OPDC
OLD OAK AND PARK ROYAL DEVELOPMENT CORPORATION

Title of report:	**Application to Green Heat Network Fund**
Meeting date:	**22 February 2023**
Report to:	**Development, Investment, Infrastructure and Sustainability Committee**
Report of:	**Philippa Illingworth, Infrastructure Manager**

For Decision

This report will be considered in public

1. Summary

1.1 This paper provides the background for OPDC's work to appraise the viability and deliverability of a heat network for Old Oak and Park Royal. It seeks approval to submit a funding application to the Department for Energy Security and Net Zero ("DESNZ") - formerly the Department for Business, Energy and Industrial Strategy - for its Green Heat Network Fund ("GHNF").

1.2 This application is based on the outline business case ("OBC") that has been prepared by OPDC to appraise the heat network through government's five case model. The OBC concludes that there is a strong strategic case for the heat network which meets both government and the Mayor's objectives for delivering zero carbon growth. These objectives can be met by seizing the unique opportunity to capture large capacity waste heat sources in the Park Royal industrial area to deliver resilient, affordable heat to new housing and commercial development, as well as social infrastructure across Old Oak and Park Royal. Potentially saving 150,000 tonnes of carbon over 40 years, the network is capable of servicing over 12,000 homes as well as business and key public sector users.

1.3 The OBC shows that the proposed heat network will require an estimated £35m of capital gap-funding. The economic case shows that this investment is good value for money, remaining well within DESNZ's threshold of 4.5p per kWH of funding support for schemes (note, the Benefit Cost Ratio used in housing business cases is not a metric used for low carbon generation, therefore, it is not an output of the economic case in the OBC).

1.4 The paper outlines the project's programme and next steps that need to be progressed to take this opportunity forward. This next phase of work will require an estimated investment of £2.3m to take the project through further design, commercialisation and procurement.

2. Recommendations

The Committee is invited to:

2.1 **Approve** the application to the Green Heat Network Fund for £1m of revenue funding to undertake commercialisation activities and £35m of capital funding to be drawn down ***subject to*** OPDC successfully meeting the GHNF criteria during the commercialisation phase.

2.2 **Note** the recommendations that will be made to the Board at its March 2023 meeting to:

a) Delegate authority to the Chief Executive Officer to enter into the GHNF Funding Agreement should OPDC's application be successful.

b) Delegate authority to the Chief Executive Officer to agree additional funding required to support the commercialisation with the GLA. This will be conditional on a successful application the GHNF.

c) Delegate authority to the Chief Executive Officer to draw down and spend up to £2.3m (£1m from GHNF, £1.3m from GLA) on the commercialisation phase of Heat Network development.

d) Delegate oversight of the commercialisation phase to the Development, Investment and Sustainability Committee.

2.3 **Note** the programme of activities and forecast programme for the commercialisation phase. Additional approvals, including further drawdown from the GHNF or further expenditure approvals will be managed within OPDC's scheme of delegation.

3. Background

3.1 A paper on the proposed Decentralised Energy Network ("the heat network") was brought to OPDC Board in September 2022[1]. This paper set out the assumptions and recommendations arising from a strategic outline case ("SOC") for a heat network in Old Oak and Park Royal. The SOC established a strong strategic case for the heat network, capitalising on local waste heat from data centres to serve the new development proposed in Old Oak West. Board approved that work should be undertaken to progress the OBC, which would be used as the basis for an application to DESNZ (then BEIS) for funding.

3.2 At its November 2022 meeting, the Board received an update on the heat network and approved a delegation to the Development, Investment and Sustainability Committee to approve any application the DESNZ for funding support.

3.3 Since this time, additional work has been undertaken to prepare an OBC for the project alongside an application to the DESNZ's GHNF for £1m of revenue funding to undertake the commercialisation activities in anticipation of drawing down £35m of capital funding. The terms of this funding are set out in the paper.

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[1] https://www.london.gov.uk/moderngovopdc/documents/s60407/11.%20RED%20Programme%20-%20Heat%20Recovery%20Project%20-%20Public%20Paper.pdf

3.4 Exploring the feasibility and viability of a district heat network is aligned with central government and GLA policy. UK Government, via DESNZ, have been investing in such projects for over a decade. Government is also looking to strengthen the regulatory controls and incentives for heat network projects through the Energy Security Bill[2] and the provisions for Heat Network Zoning. The proposals envisage central and local government working together with industry and local stakeholders to identify and designate areas within which heat networks are the lowest cost solution for decarbonising heat. Certain buildings within zones would be required to connect to a heat network, supplementing the existing controls OPDC has through its planning powers.

3.5 Following government's public consultation[3] on proposed Heat Network Zoning, DESNZ recently invited OPDC to submit an expression of interest to be part of an advanced heat network zoning pilot. If the application is successful, OPDC will be able to work with DESNZ on testing the feasibility of a dedicated heat network zone for our area, further supporting the ambitions of this project.

3.6 Planning policy in central and inner London has been pro-heat network since the London Plan was introduced in 2007. The GLA has also established a number of programmes including the Green Bond, which aim to support the GLA and its functional bodies to fund and deliver decarbonisation projects at scale. OPDC has worked closely with both GLA Environment and Group Treasury on the development of these proposals, which continue to receive strong support.

3.7 In the last two years, OPDC has received planning applications for five new data centres. Data centres are very significant users of power but also generate high levels of waste heat. OPDC commissioned a high-level feasibility study reviewing the potential to extract and distribute waste heat from data centres and to assess their carbon off-set potential. The study recommended that there was sufficient low-grade heat from the data centres being planned to meet future heat demands across the area.

3.8 The location of very large industrial waste heat sources close to current and future customers with large heating, cooling and hot water demands is a unique opportunity. Provision of a waste-heat-powered energy network delivers additional benefits for OPDC's wider regeneration plans. Wider benefits include a reduction in overall power demand for future development in an area with known electrical grid capacity constraints.

3.9 The energy network also has the capacity to deliver resilient and affordable heat to households and businesses, creating the opportunity to temper future shocks to energy costs as has continued to be felt so acutely in the current cost of living crisis.

3.10 If the heat network were not available, it would be the responsibility for individual developers to achieve the GLA net zero carbon target through on-site and off-setting measures. This would typically require them to install air source heat pumps as the primary hot water and heating technology, and to provide back-up gas boilers. This would place higher load demands on the electrical power grid,

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[2] https://bills.parliament.uk/bills/3311

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1083318/heat-networks-zoning-consultation-government-response.pdf

require carbon offset payments for residual carbon use and likely create higher and more volatile energy costs for households.

3.11 The OBC for the heat network makes a strong strategic and economic case for a heat network at Old Oak and Park Royal. This is also aligned with, and will provide significant benefits to, OPDC's wider regeneration plans for Old Oak West. The executive summary of the OBC is included at Appendix A.

4. Issues for consideration

GNHF application

4.1 The GNHF is a grant fund managed by DESNZ. The programme opened in March 2022 with a total fund size of £288m.

4.2 Grant awards are subject to the following limits on key evaluation metrics, with OPDC's business case position set out against these:

Grant Criteria	Maximum Value	OPDC bid
Maximum commercialisation phase grant	£1,000,000	£1,000,000
% total capex met from grant	50%	32%
Maximum subsidy per KWh (over 15 years)	4.5p	3.17p
Maximum capital grant	n/a	£35,000,000

4.3 A detailed programme and work plan has been developed for the commercialisation phase. This includes an estimate of maximum cost of £2.3m, which exceeds the GHNF maximum grant for commercialisation of £1m. The additional investment of £1.3m will be conditional on a successful application the GHNF, so has not been included in OPDC's core budget for 2023/24. It would therefore need to be met by the GLA, for which it has provided a letter of support included in Appendix B.

4.4 OPDC's assessment of heat network estimates that the total capital cost of the project will be c.£114m. Its assessment of the grant is based on the minimum public sector investment required to ensure the majority of the cost, as well as the provision of the appropriate resources and capabilities can be met by private sector investment partner. The public sector contribution includes £10m of Carbon Offset Contributions from the Local Planning Authority. This funding will be subject to OPDC approval of a policy for investing Carbon Offset monies.

4.5 The GHNF grant at £35m, whilst potentially a large allocation of the programme, performs well against DESNZ's key metrics. Should OPDC be successful in its application, OPDC would enter into a MOU with DESNZ for the commercialisation phase of the project. This MOU would include key gateway stages for the commercialisation phase to progress through to procurement and implementation.

4.6 Were the commercialisation phase to fail due to projects risks that cannot be overcome, DESNZ would not seek to recover the commercialisation grant, accepting that this stage of work is done at risk (as is any further investment from the GLA).

4.7 Subject to successful commercialisation, including assurance that the capital grant can be spent before March 2025, OPDC would then be able to progress to implementation stage and draw down the capital grant from DESNZ.

4.8 A programme has been prepared which highlights the key activities and dependencies that need to be undertaken in order to achieve the spend window. Whilst it is considered to be deliverable, it is not without risks in light of the number of different stakeholders involved and the requirement for capital funding to be spent before the end of March 2025. However, this risk will be further tested early and often through the commercialisation phase.

Commercial Structure

4.9 A variety of commercial structures are considered in the OBC. Whilst a decision on the commercial structure is not required at this stage, assumptions have been made to develop the financial appraisals for the OBC and to support the application to GHNF. These assumptions have been informed by the consultant team's market knowledge and early engagement with potential providers.

4.10 The current preferred way forward is to procure a Joint Venture (JV) partner to deliver the network alongside OPDC. It is expected that the JV partner will be an investor that also has experience of delivering projects and, therefore, capacity to manage the overall delivery of the network.

4.11 An early activity during commercialisation will be to build on the market engagement undertaken to date to further understand investors' views on the proposed commercial and legal structure. Following this and with input from both commercial and legal advisors, a Procurement Strategy will be prepared which will include, but not be limited to, the following:

- the nature of the JV contract being procured (legal and contractual considerations)
- shareholding, risk share and obligations for OPDC or the GLA
- exit routes and constraints
- key contracting parties i.e. OPDC or GLA, and related guarantees
- funding obligations
- decisions delegated to the JV and OPDC reserved matters
- timetable and process including the details of any framework
- resource implications for OPDC.

4.12 DESNZ has procured a framework of investors known as BHIVE which has been developed specifically for the delivery of heat networks[4]. The framework is a

[4] https://tp-heatnetworks.org/bhive/

Dynamic Purchasing System meaning that additional firms are added over time. All procurement options will be reviewed, however, at this stage it is anticipated that using BHIVE c be a suitable option.

4.13 During commercialisation, OPDC will undertake activities to confirm that the heat from data centres and heat demand from early customers can be secured. This will be an important part of de-risking the opportunity ahead of procuring a partner and is also key to ensuring the network has sufficient resilient heat supply and early demand ahead of development at Old Oak being built out. The JV SPV will be the entity that will ultimately enter into any agreements with heat suppliers (data centres) and off-takers (customers). However, OPDC will seek to secure advanced agreements with the key parties as well as land agreements and joint working with HS2 for civils works and key parts of the heat network construction.

4.14 Whilst the financial modelling assumes that funding over-and-above the grant is met by the private sector investment partner, this is because it is not feasible to develop a more detailed funding strategy. However, OPDC is in discussion with both the GLA and the UK Investment Bank (UKIB) as the project could meet their respective investment criteria. Discussions with UKIB indicate that they recognise that project finance investment in heat networks is relatively new and therefore want to use their funding capability to encourage other private sector debt investors to 'crowd-in'. Discussions with both will continue through the commercialisation phase. The ability to bring debt funding into the project could reduce the overall cost of capital and boost the project's financial performance.

Data Centres – heat source

4.15 Letters of support have been secured from two data centres to be included in the GHNF application. OPDC will progress these discussions during the commercialisation phase. OPDC as Local Planning Authority is ensuring that future section 106 agreements include the technical specification for future connection to take heat from the network. In addition, through the discharge of conditions Section 106 obligations on planning permissions for the data centres is ensuring that conditions are optimised for the delivery of the heat network.

4.16 Whilst heat networks using data centres are not common in the UK, they have been developed elsewhere and the generally accepted principle is that the heat is a waste product. The data centre operators in many cases would have to run plant to reject this heat to atmosphere, and our discussions to date have shown support for the heat network from scheme developers. Connecting to the heat network can offer the following benefits to the data centres:

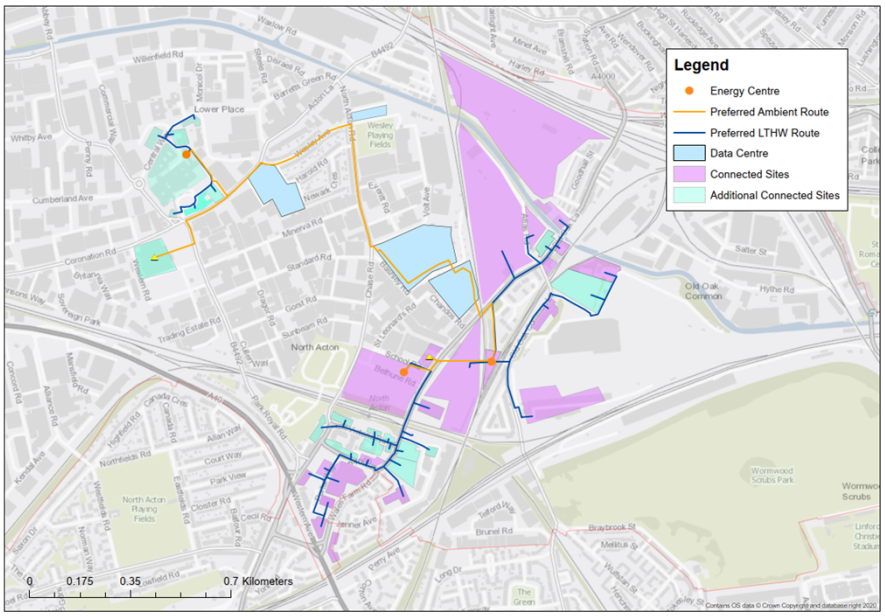
- Improved system efficiency.
- Utilises a waste output, provides positive ESG credentials which is an increasingly important consideration for their funders and customers
- Meets their planning obligations
- No operational detriment or additional cost
- Potential Emissions Trading Scheme savings from credits due to waste heat export.

4.17 The risk of the data centres ceasing to be a suitable heat source is considered low, at least for the first 20 – 30 years of operation. The trend in improving efficiencies of data centre operation has resulted in higher computing densities (more work for the same electrical input) typically with equal waste heat. New methods of cooling, namely immersion cooling, are even better suited to waste heat recovery where this can be exported in a cooling agent rather than as warm air.

4.18 Over time, there is the potential that the amount of waste heat generated by data centres will decrease as servers get more efficient. Whilst this is seen as a low risk at least for the first 20 years of operation, the SPV will look to diversify its heat sources. Potential sources include; heat from the HS2 tunnel, heat from the sewers, the electrical transformers at Willesden Junction transmission station, the canal, aquifer and industry. As a last resort the network can be run from air source heat pumps. In each of these instances, it is the network itself which represents the major investment, with the ability to add new heat sources enables through the provision of district network coverage.

Customers

4.19 Different network options have been considered and these are set out in the OBC. The diagram below shows the location of the areas that have been included in the OBC as the customers for the heat network. This includes existing assets such as Central Middlesex hospital and residential development at North Acton, as well as new development at Old Oak West.



4.20 Letters of support have been received from Central Middlesex Hospital, Imperial and Notting Hill Genesis, and we will continue to undertake further engagement to develop terms. For existing homes and non-residential properties, it has been assumed that there would be no connection charges and the cost of heat would be set a competitive tariff compared to current provision

4.21 For new development, there will be planning obligations to connect to the heat network. This is in addition to the potential for enhanced controls through Heat Zoning should the policy come into force, as well as OPDC's role in the

development in delivering Old Oak West will support the connection of new schemes.

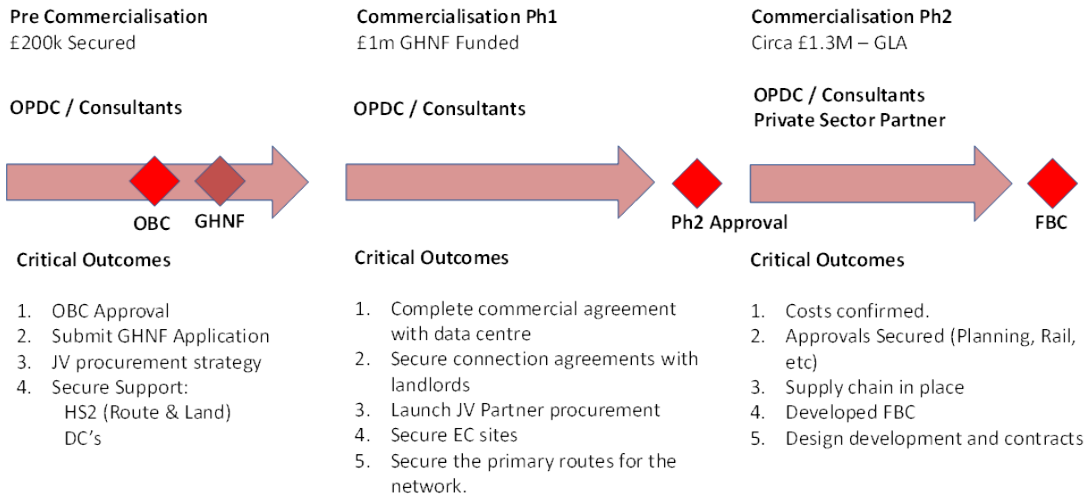
4.22 The current financial model has used OPDC Planning's development trajectories to forecast completions and therefore uptake of new connections. The OBC has tested the model's sensitivity to delay of this uptake, further testing and potential mitigation (through also deferring cost for sections of the network) will be developed through the commercialisation phase.

4.23 The OBC has been developed to an appropriate level of detail and assurance, within the resources approved to date. It has established that there is a strong case for a heat network in the OPDC area, and that public sector investment in the heat network represents good value for money. Successful delivery of the heat network is also expected to have wider benefits in supporting the regeneration of Old Oak West through the provision of affordable zero carbon heat and reducing the need for potentially costly and slow improvements to the electrical grid. The proposals have strong support from the GLA, other key local stakeholders and meet both government policy objectives and the GHNF criteria.

4.24 **The Committee is asked to approve a submission of the Green Heat Network Fund for the Old Oak and Park Royal Heat Network.**

Next Steps

4.25 The diagram below shows the phases of commercialisation and the key activities to be undertaken.



4.26 The procurement of the Commercialisation team will include the following consultants:

- Technical Advisors – providing technical support, detailed design of network route and energy centres, techno-economic modelling.
- Commercial Advisors – undertaking commercial negotiations with heat off takers and suppliers, advice on structure and procurement of partner, procurement management.
- Financial Advisors – undertaking financial modelling, tax advice and delivery vehicle options.

- Legal Advisors – undertaking property agreements, heat purchase agreements, advice on formation of partnerships and funding agreements.

4.27 OPDC will require decisions from Board / DISCo (subject to delegations) at milestones during the phases of work shown above. The table below summarises when decisions are expected to be brought to governance.

Milestone	Timetable
Approval to enter into funding agreements with DESNZ and the GLA for the commercialisation phase	June 2023
Approval of the commercialisation work programme and expenditure of up to £2.3m	June 2023 (subject to draw down milestones)
Approval of procurement strategy and launch procurement	October / November 2023
Approval to enter into agreement for GHNF capital funding of £35m	Subject to timing of award by GHNF
Approval of FBC and establishment of the JV SPV	December 2024

Risks and Issues

4.28 The table below summarises the key project risks and mitigations.

Risk	Mitigation
Unable to secure agreement with new data centres for heat offtake.	• Build on initial engagement with data centres to agree terms, setting out benefits and cost savings
IRR insufficient to attract a private sector funding in the project.	• Current IRR is within expected range and includes optimism bias, risk and contingency • Early engagement with investors during commercialisation to confirm requirements and risk appetite
GHNF is not secured	• Application on terms that meet GHNF requirements. Ongoing engagement with GHNF team throughout
Land not secured, resulting in inability to locate and deliver necessary infrastructure	• Development of land assembly strategy as part of OOW (use of Powers if required) • Early engagement with others for works co-ordination
Risk that capital grant cannot be committed ahead of March 2025	• Ongoing monitoring of realistic programme with early flags and lead-in time for OPDC / GLA decisions • Explore frameworks for efficient procurement

4.29 The programme for the post OBC commercialisation includes the opportunity to progress and de-risk key parts of the project (including heat supply agreements with data centres, key design and legal input) following the submission of the GHNF bid, but prior to a DESNZ decision and at risk of not being successful. As this work can be done at relatively low cost, and within the provision made within OPDC's draft 2023/24 budget, the committee is requested to note that approval will be sought from the Board to carry out this work. The procurement of the

technical, commercial and legal support for the commercialisation phase is a significant multi-disciplinary procurement. Competitive tendering will take a minimum of 12 weeks and will be done at risk (i.e. prior to approval of GHNF funding).

4.30 OPDC's Target Operating Model did not make express provision for additional resource to manage this project as its progress will be conditional on the outcome of our application. However, the commercialisation costs identified includes additional staff resource. OPDC will be going out to recruit to these new posts to ensure we have access to the right resource, with confirmation of appointments subject to DESNZ approval.

5. Equality comments

5.1 At the current stage, it is not anticipated that the project will have a negative impact on any particular group. Conversely, the project intends to provide heat at an affordable price and shield residents and businesses from the fluctuations that can arise from changes in wholesale energy prices as is currently being witnessed.

5.2 Currently the heat network sector is not regulated, however, there are plans to bring it into line with wider regulation, with Ofgem being the Heat Network regulator from 2024/25. Connecting to a heat network does remove the ability of a resident or business to select their energy provider from the wider market; however, this is also the case in a 'do nothing' scenario as developers would install heat pumps to new buildings which cannot be changed by the leasehold owners.

5.3 As part of the wider land assembly strategy, an equalities impact assessment will be undertaken to ensure that any individual groups are being adequately addressed and consultation is undertaken accordingly.

6. Financial implications

6.1 The GLA has provided a Letter of Support (Appendix B) for the proposals to develop the heat network, along with support for the associated GHNF application. The project is progressing well and the GLA has approved funding that will allow activities to continue whilst the GHNF funding application is being submitted and assessed.

6.2 The GLA has made a provision in its budget for £1.3m, the balance of commercialisation funding, earmarked to cover the activities that will follow once the GHNF funding has been utilised. This budget is provided for in the 2023/24 financial year.

6.3 Finance has performed a high-level review of assumptions driving the financial modelling used in the OBC and at this phase of the project are content. Further due diligence will continue as the business case is developed.

6.4 Any expenditure required by OPDC pre-commencement of the commercialisation phase, to de-risk future project deliverables, will be subject to the Corporation's

decision-making process. These costs are expected to be small and are unlikely to pose a budgetary concern in both 22/23 and 23/24 financial years.

7. Legal implications

7.1 OPDC's external lawyers have undertaken a confidential and legally privileged review of the OBC and there are no particular legal implications at this stage.

7.2 TfL Legal have also undertaken a high-level review of OPDC's powers to deliver the scheme described in the OBC. There are no particular legal implications at this stage, but a further review will be needed once proposals are developed, noting that the activities carried out by OPDC must relate to the object of securing regeneration of its area and that certain activities require Mayoral consent, such as forming or acquiring an interest in a body corporate. OPDC should also note that, as a general principle, the GLA cannot do what its functional bodies can do.

8. Appendices

- Appendix 1: Outline Business Case: Executive Summary
- Appendix 2: GLA letter of support

9. Background papers

- September 2022 Board Report
- November 2022 Board CEO Report

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