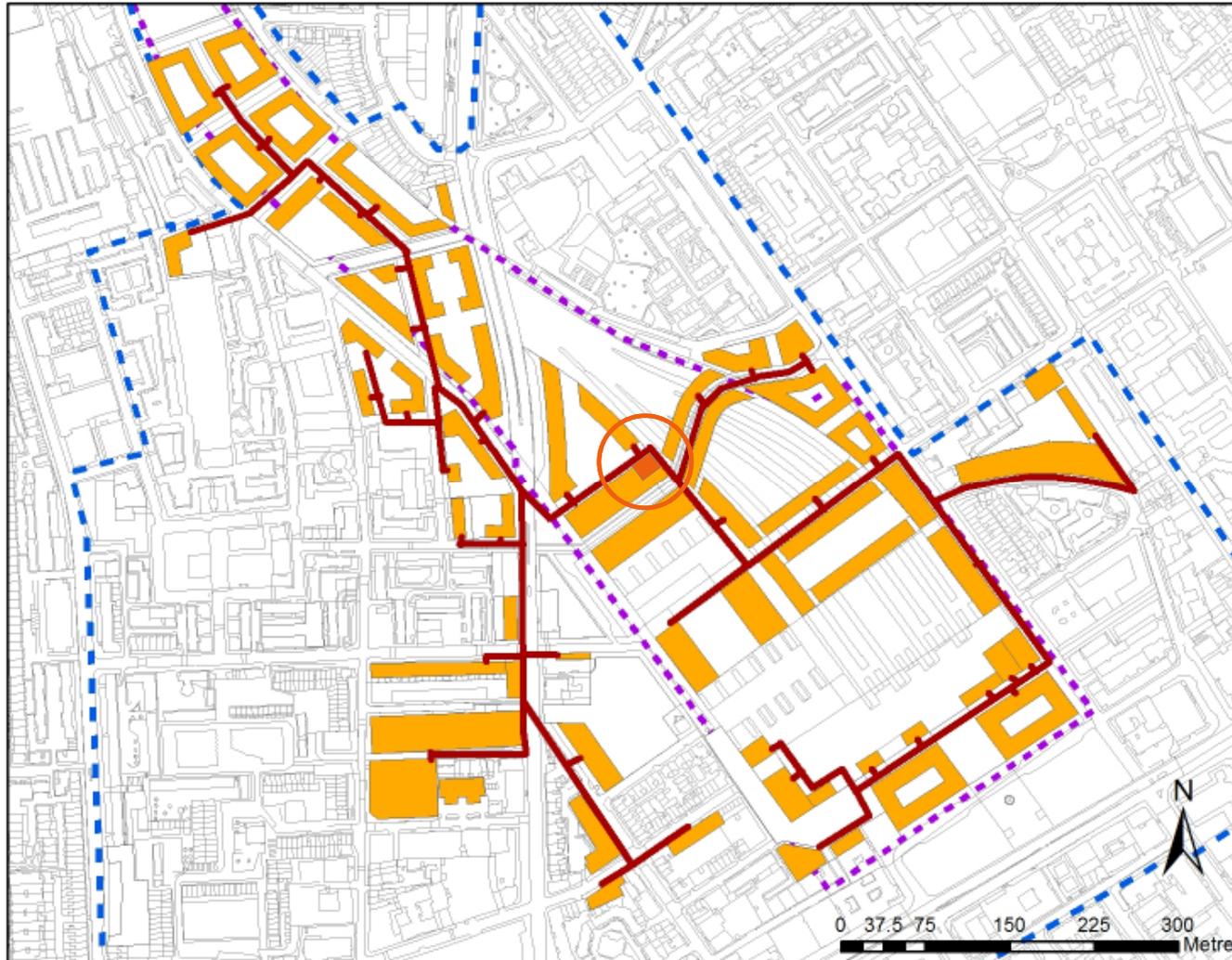
— Phase 1 Pipework

■ Area Action Plan Boundary

■ Euston Station, tracks and cutting

Network Phasing: Option 1 – Phase 2 (from 2029)

Following the completion of Phase 2, all selected buildings would be connected to the DH network.



Phase 2

- Full network to be built out to connect to all selected buildings.
- CHP and supporting plant to sit within a final Energy Centre, with a suggested location in or around building 'ES21' within the Euston Station Cluster, as indicated.
- Energy Centre location selected on the basis of its relatively central position within the wider scheme, plus the relative density of adjacent heat loads.
- Location also acknowledges intended height of this building, in order to facilitate related requirement to run plant flues.
- Length of pipework installed during this phase:
 - 5,400 m
- Total pipework installed for Option 1
 - 7,400 m
- Heat supplied by network at end of phase
 - 33,100 MWhr/yr

Legend

- Proposed Network
- Area Action Plan Boundary
- Buildings
 - Connected Heatloads
 - Potential Energy Centre Location
- Euston Station, tracks and cutting

Option 1: Results from DH Network Model

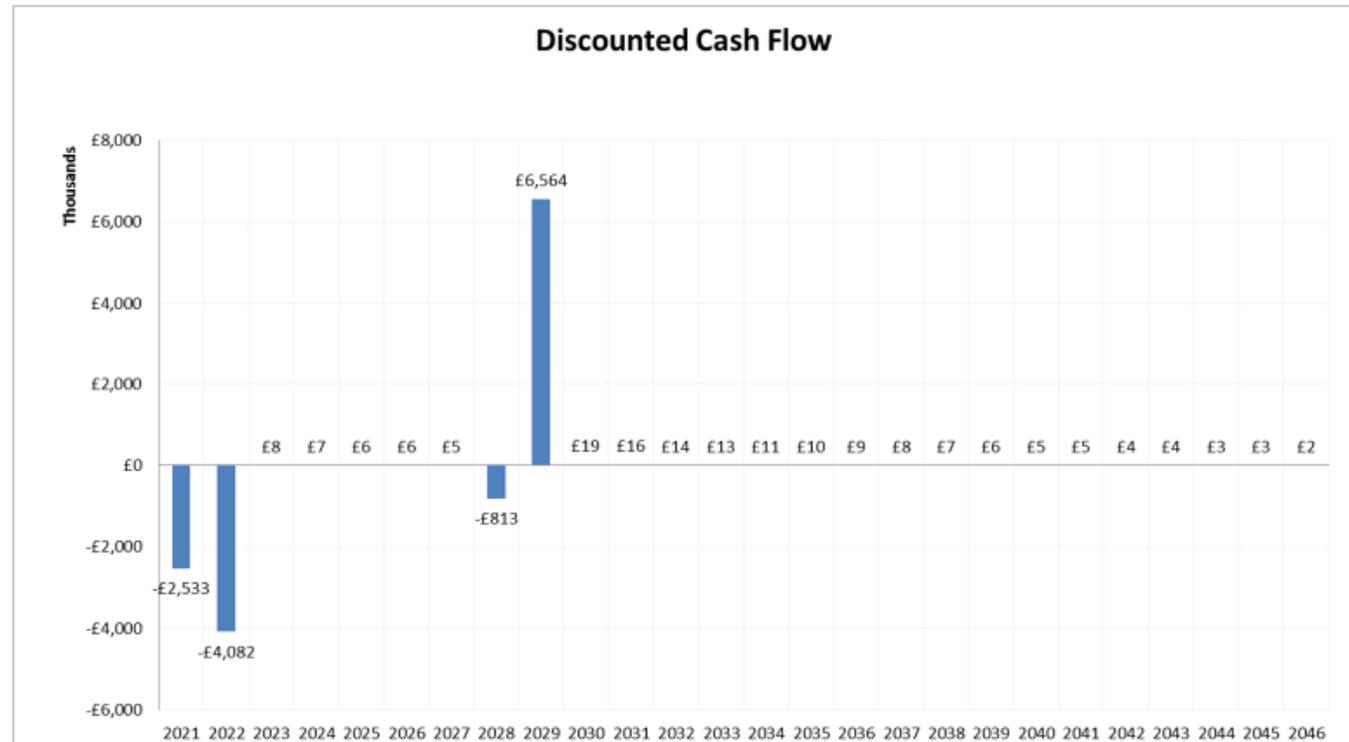
This page displays financial results derived for the completed Option 1 network, post Phase 2.

Key financial indicators for scenario:

- Discount Rate: 12%
- 25 Year NPV (Discounted to 2013): £0
- Total Capex (over all phases) : £29.5 M
- Connection charge set to £110/m² (equivalent to £1,000/kW) for commercial customers and derived at £3,600/dwelling for residential customers.

Key technical indicators for scenario:

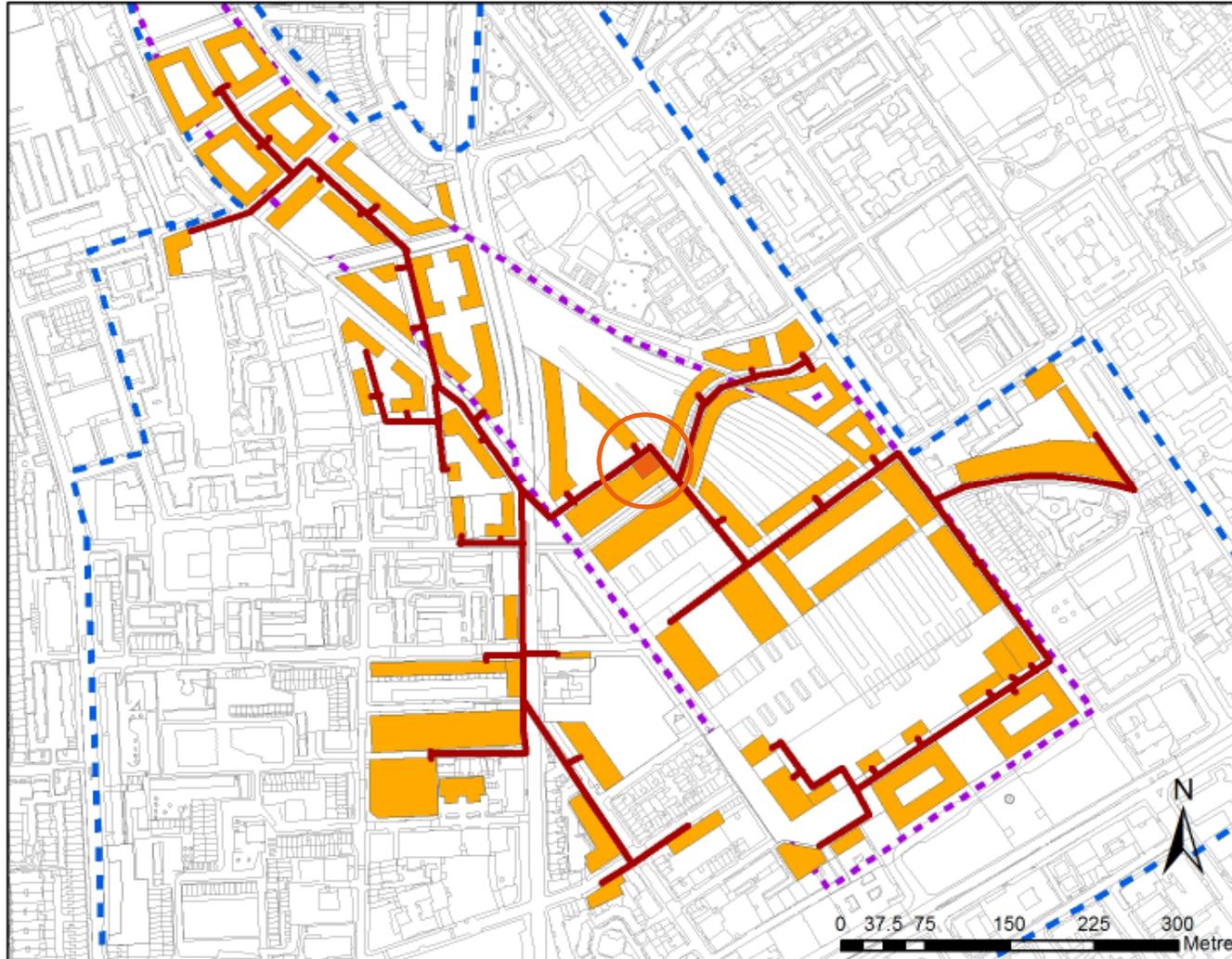
- CHP size: 2.4 MWe
- Boiler Size (Peak Demand) : 15.6 MWth
- Pipe Length: 7.4 km
- Annual CO₂ Savings: 6,100 tonnes



Note: in practice, connection charges are likely to be spread across the 15 year build out of the Euston Station area, however, given the lack of development phasing detail known at the time of writing and the high level of this analysis, these charges have been modelled as being paid in a single common year. Subsequent spreading of these over a longer period would likely lead to a need to increase connection charges, with further study work required to assess this related impact.

Network Phasing: Option 2 (from 2029)

Under Option 2, all identified buildings would only be connected to a DH network upon completion of all planned development.



Option 2

- Full network built out to connect to and serve those buildings identified from 2029, upon completion of all build-out phases.
- Heat generation plant again to be located within an Energy Centre within building 'ES21', as indicated.
- Length of pipework installed during this option:
 - 7,400 m
- Heat supplied by network at end of phase
 - 33,100 MWhr/yr

Legend

— Proposed Network

Buildings

■ Connected Heatloads

■ Potential Energy Centre Location

■ Area Action Plan Boundary

■ Euston Station, tracks and cutting

Option 2: Results from DH Network Model

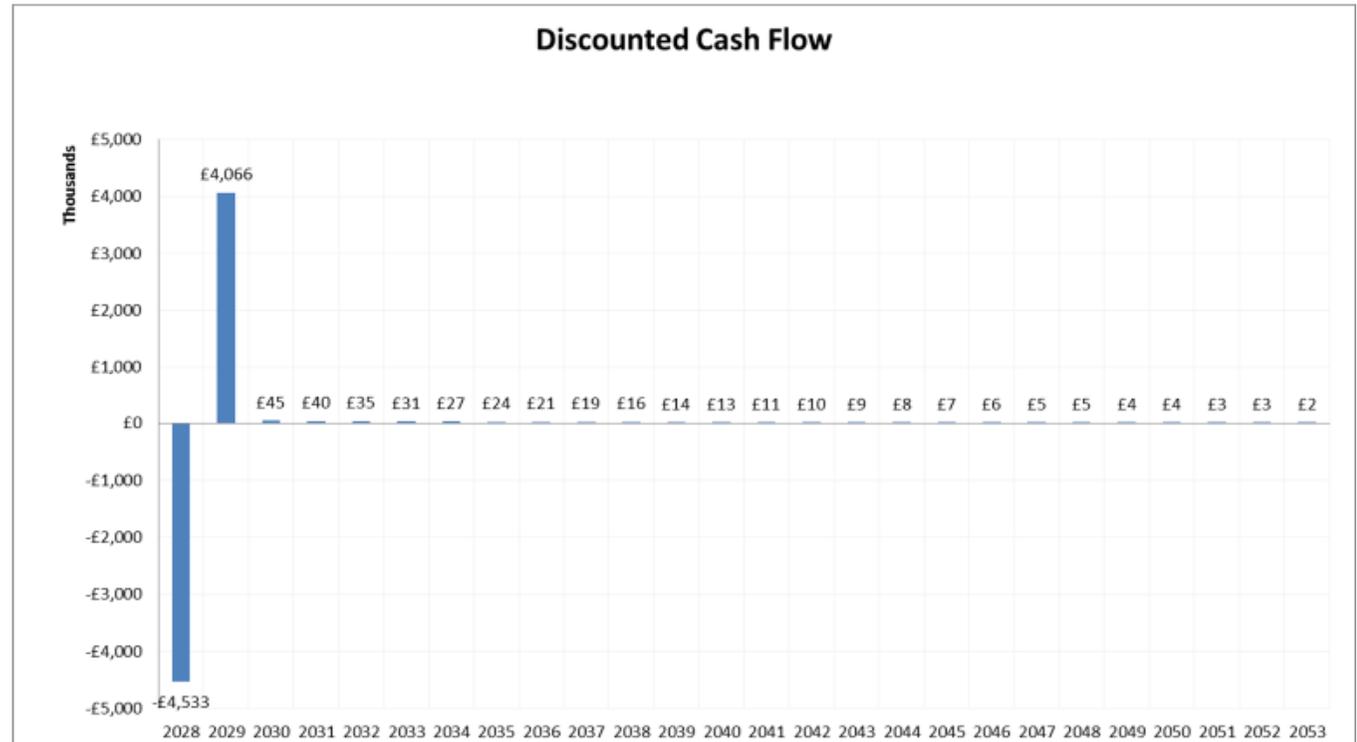
This page displays financial results derived for the Option 2 network.

Key financial indicators for scenario:

- Discount Rate: 12%
- 25 Year NPV (Discounted to 2013): £0
- Total Capex (over all phases) : £29.5 M
- Connection charge set to £110/m² (equivalent to £1,000/kW) for commercial customers and derived at around £1,000/dwelling for residential customers.

Key technical indicators for scenario:

- CHP size: 2.4 MWe
- Boiler Size (Peak Demand) : 15.6 MWth
- Pipe Length: 7.4 km
- Annual CO₂ Savings: 6,100 tonnes



Note: in practice, connection charges are likely to be spread across the 15 year build out of the Euston Station area, however, given the lack of development phasing detail known at the time of writing and the high level of this analysis, these charges have been modelled as being paid in a single common year. Subsequent spreading of these over a longer period would likely lead to a need to increase connection charges, with further study work required to assess this related impact.

Scheme Appraisal: Techno-economics

Initial assessment work indicates that a District Heat Network in the Euston area, centred around a redeveloped Euston Station, could be commercially viable.

Key Conclusions:

- The high level of planned redevelopment in the Euston area over the next 15 years offers good potential for the integration and operation of a district heating network in the area.
- There is adequate diversity in the heat profiles of proposed new buildings to support a CHP arrangement of capacity up to around 2.4 MWe, depending on the extent of the linking heat network, with a capital cost of £29.5 million.
- Whilst connection costs required for either of the options assessed are not considered to render them commercially unviable, the costs for Option 2 are likely to prove considerably more favourable.
- As a result, a combined network build-out timed to coincide with the redevelopment of Euston Station is recommended.
- An increase in the planned density of build-out across the various clusters would enable the related commercial case for a heat network to be improved.
- Similarly, the addition of alternative space-types could result in a higher maintained level of heat demand, allowing for an increased capacity of CHP plant to be selected.
- The potential identified for a DHN in the area suggests that more detailed feasibility work is warranted to determine more accurate results.

Notes:

It is important to note that the outputs reported are based on current code calculation methodologies and assumptions. The outputs are sensitive to the input variables and it is likely that these variables, will be the subject to change over time.

Sensitivity analysis of the impact of price volatility and variability should be undertaken at the full feasibility stage.

Scheme Appraisal: Techno-economics

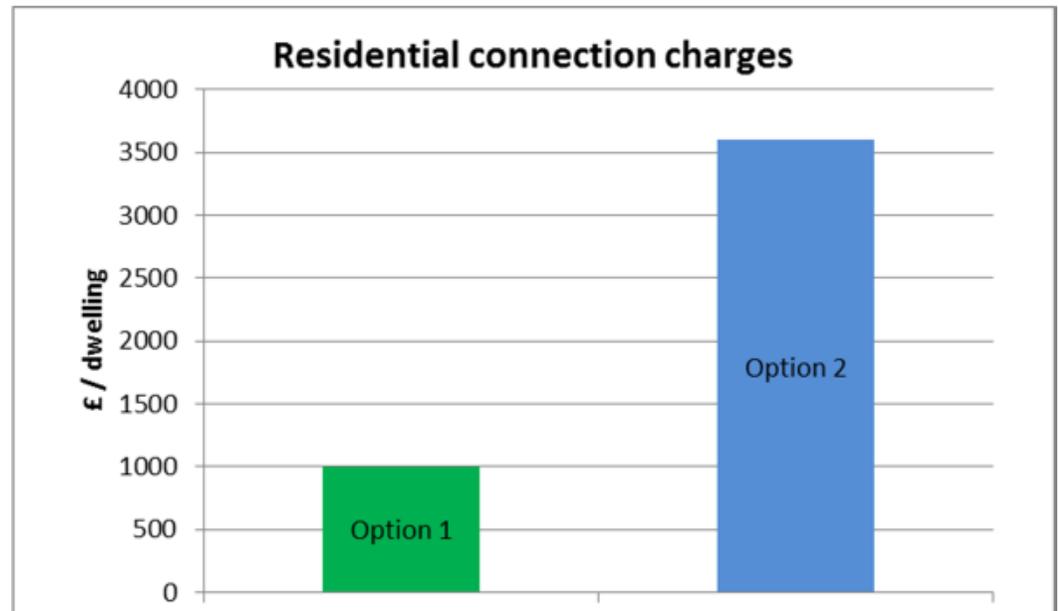
The assessment carried out indicates that notably lower connection charges would be required under Option 2 compared to those under Option 1.

Connection Charges:

- Charges levels for domestic customers have been derived in order to achieve a £0 NPV (at 12% discount rate), based on a commercial connection charge set at £1,000/kW.
- This assessment predicts required domestic connection charges in the order of £1,000 per dwelling for Option 1 and £3,600 for Option 2.

For reference:

- Estimated avoid costs for the provision of heat (using conventional boilers) are between £1,000 and £2,000 per dwelling.
- Avoided costs of carbon savings needed to achieve a reduction equivalent to the difference between Codes for Sustainable Homes (CSH) Level 3 and CSH Level 4 has been estimated to be over £4,000/dwelling for similar sized developments on London
- Costs for connection to a DH network on the Olympic Park are £1,000/kW.



Safeguarding

In order to progress with development of a DE scheme in the Euston Area, there are several issues for attention in the short term.

By safeguarding important areas, the potential for a future scheme over the term of the redevelopment of the area will not be impeded.

1. Establish and protect location for final energy centre.

- With the expansion/completion of either network option assessed featuring a proposed energy centre location within to the HS2 Cluster, early engagement with the site developers will be required.

2. Ensure future planning applications in the area contain the requirement to consider connection to a future DH scheme.

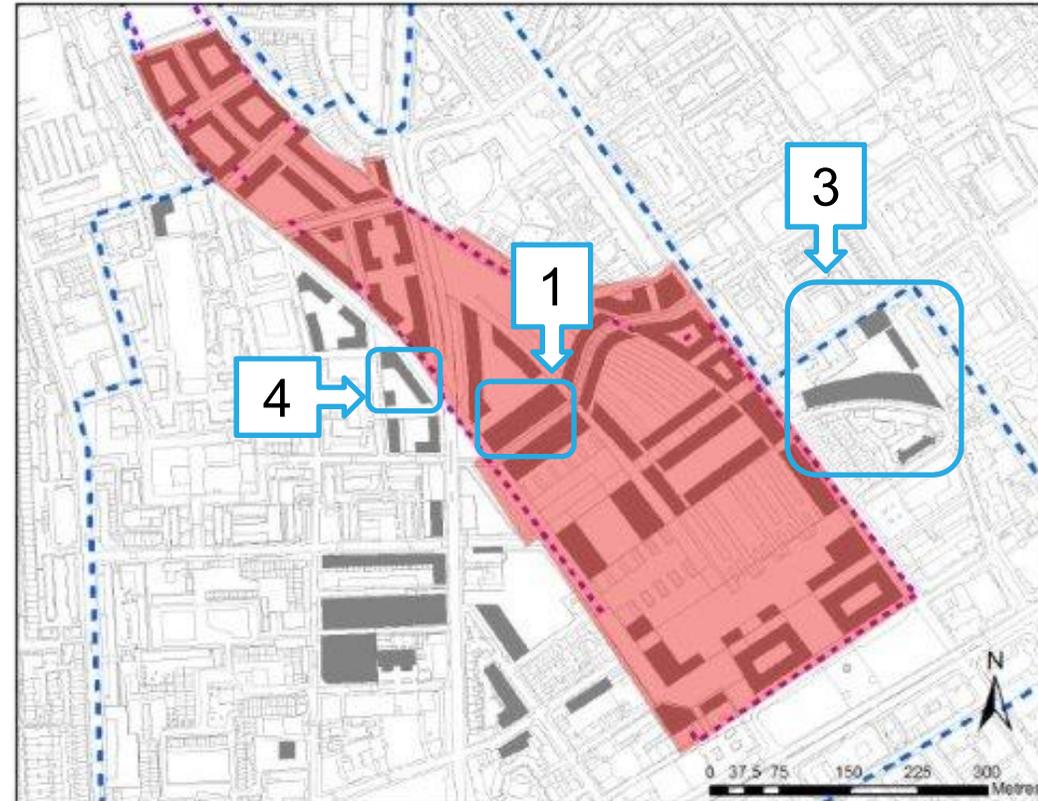
- This should include the future-proofing of early heating systems and plant rooms for connection to a network.

3. Further consideration around connecting identified Somers Town buildings to Phoenix Court network.

- With the Phoenix Court network likely to emerge prior to the construction of the buildings within the east of the Somers Town Cluster, provision within this network's design parameters for a future connection to these buildings is recommended.

4. Establish and protect location for temporary heat generation plant.

- Whilst the phased Option 1 approach has been shown to be less commercially attractive, it is nevertheless recommended that a suitably sized area be safeguarded for potential location of centralised heat generation plant, for reasons of future proofing and flexibility.



Conclusions



Credit: Centre right, Wikimedia Commons; right, Björn Appel.

Key Findings

- The scale and density of new buildings proposed within the redevelopment of the Euston Station area presents an opportunity to effectively operate a CHP-led District Heating network to provide low carbon heat.
- The outline commercial assessment undertaken suggests that such a scheme could deliver a positive NPV, whilst charging competitive rates for both connection to and heat provided via the network.

Recommendations

- Based on the assessments conducted, the building out of a 'full' network to serve a combination of new and existing buildings within the Regent's Park and redeveloped Euston Station areas is predicted to be more commercially viable than a phased build-out.
- This option also include the advantage of allowing for a better understanding of the heat demands for the Regent's Park Estate buildings, once in place and operational, prior to the redevelopment of Euston Station. This will ensure that any plant and infrastructure is more optimally sized to meet the demands of all buildings to be served by a new network.
- Given the importance of integrating any heat distribution pipework within the redevelopment of the Euston area, and in particular that of Euston Station, early engagement is recommended to ensure that building and infrastructure design allow for the presence of a district heating scheme.

Next Steps

It is recommended that a full feasibility study be carried out to better determine the potential and performance of an area-wide District Heating Network, focussing on the following aspects:

- Technical – including more detailed phased modelling, greater detail on pipework routing and energy centre sizing.
- Financial – to provide greater levels of cost certainty and consider potential funding sources and procurement mechanisms.
- Commercial – to understand sensitivity of scheme finances to fuel prices and heat/electricity sale tariffs.

Appendix 1: Glossary Of Terms

The following table summarises the terminology used throughout this report.

Abbreviations	Definitions
DE	Decentralised Energy
DH	District Heating
DHN	District Heating Network
NPV	Net Present Value
IRR	Internal Rate of Return
HIU	Heat Interface Unit
Capex	Capital Expenditure
CSH	Code for Sustainable Homes

Appendix 2: Schedule Of Buildings Used In Analysis

The following tables summarise the buildings information provided and calculated for use within this study.

Building Reference	Cluster	Existing / New	Modelled for Connection
AE1	Somers Town	New	No
AE2	Somers Town	New	No
Bucklebury	Euston Station	Existing	No
Churchway (Doric Way)	Somers Town	Existing	Yes
CWE2	Euston Station	New	No
CWE3	Euston Station	New	No
DC1	Somers Town	New	Yes
DC2	Somers Town	New	Yes
ES10	Euston Station	New	Yes
ES11	Euston Station	New	Yes
ES12	Euston Station	New	Yes
ES13	Euston Station	New	Yes
ES14	Euston Station	New	Yes
ES15a	Euston Station	New	Yes
ES15b	Euston Station	New	Yes
ES16a	Euston Station	New	Yes
ES16b	Euston Station	New	Yes
ES17	Euston Station	New	Yes
ES18	Euston Station	New	Yes
ES19	Euston Station	New	Yes
ES2	Euston Station	New	Yes
ES20	Euston Station	New	Yes
ES21	Euston Station	New	Yes

Building Reference	Cluster	Existing / New	Modelled for Connection
ES22	Euston Station	New	Yes
ES23	Euston Station	New	No
ES24	Euston Station	New	Yes
ES25	Euston Station	New	Yes
ES26	Euston Station	New	Yes
ES27	Euston Station	New	Yes
ES28	Euston Station	New	Yes
ES29	Euston Station	New	Yes
ES30	Euston Station	New	Yes
ES1	Euston Station	New	Yes
ES4	Euston Station	New	Yes
ES5	Euston Station	New	Yes
ES6	Euston Station	New	Yes
ES7	Euston Station	New	Yes
ES8	Euston Station	New	Yes
ES9	Euston Station	New	Yes
Exmouth Mews	Regent's Park Estate	Existing	Yes
Foundry Mews	Regent's Park Estate	Existing	Yes
George Mews	Regent's Park Estate	Existing	Yes
Maria Lower	Regent's Park Estate	Existing	No
Maria Upper	Regent's Park Estate	Existing	No
Netley School	Regent's Park Estate	Existing	Yes
Newlands	Regent's Park Estate	Existing	Yes
PVE1	Euston Station	New	Yes
PVE2	Euston Station	New	Yes
PVE3	Euston Station	New	Yes

Appendix 2: Schedule Of Buildings Used In Analysis

Building Reference	Cluster	Existing / New	Modelled for Connection
PVE4	Euston Station	New	Yes
PVE5	Euston Station	New	Yes
PVE6	Euston Station	New	Yes
PVE7	Euston Station	New	Yes
PVE8	Euston Station	New	Yes
PVE9	Euston Station	New	Yes
RE1	Regent's Park Estate	New	No
RE10	Regent's Park Estate	New	Yes
RE11	Regent's Park Estate	New	No
RE12	Regent's Park Estate	New	No
RE13a	Regent's Park Estate	New	No
RE13b	Regent's Park Estate	New	No
RE14	Regent's Park Estate	New	No
RE15	Regent's Park Estate	New	No
RE16	Regent's Park Estate	New	No
RE17	Regent's Park Estate	New	No
RE18a	Regent's Park Estate	New	No
RE18b	Regent's Park Estate	New	No
RE18c	Regent's Park Estate	New	No
RE19	Regent's Park Estate	New	Yes
RE2	Regent's Park Estate	New	No
RE20	Regent's Park Estate	New	Yes
RE3	Regent's Park Estate	New	Yes
RE4	Regent's Park Estate	New	Yes
RE5	Regent's Park Estate	New	Yes
RE6	Regent's Park Estate	New	Yes
RE7	Regent's Park Estate	New	No

Building Reference	Cluster	Existing / New	Modelled for Connection
RE8	Regent's Park Estate	New	No
RE9a	Regent's Park Estate	New	No
RE9b	Regent's Park Estate	New	No
RE9c	Regent's Park Estate	New	No
Rothay House	Regent's Park Estate	Existing	No
Starcross Street	Regent's Park Estate	Existing	No
TH1	Regent's Park Estate	New	Yes
TH2	Regent's Park Estate	New	Yes
Walton House	Regent's Park Estate	Existing	No
Woodhall	Regent's Park Estate	Existing	Yes