

Heat Networks Cabinet Oct 2021 Risk Register

Negative Risks that offer a threat to the expansion of Bristol heat networks and its Aims (Aim - Reduce Level of Risk)

Ref	Risk Description	Key Causes	Key Consequence	Status Open / Closed	Risk Category	Risk Owner	Key Mitigations	Direction of travel	Current Risk Level			Monetary Impact of Risk £k	Risk Tolerance			
									Likelihood	Impact	Risk Rating		Likelihood	Impact	Risk Rating	Date
1	Increased project costs and/or reduced financial returns.	Underestimation of capital costs due to lack of feasibility work and due diligence.	Project capital costs could increase as the heat network scheme is designed in detail, resulting in a reduced financially viable scheme(s). Other external factors such as energy prices reducing further or borrowing costs increasing could also reduce the project's financial returns.	Open	Financial	BCC	BCC are carrying out further detailed design studies where required to ensure capital costs are as accurate as possible prior to installation. BCC have appointed external consultants to carry out outline and detailed feasibilities of heat networks that include techno economic models that can test the implications of higher capital costs on the financial returns. Contingencies are applied to costs to reduce the risk of going over budget.	Reducing	3	5	15		2	3	6	
2	Physical barriers to installing pipework	Areas of archaeological sensitivity create major barriers including city and castle walls. There are limited diversion opportunities within Bristol, and closing certain roads may be unacceptable.	Could prevent the implementation of scheme or lead to CAPEX increase and viability issues.	Open	Environmental Financial Programme/ Project Management	BCC	As part of the feasibility and design work, the main physical barriers, issues and constraints within the study area have been considered and, where possible, avoided during the network prioritisation process. GIS layers and utility maps have been reviewed and a route walkover at key points conducted. Following previous experience BCC use a client led design approach for the network installation which identifies risk upfront prior to tendering and construction of the network. As the project progresses, further liaison will be required with local highways, structures, archaeology and planning departments and utility companies.	Reducing	4	5	20		3	4	12	
3	Capital costs are significantly higher than estimated.	The lack of economic assessment to include robust project CAPEX, the likely financial benefits or sufficient information to secure funding.	Higher capital costs can have a significant impact on the viability of all network phases potentially causing the network plan to not progress.	Open	Financial	BCC	All project costs established within previous studies have been based on a combination of previous project experience and recent quotes for similar projects. The team have a large database of the actual costs of installing district energy schemes including costs for equipment supply and installation, distribution pipework supply and installation, trench excavation and re-installation. Sensitivity analysis has also been undertaken for network options to show the effect of a variance in capital costs and contingency has been applied to all CAPEX items.	Reducing	4	5	20		3	4	12	
4	Heat networks need to support planning policy and BCC decarbonisation policies and therefore it is critical that the network decarbonises.	If the heat networks schemes do not proceed in time to support developments coming forward .	This will undermine BCC Planning Policy which requires connection to a low carbon heat network. Developments are expecting and need the network to decarbonise to meet their carbon standards for their planning requirements. Failure to deliver will damage BCC reputation and make it more difficult to sign new developments up to the network. Ultimately this will reduce BCC ability to work toward a carbon neutral city.	Open	Reputational	BCC	Working cross-departmental and with the experienced consultants to work through all risks and progress the projects as planned.	Reducing	3	5	15		2	5	10	
5	New developments do not connect to the Bristol Heat network	Conditions not set out during planning stage, design of buildings unsatisfactory and uncompetitive comparative costs.	Without buildings connected, the financial viability of the network is significantly impacted.	Open	Financial	BCC	New developments are required to connect to the Heat network as part of planning conditions. BCC Energy Services has established a strong working relationship with developers to ensure buy in from the developer community. A connection pack and standard legal documentation is also now complete and being used to provide developers with early information on what they are required to do to connect to the heat network.	Reducing	2	5	10		1	3	3	

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6	Existing buildings are not district heating ready.	Lack of future proofing of plant room equipment within existing buildings	High return temperatures can significantly impact on the performance of networks. Heating system upgrades may be required for existing buildings, to ensure lower network return temperatures.	Open	Financial	BCC	The Bedminster and Temple networks consists of predominantly planned developments and newly constructed sites that are likely to operate on lower secondary side temperatures. Secondary side heating systems have not been surveyed in detail as part of this study and costs for secondary side improvements have not been confirmed. Specific building return temperatures for Bristol South Pool (the only likely existing building connection on the network) have been reviewed and is within acceptable limits for the network.	Reducing	4	3	12	3	3	9	
7	Project delays occur	The initial installation and ultimate installation and operation of the scheme could be delayed due to a number of factors including: • Negotiating and signing of contracts • Procurement of detailed design and/or appointing consultants • Procurement of physical works and procurement of contractors • Drafting and signing of agreements between organisations (commercial agreements and energy supply contracts) • Installation of the network	Delays in project programmes could lead to financial loss and risk of being unable to supply heat to buildings within agreed timescales.	Open	Financial	BCC	The delivery timescales are partly linked to the developer 'heat on' requirements. Priority is given to networks where a heat on date is required for new developments. The Council's Energy Service is progressing temporary and interim energy centre options, that can supply a new development with heat if required prior to the heat network being completed.	Reducing	2	5	10	3	2	6	
8	Planning Policies on heat network connection are not enforced.	Lack of engagement with planning department internally and backing from senior BCC members.	Planning policy requirements for new developments to connect to Bristol's heat networks is crucial to their development. If these policies are not enforced the heat network is less likely to deliver a lower carbon city.	Open	Programme/ Project Management	BCC	BCC Energy Service has consulted planners and produced a simplified guide to heat networks for planning officers which could be rolled out to planning committee members if required. BCC Energy Service and BCC Planning team use a standard S106 schedules enforcing heat network policy on connections from day 1 connection and future connections. Energy Service and Planning teams have engaged with developers through workshops to explain policy and how it will be enforced by the planning department.	No Change	1	3	3	1	3	3	
9	Air quality restrictions and considerations may restrict gas boiler options.	The energy centre locations for all prioritised network areas are within Air Quality Management Area's.	Emissions from auxiliary gas boilers will need to be considered.	Open	Environmental	BCC	BCC air quality staff will be consulted and their advice considered. Following confirmation of the final energy centre and technology sizing at the feasibility stage, emissions dispersion model, air quality impact and flue height assessment can be carried out at the detailed project development stage if required. It is also likely that the switch from gas boiler peak and reserve to electric boiler peak and reserve happens as part of the energy centre construction.	Reducing	4	3	12	1	3	3	
10	Variation in gas and electricity import tariffs significantly affects financial viability.	Insufficient or inadequate investigation into the financial affects of changes to variations in gas and electricity import tariffs.	Variation in gas and electricity import tariffs have a significant impact on the viability of network options.	Open	Financial	BCC	Current assumptions regarding import tariffs have been based on current tariffs known for key buildings. Sensitivity analysis has also been undertaken to show the effect of gas and electricity import tariff variations.	Reducing	3	3	9	2	3	6	
11	Need support from multiple departments, for example highways to ensure the projects can be implemented to required timescales.	Lack of support from other departments can lead to delays or blockers to installing heat networks.	Depending on the department the impact will vary but will have in some situations impacts on project viability, for example if planning policy not enforced key building connections may be missed that affect project business case.	Open	Service Provision Programme/ Project Management	BCC	Energy Services are working with relevant departments to ensure understanding of the heat networks and to where possible 'piggy back' on other projects, for example where roads are already have planned excavations, to reduce the impact of installation.	Reducing	2	3	6	1	3	3	

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12	Planned developments are brought forward prior to network development.	Developers may install alternative heating systems within planned developments if DHNs are not in place prior to construction.	Infrastructure may not be in place to connect in time. Temporary boilers may be required to serve planned developments until networks are brought forward.	Open	Service Provision Programme/ Project Management	BCC	Take a strategic decision to instruct on new developments becoming 'DH ready' as opposed to 'day 1 connections' should the network not be available. This puts the onus on the development to install a wet heating system which will connect to the heat network at a later stage when the network is available and ready for a heat connection.	Reducing	3	3	9		2	3	6	
13	Ground conditions may cause issues in construction.	Once further site analysis and construction start there could be further issues identified for example archaeological.	Depending on the issues that are discovered this could add to project cost or ultimately make the installation unviable.	Open	Financial	BCC	GPR surveys to be completed. We have engaged consultants that are progressing the development through the RIBA development stages which will assess these risks and highlight any issues as soon as is possible.	Reducing	2	6	12		1	5	5	
14	The Zero carbon heat resource being used to supply the network is no longer feasible to progress due to costs or limit of resource. Also because terms cannot be agreed with the owners of this source (i.e. Wessely water for sewer heat)	Further detailed investigations and bore hole drilling assessments (in the case of Geothermal) provide evidence that the heat source is not suitable	Require an alternative zero carbon solution to be developed.	Open	Financial	BCC	Both heat network projects have alternative zero carbon heat source solutions. These will be progressed beyond the feasibility stage to enable these to be progressed in the event that the primary sources cannot progress.	Reducing	3	6	18		3	4	12	
15	Risk of 50% commercialisation Grant clawback if project does not complete end of Commercialisation review and proceed to construction by March 22	clawback would only occur if BEIS determine that BCC have not used reasonable endeavours to proceed through commercialisation and proceed to construction. Delay outside the control of BCC is not a reason for clawback	Repayment of 50% of spent commercialisation grant and construction loan funding would be lost.	Open	Financial	BCC	Use reasonable endeavours to conclude commercialisation phase by end Feb 22	Reducing	3	6	18		2	3	6	