

GREATER LONDON AUTHORITY

REQUEST FOR ASSISTANT DIRECTOR DECISION – ADD2293

Title: Delivering District Heating Networks

Executive Summary:

District heating networks form an integral part of the Mayor's strategy for how London will meet its zero-carbon by 2050 target. Heat networks connect buildings to sources of low-cost, low-carbon, waste and renewable energy across a wide area to provide them with heating and cooling.

For district heating to play its full role, the Mayor needs to become more involved in the sector to catalyse the speed and scale of heat network delivery in London. The London Plan is bringing forward smaller site-wide heat networks on new developments creating the possibility of future connection to district-wide schemes as they emerge. Some district-wide heat networks are being developed through the Mayor's Decentralised Energy Enabling Project (DEEP) but, due to market failure, are not being built out by stakeholders at a sufficient rate to meet the 2050 zero-carbon target.

The project will explore the range of roles that the Mayor could play to catalyse activity and accelerate the build out of the district-wide heat networks. The work will short list two options and apply them to potential real-world London projects to illustrate how they would operate in practice and make use of the Government's £320m Heat Network Investment Project funding. The Project will also inform the development of an European Regional Development Fund bid to succeed the existing Decentralised Energy Enabling Programme (DEEP).

Decision:

That the Assistant Director of Environment approves:

Expenditure of up to £45,000 for consultancy support to identify the options available to the Mayor for catalysing the delivery of district heating networks and to develop a detailed rationale with supporting business case for each of the two preferred options.

AUTHORISING ASSISTANT DIRECTOR/HEAD OF UNIT

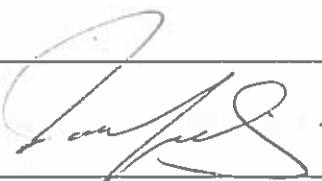
I have reviewed the request and am satisfied it is correct and consistent with the Mayor's plans and priorities.

It has my approval.

Name: Patrick Feehily

Position: Assistant Director -
Environment

Signature:



Date: 26/11/2018.

PART I – NON-CONFIDENTIAL FACTS AND ADVICE

Decision required – supporting report

1. Introduction and background

1.1. London has very ambitious targets for the deployment of district heating networks, with 15 per cent of London's energy demand to come from renewable and district energy by 2030. This ambition is driven by the need for greater levels of district heating to get London to zero carbon by 2050 but will also help to address:

- 1.1.1. Air quality – by removing individual gas boilers from buildings and connecting those buildings to a heat network that prioritises clean, low carbon heat sources we can remove one of the most important sources of NOx and other local pollutants in cities.
- 1.1.2. Socio-economic issues – by providing clean, affordable heat to help reduce the cost of heat and help alleviate fuel poverty.
- 1.1.3. Security, resilience and flexibility of London's energy system - heat networks provide significant energy storage, helping to make London more resilient e.g. able to cope during cold spells. They also reduce the strain on local electricity networks by reducing peak electricity demand.

Market Barriers

1.2. There are a number of market barriers that all contribute to creating a higher level of project risk for district heat network projects and consequently the current build-out rate for district heating network projects is still very slow. These barriers include:

- High development and capex costs
- Heat is an unregulated market so heat network developers and investors are uncertain of future demand from customers and likely revenue
- Lack of capacity and specialist resource at a Borough and developer level
- Issues around the commercial agreements involved e.g. between the providers of heat and the heat network operator
- Lack of consistent adherence to high design and construction standards
- Insufficient stakeholder engagement (which is essential given the large amounts of disruption involved)

1.3. In addition, heat networks continue to rely on public sector leadership and investment due to four fundamental characteristics:

- Need for heat mapping and energy masterplanning to identify potential locations for district-level heat networks
- Long term infrastructure lifetime of heat network assets
- Need for long term anchor load heat demand (typically secured through public sector connections such as hospitals and leisure centres)
- Access to low-cost public sector financing, which can help reduce the costs of delivering large-scale heat infrastructure and ultimately contribute to keeping the cost of heat provision low

- 1.4 These market barriers to the development and then delivery of district heating networks still exist despite the support offered by the GLA and national government. This means the market is still very slow to develop potential projects and that many of the schemes developed are then not actually being built out as very few organisations are willing to play the lead role of owner and manager of these district heating networks.
- 1.5 Intervention from the Mayor is now required to provide the leadership and co-ordination to develop the market and allow these barriers to be overcome, to accelerate the delivery of district heating network projects.

Policy Response

- 1.6 In the general absence of national policy initially, London established a range of supportive policies through the London Plan and previous Climate Change and Energy Strategies to support district heating and try to overcome these market barriers to delivery.
- 1.7 The London Plan has been a key driver of heat networks:
- At a strategic level – by supporting London Boroughs to identify, safeguard and expand existing networks and actively identify opportunities for new networks through energy masterplanning.
 - At a development level – by encouraging developments to connect to existing heat networks or develop site-wide heat networks that are future proofed to enable connection to planned or future district heat networks.
 - The draft new London Plan is also proposing a heating hierarchy for developments to minimise impacts on climate change and air quality - the use of waste heat through heat networks is at the top of the hierarchy.
- 1.8 Successive Mayoral Programmes have been developed to support the development of specific district heat network project opportunities identified through the energy masterplanning process. Initially the Decentralised Energy Project Delivery Unit (DEPDU) that ran from 2011 to 2016, and since 2016 the Decentralised Energy Enabling Project (DEEP) have provided technical, commercial and financial support to stakeholders to help them develop commercially viable district heating projects that can be taken to market for financing and subsequently delivery.
- DEPDU developed 21 projects, 17 with London Boroughs, and these were worth over £100 million but less than half have actually gone through to construction phase (these include Bunhill Phase II, Gospel Oak CHP Network and Lee Valley Heat Network). Schemes have only gone ahead in the London Boroughs where there is strong political support accompanied by sufficient levels of human and financial resources to deliver the projects.
- 1.9 The London Green Fund and now the Mayor's Energy Efficiency Fund have been established to provide low cost finance to fund energy projects including district heating projects. In the past, district heat network schemes have generally been delivered through a combination of central and regional government grant funding, local government's own resources or borrowing and public-sector backed investment. The size of the Mayor's Energy Efficiency Fund would cover the total amount of investment required for the district heat networks that currently form part of the immediate DEEP project pipeline. The degree to which local authorities will use MEEF to finance heat networks will depend on the terms and conditions they can access compared to other options e.g. funding from the Public Works Loan Board.
- 1.10 National Government produced a Heat Strategy in 2013, created a Heat Networks Delivery Unit (HNDU) providing similar support to DEPDU in 2013 and then the Heat Networks Investment Project (HNIP) - a £320 million grant and loan funding programme to support the build out of district heating

networks – first piloted in 2016/2017. Three London Boroughs (out of eight approved schemes) received grants under the HNIP pilot, receiving over £3.5m in grants. The full HNIP scheme launched this year and funding will be available from April 2019. The scheme will be open for applications for a period of up to three years. This funding would be available to the GLA if it were to decide to start building out district heating network projects and the next phase of funding will be available when the application process launches in January 2019.

- 1.11 Currently the heat network market is not regulated, and this compounds the challenges that the market faces. The Competition and Markets Authority have recently undertaken a study into domestic heat networks to ensure households are getting a good deal. The study will run for 12 months concluding around the end of 2018. It has already produced an Interim Report after six months presenting its initial findings and views on potential solutions. The interim report suggests that whilst consumers on heat networks generally get a comparable deal and level of service to those on other heating systems, the sector should be regulated to ensure greater customer protection in future.

Impact of Existing Policy and Remaining Challenges

- 1.12 These policies to date have helped to move the market forward by:

- Getting small site-wide networks constructed as part of communally heated new build developments that create possible future connections for district heating networks.
- Creating a development pipeline of commercially viable district heating network projects in London that just need finance and a lead partner to commit to build them out.

- 1.13 The market is still not however building out district-level heat networks despite the pipeline of commercially viable projects having grown due to development funding support from DEPDU, DEEP and HNDU. The major barrier now is that there are no clear bodies or organisations that are willing to be responsible for financing and building out these projects.

- 1.14 London Boroughs have lost considerable resources over the last 10 years or so and few are in a position to commit to taking on these non-statutory energy supply projects. Private sector Energy Service Companies are also not building out heat networks beyond the boundaries of their site-wide networks due to the risk profile of district-level projects and the returns on investment not matching their existing business models.

Proposed Project

- 1.15 There is therefore now an important opportunity for the Mayor to consider what else he can do, on top of what he has already done, in London to accelerate the build-out of district heating networks. This is about developing a new class of energy infrastructure and consequently needs to be public sector-led in the early phases of the market's development to allow the associated risks to be appropriately mitigated as the existing risk profile for these projects will not support a private sector market-led approach. This is what has happened in other utilities such as energy and water.
- 1.16 The GLA need to understand the full spectrum of options that exist for the Mayor to have greater influence over the speed and scale of development and delivery of district heating networks in areas of London where heat networks could provide the cost and carbon optimum solution for heat supply to consumers. Potential options will range from a light touch approach of providing support to partners or stakeholders to enable them to deliver projects themselves, to a fuller role as the lead-partner in the development, financing and build-out of district heating networks
- 1.17 This analysis would allow the GLA to assess the various options available to the Mayor and make a recommendation on the optimum role(s) for the Mayor to play in mitigating project risks, sourcing low cost patient capital and building-out commercially viable district heating network projects.

- 1.18 The 'Delivering District Heating Networks' project is designed to respond to Mayoral commitments made in his manifesto and his Environment Strategy. It will explore viable options and models for establishing the optimum approach for the Mayor to take in helping overcome existing barriers to delivery of district-level heat networks, attract finance and actively accelerate the build-out of district heating network projects in London.
- 1.19 It is a two-stage project that will consider the different options for Mayoral intervention, with input from both internal and external stakeholders, and set out the business case for two preferred option(s) or model(s) aimed at accelerating the build-out of district heating networks in London.
- The first stage is to evaluate the various roles that the Mayor could play in supporting stakeholders and accelerate build-out of district heating projects in London. These will be drawn from international experience and through consultations with the sector, and include both technical, financial and governance considerations. Two lead options will be identified and taken forward for further development in the second stage.
 - The second stage will develop detailed business cases for the two lead options and apply them to real world potential schemes in London. They will provide a clear and real example of how the Mayor's role would catalyse activity and deliver the real world heat network projects.
- 1.20 The outputs of the research will also support the development of an European Regional Development Fund (ERDF) bid under Priority Axis 4 - Supporting the shift towards a low carbon economy in all sectors – that, if successful, will provide funding for additional technical and commercial capacity at the GLA to support the development of district heating networks across London.

Timelines

- 1.21 The specification for the work will be put out in early December with the aim of the project starting in January, and for the project to be completed by the end of April 2019.

Budget

- 1.22 The budget of up to £45,000 will come from the Green Finance budget that is held by the Zero Carbon Policy unit, part of the GLA Environment Team.

2. Objectives and expected outcomes

Objectives

- 2.1 Identify a range of options that the Mayor could adopt to support stakeholders and partners to overcome current barriers to delivering district-level heat networks.
- 2.2 Identify two options, supported by clear rationales and highlighted through the development of business cases, for the role that the Mayor could play in accelerating the development, financing, construction and expansion of district heating networks in London.
- 2.3 Provide rationale for applications for a GLA ERDF bid to accelerate the delivery of district heating networks in London.

Expected Outcomes

- 2.4 Greater understanding of the range of options available to the Mayor for accelerating the rate of heat network build-out in London.
- 2.5 Understanding of the role that stakeholders would like the Mayor to play in supporting the development and build-out of heat networks in London.
- 2.6 Understanding of how the range of identified options would attract third party investment and which models are preferred by investors.
- 2.7 Two preferred models, with rationales and accompanying business cases, for presentation to the Mayor for consideration.
- 2.8 Supporting material for developing a Full ERDF bid – closing date April 2019 – if the initial Expression of Interest that will be submitted by Friday 23rd November 2018 in the current bidding round is successful.

3. Equality comments

- 3.1. Gender Equality and Equal Opportunities are enshrined within the GLA's programmes and activities according to the Mayor's Framework for Equal Life Chances (June 2014). The framework aims to bring Londoners together rather than dividing them. It promotes outcomes for a diverse range of communities that seeks to bring real changes to the quality of life for all Londoners. Decentralised energy, along with energy efficiency, forms the framework's Environment Objective 1.2. The objective seeks to ensure protected groups such as old and young people and those who are vulnerable, are better able to afford domestic energy. District Energy specifically aims to help a range of stakeholders to develop and deliver energy supply projects that will reduce Londoners' energy costs by up to 10% on their current energy bills.
- 3.2. This is a research project looking at the options available to the Mayor for accelerating the delivery district heating networks in London. We will ensure our equalities duty is met by implementing our equalities compliant approach through the procurement of this research project. The results of this project will be relevant and applicable to all people and groups in society.

4. Other considerations

a) Key Risks and Issues

Risk	Mitigation
London is not able to develop and build out heat networks at the rate required by the London Environment Strategy and the Mayor's 2050 target	The outcomes of this project will provide the Mayor with viable costed options for how to actively support the acceleration of heat networks in London.
The Mayor isn't able to implement the preferred options identified in the project	The project will involve extensive consultation with internal GLA stakeholders to ensure the identified options are feasible and would be able to be implemented if the Mayor supported them
The project runs beyond the end of this financial year	The project will be procured as soon as the ADD is signed so that it is able to start in December, and the tender will ask for interim outputs before the

	end of March 2019 to ensure that significant progress has been made within this financial year.
No bids come back in response to the invitation to tender	The tender will be well written and clear and potential interested parties will be identified that have the knowledge and expertise to deliver the project.

b) *Links to Mayoral Strategies*

4.1 The Mayor's Environment Strategy highlights the important role that district heating will play in meeting his zero carbon by 2050 target:

- The Mayor has set a Zero Carbon target for London by 2050 – District heating networks will play an integral part in London being able to meet this target. All scenarios that get London to zero carbon require a significant increase in district heat networks. Modelling carried out for the GLA suggest that by 2025 at least 100,000 homes will need to be connected to district heating by 2025, an increase of 70,000 over current levels.
- Actions to support the achievement of the Zero Carbon target - 'The Mayor will therefore consider the establishment of a District Heating Network Delivery Body for London that secures funding, and in partnership with London Boroughs, develops and builds district heating networks'.
- The Mayor stated in his Manifesto that he will 'back district heating schemes that make the most of waste heat from the Tube, such as that in Bunhill, Islington'. The construction of district heating networks in priority areas across London are essential if this is to be achieved.

4.2 Mayor's draft new London Plan – this sets out the policy for how district heating networks will form part of the low carbon heating solutions for new build developments

c) *Consultation and Impact Assessments*

4.3 This project has been developed with the aim of developing and delivering a strategically important project that will contribute to the direct delivery of the Mayor's London Environment Strategy and meeting his zero carbon by 2050 target. The London Environment Strategy was widely consulted on and commits the Mayor to consider the establishment of a district heating network delivery body. The specific elements of this project have been developed in response to the issues and challenges that partners and stakeholders have raised in our discussions with them on developing and rolling-out district heating systems. As part of the development and delivery of the project we will continue to engage with relevant London stakeholders to ensure the outcomes are as relevant as possible.

4.4 An Impact Assessment was undertaken for the London Environment Strategy and its associated programmes. As this bid will help deliver these objectives the original impact assessment is still relevant to the project. Any physical development or subsequent workstreams stemming from this project will involve the necessary levels of Impact Assessments and stakeholder consultation.

4.5 The draft new London Plan has also been widely consulted on and numerous consultation responses that have been considered in framing the final proposed London Plan that will go to Examination in Public in January 2019.

¹ Element Energy, 2018, London's Climate Action Plan: WP3 Zero Carbon Energy Systems, Online: https://www.london.gov.uk/sites/default/files/2.3_wp3_zero_carbon_energy_systems_-_final_report_issued_21_september_2018a.pdf

5. Financial comments

- 5.1. Assistant Director's approval is sought for expenditure of up to £45,000 for consultancy support to identify the options available to the Mayor for catalysing the delivery of district heating networks and to develop a detailed rationale with a supporting business case for each of the two preferred options. This will be funded from Environment team's 2018-19 Green Finance budget.

6. Planned delivery approach and next steps

Activity	Timeline
Procurement of contract [for externally delivered projects]	w/c 3 December 2018
Delivery Start Date [for project proposals]	w/c 7 January 2019
Main milestones – Identified range of models for GLA's Role	8 February 2019
Main milestones – Identification of preferred models and accompanying investment cases developed	29 March 2019
Delivery End Date [for project proposals]	31 March 2019
Project Closure: [for project proposals]	30 June 2019

Appendices and supporting papers:

None.

Public access to information

Information in this form (Part 1) is subject to the Freedom of Information Act 2000 (FoIA) and will be made available on the GLA website within one working day of approval.

If immediate publication risks compromising the implementation of the decision (for example, to complete a procurement process), it can be deferred until a specific date. Deferral periods should be kept to the shortest length strictly necessary. **Note:** This form (Part 1) will either be published within one working day after it has been approved or on the defer date.

Part 1 - Deferral

Is the publication of Part 1 of this approval to be deferred? NO

If YES, for what reason:

Until what date: (a date is required if deferring)

Part 2 - Sensitive information

Only the facts or advice that would be exempt from disclosure under FoIA should be included in the separate Part 2 form, together with the legal rationale for non-publication.

Is there a part 2 form - NO

ORIGINATING OFFICER DECLARATION:

Drafting officer to
confirm the
following (✓)

Drafting officer:

Simon Wyke has drafted his report in accordance with GLA procedures and confirms the following:

Corporate Investment Board

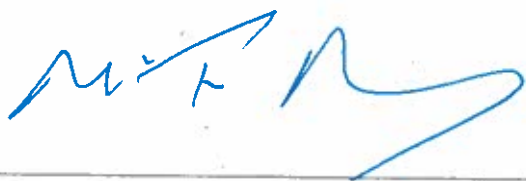
This decision was agreed by the Corporate Investment Board on 26 November 2018.

✓

HEAD OF FINANCE AND GOVERNANCE:

I confirm that financial and legal implications have been appropriately considered in the preparation of this report.

Signature



Date

26 11 18

