Decision Pathway – Report

PURPOSE: Key decision

MEETING: Cabinet

DATE: 03 March 2020

TITLE	**Bedminster and Temple Heat Networks**	
Ward(s)	**Southville, Bedminster, Lawrence Hill**	
Author: Paul Barker		**Job title: Energy Infrastructure Programme Manager**
Cabinet lead: Cllr Kye Dudd		**Executive Director lead: Stephen Peacock**
Proposal origin: *BCC Staff*		
Decision maker: Cabinet Member **Decision forum:** *Cabinet*		

Purpose of Report:

Bristol City Council is installing heat networks to deliver affordable, low-carbon heat and energy to homes and businesses across the city in support of the 2030 net zero Carbon target. In order to achieve this target, the Bristol heat network needs to expand beyond central Bristol and utilise all the available sources of low and zero carbon heat the city has access to.

This report seeks approval to:

1. **Develop and build phase 1 of the Temple heat network,** supplying low carbon heat to new developments being built in the Temple and St Philips areas of the city. The network will make use of the waste heat generated from the new University of Bristol Temple Quarter campus cooling demands.

2. **Design and develop Phase 1 of the Bedminster heat network,** will initially supply low carbon heat to new developments being built in this area of the city as well as existing buildings including Bristol South Pool. An energy centre is being proposed that will utilise heat from the adjacent main sewer as well as potential waste heat from the former mineworkings in the area.

Evidence Base:

Bristol City Council has invested over £6m in its heat networks to date and supplies over 1,000 properties with low carbon heat. A comprehensive city wide heat network will be a crucial aspect of the action required if Bristol is to achieve its carbon neutral ambitions and also represents a significant investment opportunity as part of the City Leap programme. Prior to the City Leap Energy Partnership being in place, it is critically important that the council continues to support the build out of the heat network in order to: meet the connection timeframes of new developments; ensure long term financial viability of the network; and progress along the zero carbon pathway.

The Bristol heat network must also be able to supply low or zero carbon heat to connected buildings at a cost equivalent to, or lower than, mains gas so that existing buildings are incentivised to connect to the heat network. For the Temple network, this is proposed in the first phase through the use of waste heat from the University's new Temple Quarter campus building's cooling system.

The Bedminster network will potentially take advantage of two forms of zero carbon heat. Those from the sewer network and those from former mineworkings. Both options are being progressed in tandem as both technologies

will need to be developed in the city to provide zero carbon heat to the city.

The sewer heat is being taken forward in collaboration with Geneco/Wessex Water who own and operate the city's sewer system. Given the current timeframes of the networks, Bedminster is likely to be the first Bristol heat network to utilise this waste heat providing low cost, low carbon and emission free heat. In parallel, heat from mine workings is being progressed with the Coal Authority who are responsible for the UK's former mine workings.

The Bedminster Heat Network also provides an opportunity for nearby council housing blocks of flats that are currently heated using electric night storage heating to be connected by conversion to a wet heating system. The heat network will also have the ability to connect individual homes currently connected to gas for heating and hot water. The feasibility of these and associated options appraisals will form part of the Council's Heat Decarbonisation Delivery Plan being formulated following the development of the One City Climate Strategy, and will be part of the HRA Housing Investment Plans in future years, and are not part of this funding request.

All works described in this report and the Bristol Heat Network will be used as assets to support the City Leap offer from the Council except those fully funded by external parties (subject to ongoing discussions/agreements).

Approval is therefore sought to carry out the following capital projects:

1. Build Phase 1 of the Temple Network including installation of temporary gas boilers at a total cost of £5.64m.
2. Progress Phase 1 of the Bedminster heat network at an estimated total capital cost of £6.14m in conjunction with Wessex water/Geneco.
3. Progress a sewer and former mine working waste heat energy centre with Geneco and the Coal Authority to supply the Bedminster Heat Network.

To deliver these projects approval is sought for allocation of the remaining £4.9m of BCC Prudential borrowing which is allocated to energy service projects, subject to the acceptance of viable business cases

City Leap interactions: Given these networks are proposed to initially supply new developments with delivery timeframes outside of BCC's control , a significant portion of this capital expenditure could be met by a City Leap delivery partner.

1. The requested funding supports the delivery of the next phase of the council's heat network where:
    - Connection to new developments are required
    - Income generation targets and Government grant funding is at significant risk
    - The integration of heat networks with digital (B-net) and/or highway infrastructure projects will take place
    - Decarbonisation of the heat networks will continue in line with carbon neutrality targets

2. The Bedminster Energy Centre is likely to be delivered via a partnership with Geneco. Additionally, given the potential for use of the mines for the supply of heat, this will be progressed in tandem with the Coal Authority (owners of the mines). It is anticipated that Heat Network Investment Project (HNIP) grant funding will be applied for to finance the project in addition to the Renewable Heat Incentive (RHI). However, Innovate UK funding may also be an appropriate funding scheme.

<u>Further Information</u>

1. Heat networks are central to achieving the Mayor's goal for Bristol to be a carbon neutral city by 2030, in addition to helping to tackle fuel poverty by providing heat to residents at lower prices. The heat network will also provide the Council with a revenue stream from the sale of heat and power to connected residential and commercial buildings as part of its commercialisation agenda. The expansion of the heat network forms part of City Leap, which was approved by Cabinet in May 2018, with approval to procure a Joint venture partner given in April 2019.
2. <u>Low carbon heat from the Sewers.</u> To meet the 2030 carbon neutral goal, it is vital to decarbonise the heat

network using renewable and low carbon sources of which there are limited sources available within the City Centre. One such source of renewable heat is heat from Bristol's sewer network, owned & operated by Wessex Water. Through the use of sewer water heat pumps, which can extract heat from the sewers to supply the network. This is likely to be the first of many Sewer heat pumps that will be installed within the city to provide low carbon heat.

3. It is anticipated that Geneco, a subsidiary of Wessex water, will install own and operate the sewer heat pump.
4. Low Carbon heat from Bristol mine workings. Bristol has significant mine workings in the Bedminster area which is also a potential source of heat for the Bristol heat network. The Coal Authority are carrying out initial studies into Bristol's mine heat potential focusing on the Bedminster mine workings as a first potential heat source and as a possible interseasonal heat store.
5. Low carbon waste heat from UoB Temple Campus**:** University of Bristol's new Temple Quarter Campus has a significant cooling load that will produce waste heat throughout the year. As agreed with UoB as part of the Land Sale of the Cattlemarket Road site, UoB will install a heat pump to capture this heat for supply into the Temple heat network. This waste heat will be augmented by a BCC peak and reserve energy centre on Temple Island that will together provide very low carbon heat to the new developments connected to the network including UoB's residential developments on Temple Island.

Cabinet Member / Officer Recommendations:

That Cabinet:

1. Authorise the Executive Director for Growth and Regeneration, in consultation with the Cabinet Member for Energy, the Cabinet Member for Finance, and the s151 Officer, to apply for and accept revenue and capital grant funding from the Heat Network Investment Project (HNIP) to support the delivery of the council's heat network projects. Note that, if accepted, Heat Network Investment Project grant award must be held by a special purpose vehicle (SPV), which is subject to a separate Cabinet approval.
2. Subject to capital grant funding of £5.3m being award by the HNIP, Approve the allocation of up to £4.9m (funded from prudential borrowing) for the next phase of the Bristol heat networks as noted in this Cabinet report, to be deployed in line with the phasing of planned development as contained in Table 1 below (revisions to this will be subject to business cases being agreed with the s151 Officer).
3. Authorise the Executive Director for Growth and Regeneration in consultation with the Cabinet Member for Energy, to: a) agree terms and approve associated waste heat supply contracts with the University of Bristol; and b) agree terms and approve associated contracts for joint heat supply project(s) with Geneco/Wessex Water (sewer heat) and the Coal Authority (former mineworkings).
4. Authorise the Executive Director for Growth and Regeneration, in consultation with the Cabinet Member for Energy, to sign heat connection agreements with customers and procure and enter into contracts for delivery of all goods, works and services (including associated operation and maintenance contracts) referenced in Appendix A to this Cabinet Report to the value of the funding agreed.
5. Cabinet to note that BCC are in the process of setting up a City Leap Joint Venture that could be the actual capital fund source for this and other related schemes rather than BCC Prudential borrowing.

Corporate Strategy alignment:

1. This report supports the Key Commitment to 'Keep Bristol on course to be run entirely on clean energy whilst improving our environment to ensure people enjoy cleaner air, cleaner streets and access to parks and green spaces.'

City Benefits:

1. Keep Bristol on course to be run entirely on clean energy by supporting the build out of low carbon heat networks
2. Improve our environment to ensure people enjoy cleaner air through supporting the further deployment of renewable heat generation.
3. Improve physical and mental health and wellbeing by making residents' homes warmer and cheaper to heat, reducing inequalities and the demand for acute services.
4. Tackle food and fuel poverty by reducing energy bills.
5. Create jobs, contributing to a diverse economy that offers opportunity to all and makes quality work experience and apprenticeships available to every young person

6. Achieve the above benefits in addition to enabling the site to come forward for further development

Consultation Details:

1. **Discussions have commenced with Geneco and the Coal Authority**

Background Documents:

1. 1 July 2014 Cabinet Report 'District Heating Phase 1'
2. 7 June 2016 Heat Networks Phase 2
3. 9th May 2018 City Leap Cabinet report
4. 4th September 2018 Bristol Heat Network
5. 3 September 2019 Bristol Heat network

Revenue Cost	**£Nil**	**Source of Revenue Funding**	*n/a*
Capital Cost	*Bedminster £6.2m* *Temple £5.4m* ***Total: £11.6m***	**Source of Capital Funding**	*Allocate approved prudential borrowing: £4.9m (up to)* *Heat Network Investment Project (HNIP) grant funding: £5.2m* *Connection Charges: £1.7m (up to)*
One off cost ☐	**Ongoing cost ☐**	**Saving Proposal ☐**	**Income generation proposal ☒**

Required information to be completed by Financial/Legal/ICT/ HR partners:

1. Finance Advice

This report seeks approval to submit a bid for £5.3m of Grant funding to part fund the delivery of the Temple & Bedminster heat network as part of it strategic plan to meet it carbon neutral goal.

On successful award of this grant (and only once the full amount is secured), the report seeks conditional approval to carry out further Heat Network capital projects in two areas of the city:

1) Develop and build phase 1 of the Temple heat network, supplying low carbon heat to new developments being built in the Temple and St Philips areas of the city.
2) Design and develop Phase 1 of the Bedminster heat network, which will initially supply low carbon heat to new developments being built in this area of the city as well as existing buildings including Bristol South Pool.

To deliver these projects the report seeks:

- For **Phase 1 of the Temple heat network**: **Approval to spend £5.4m** of capital budget funded via a combination of Prudential Borrowing (PB), Government grant funding from "Heat Network Investment Project grants" (HNIP) and connection fee income from privately owned buildings and commercial properties that are connected to the network. Energy Service projects have £4.9m of earmarked P.B remaining as part of the approved PL19 capital programme. **The Temple heat network requires the allocation of £1.3m of the remaining P.B.**

- For the **Phase 1 of the Bedminster heat network: Approval to spend £6.2m** of capital budget funded via a combination of Prudential Borrowing (PB), Government grant funding from "Heat Network Investment Project grants" (HNIP) and connection fee income from privately owned buildings and commercial properties that are connected to the network. Energy Service projects have £4.9m of earmarked P.B remaining as part of the approved PL19 capital programme. **The Bedminster heat network requires the allocation of £3.3m of the remaining P.B.**

These two projects, involve total capital expenditure of £11.6m and will be funded from a mix of PB, grants and connection fee income, as illustrated in the following table:

Projects	Temple	Bedminster	Total
	£'m	£'m	£'m
Total CAPEX	£5.4	£6.2	**£11.6**
Funded By:			
Grant funding - HNIP	£2.4	£2.9	**£5.3**
Connection charges	£1.2	£0.5	**£1.7**
Prudential Borrowing (PL19)	£1.3	£3.3	**£4.6**
	£5.4	**£6.2**	**£11.6**

Opportunities, risks and mitigations from these projects:

1) The projects have an expected payback of six years and provide positive Net present values (NPV's). Anticipated income from the "planned developments" linked to these projects are estimated at c£15m and deliver an IRR of c16%, assuming a 25 years period.

2) Grants: The projects assume 47% grant funding contribution. The Energy team have worked closely with the government on heat network projects, previously being successful in obtaining Heat Network Delivery Unit (HNDU) funding; they are keen on work continuing, so there is confidence in that funding can be secured. However, there is also a risk that not all bids would be successful in securing the grant funding. The projects would require further viability assessments after the results of the grant funding bids are known, and progress to implementation therefore, not assumed to be automatic. Further prioritisation would be required taking into account funding available, the return on investment, net revenue implications and other non-financial implications. This may require a return to Cabinet, if the full grant funding is not obtained.

3) Delivery speed of the projects pose a risk to the connection fee income which is funding the two projects, to mitigate this, the team will only commit spend on the relevant "planned development" once it has secured their commitment and sign-up – This will ensure that there is no gap in funding any element of both schemes. The connection fee income will also provide ongoing revenue to the Council, any significant delays in these projects may jeopardise the fee income, resulting in permanent losses of connections to the network and the associated income.

4) These projects are important parts of the Bristol Heat Network system and will be important assets under the City Leap initiative. There is a high possibility that a significant portion of the Council's expenditure will be met by a City Leap partner, reducing the exposure to any financial risk and reducing the need for Prudential borrowing all together.

5) There are potential opportunities of extracting heat from mines and the sewer system in Bristol. The Coal Authority are carrying out initial studies which may or not be useable. This could be a risk if it isn't feasible. If however, this option and the sewer system proposal with Geneco/Wessex Water are possibly, managing any contract agreements and the associated costs, including compliance monitoring will need careful consideration to limit the risks.

6) There are opportunities for the Council to connect its housing stock in the respective Heat networks within both the Temple and Bedminster area. This will help accelerate the achievement of the Carbon neutral goal as well as provide another source of revenue for the Council.

Finance Business Partner: Kayode Olagundoye, Interim Finance Business Partner, Growth & Regeneration 30th January 2020

2. Legal Advice:

When procuring goods, works and services pursuant to this report, the client officers must ensure the all applicable procurement regulations (including utilities regulations if these apply), and all energy-sector regulations are complied with. Client officers will need to seek legal advice throughout the process of implementing the recommendations contained in this report.

Wherever the Council grants a benefit to any undertaking, that benefit may constitute State aid which is prohibited. Again, client officers will need to seek legal advice to ensure no state aid is granted when implementing the recommendations in this report, or if it is granted an exemption is available.

In accordance with Bristol City Council's Financial Regulations, the Council may not establish any entity (including an SPV) until it has obtained Cabinet approval which has been granted following Cabinet's consideration of an appropriately detailed business case. If any prudential borrowing is to be transferred to the entities set up, legal advice must be sought to ensure such entities are bodies governed by public law (who are the only bodies that can receive prudential borrowing).

We understand that such information will subsequently be presented to Cabinet. The SPV referred to above cannot be established until Cabinet has granted such approval.

Legal Team Leader: Sinead Willis, Commercial and Governance Team Leader 30th January 2020

3. Implications on IT:
No anticipated impact on IT Services

IT Team Leader: Simon Oliver, Digital Transformation Director 24th January 2020

4. HR Advice:
Staffing resource is required for the construction of the new energy centre, namely a Construction Manager and a project manager. There are no other HR implications evident at this stage but the position should be reviewed through the course of the project.

HR Partner: Celia Williams, HR Business Partner, Growth & Regeneration 29th January 2020

EDM Sign-off	Stephen Peacock	8th January 2020
Cabinet Member sign-off	Cllr Dudd	20th January 2020
For Key Decisions - Mayor's Office sign-off	Mayor's Office	3rd February 2020

Appendix A – Further essential background / detail on the proposal	**YES**
Appendix B – Details of consultation carried out - internal and external	**NO**
Appendix C – Summary of any engagement with scrutiny	**NO**
Appendix D – Risk assessment	**YES**
Appendix E – Equalities screening / impact assessment of proposal	**YES**
Appendix F – Eco-impact screening/ impact assessment of proposal	**YES**
Appendix G – Financial Advice	**NO**
Appendix H – Legal Advice	**NO**
Appendix I – Exempt Information	**NO**
Appendix J – HR advice	**NO**
Appendix K – ICT	**NO**