Outline Business Case

FOR PROPOSED CAPITAL FUNDED PROJECT

Title:	**River Tay Heat Pump and District Heating**		
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Executive Summary

1. Strategic Case

1.1. Project Objectives

The Perth City River Tay Heat Pump District Heat Network will innovatively demonstrate that it is possible to safely use water-source heat pumps to capture renewable energy from an ecologically-sensitive river without harming wildlife. The River Tay is a famously beautiful salmon river with Special Area of Conservation (SAC) status.

Providing affordable heat to businesses and residences in Perth (North Muirton), the heat pump and district heat network (DHN) will help to boost local enterprise, to reduce fuel poverty, and to reduce carbon dioxide emissions from heating. Businesses, Council education buildings and residences in North Muirton will connect to the DHN.

The project will contribute to a thriving, expanding economy and will bring employment opportunities by supporting eco-innovation and supporting businesses to reduce their carbon footprints to increase their green credentials. These opportunities will help to create direct and indirect jobs in new Food and Drink park development as well as the clean, low carbon and renewable technologies and construction field.

The project will also contribute to longer, healthier lives for Perth residents by providing affordable heat and reducing fuel poverty in social and private housing.

This project will aim to demonstrate how river-source heat pumps can be used in an environmentally sensitive river with a DHN to provide affordable heat.

Through project management and partnership, the business model aims to capture and retain greater value at the local level.

This project is part of Perth City Investment Plan and the Tay Eco- Valley wider initiative which is a living lab - the result of an exciting private/public sector partnership – focused on the food and drink supply chain, clean, low carbon technology and renewables. Here, national and international businesses work to develop the products and services that will shape future best practice in resource efficiency and the use of smart technologies. The Tay Eco-Valley provides easy access to world-leading research centres and a hub of like-minded businesses to inspire and support commercial eco-innovation.

PKC will engage with public and private partners to promote the development of the DHN in Perth City supported by the Tay Eco-Valley steering group.

We have further locations in mind for follow up schemes that will build on the learning from delivering this project. We see water source heat pumps with district heating as offering a sound solution to increasing the proportion of renewable heat within the PKC area, helping to meet the national target of 11% of heat from renewables by 2020. This will also help North Muirton to become a low carbon neighbourhood and be used as a model.

The project would also raise the profile of Perth City at the core of the Tay Eco-Valley across the UK and Europe. PKC will use that experience to engage with the Heat National Partnership Local Authority District Heating Strategy Programme led by the Scottish Government and coordinated by Resource Efficient Scotland. We are learning from cities leading in district heat networks through the Stratego Project facilitating cooperation with Denmark but also via the Scottish Cities Alliance.

The Project objectives are:

- provide affordable heat and reduce fuel poverty in social and private housing – cost savings of around £100 per year for each home against gas heating or £200 per year against electric heating are expected (gas price of 5.2p/kWh and off-peak electricity cost of 9p/kWh). This gives total savings of £42,200 for homes based on electric heating
- reduce heat costs for businesses and public buildings – cost savings of around £3,400 are expected for the four buildings in the Food and Drink park, while savings of around £1,100 will result for the two public buildings
- reduce carbon dioxide emissions from heating – an average of 450 tonnes per year (allowing for grid decarbonisation)
- promote Perth City and Tay Eco-Valley as a leading Eco-innovation living lab in the UK and Europe
- provide enhanced fuel security by utilising the River Tay to provide renewable heat, also contributing to Scotland's renewable heat targets – around 4,000 MWh of renewable heat will be provided by the initial scheme. It will also provide greater flexibility in the heat sources for the buildings. The heat network will allow easier changes to different heat sources in future for economic, environmental or fuel security reasons.

1.2. Existing Arrangements

Residents and businesses in the North Muirton area currently derive their heating primarily from gas fired boilers and the electricity grid. A large proportion of the target residents in the North Muirton are PKC tenants whose heating is provided by outdated and relatively inefficient electrical systems.

PKC Housing has developed a proposed scheme to replace and update the existing electrical heating systems serving the top priority 211 homes within the North Muirton area. Their existing plan is to replace these with modern and more efficient gas fired boilers.

This project proposes to replace these older less efficient electrical heating systems with heating supplied from a new district heating system using heat exchangers and pumps to draw renewable heat from the nearby River Tay.

1.3. Business Needs

A total of 1538 houses were originally built in the North Muirton Housing Estate. Of these only 551 houses remain in Council ownership.

The breakdown of fuel types for the remaining Council houses is 289 Gas and 262 Electric.

1.4. Potential Scope

The phase covered by the project will provide the foundation for the network and its future expansion. At this stage the following buildings are included:

- Four buildings at the Food and Drink Park
- North Muirton Primary School
- Colonsay Centre (and possibly Rannoch Centre)
- 211 Council owned houses in the North Muirton Estate

The extents of this initial phase have been based on providing tangible benefits with over 200 homes provided with affordable heat, the initial buildings of the Food and Drink park provided with low carbon heat and Council owned buildings also benefiting from the lower cost heat. Building the network to this point reduces the grant required for a larger network while still providing a scheme that can produce an acceptable return (after grant funding) and be expanded out, to the remaining 1,200 homes in North Muirton, the Grammar School and North Inch Community Campus and further Council and other buildings.

1.5. Strategic Risks

- Environmental – there is a possibility of species being discovered that could prevent development being discovered. Flood risk to the energy centre site. The development will follow recommendations from the site flood risk assessment. Specialist flood defence engineer will validate work design and supervise works and specific measures will also be in place during the construction phase to avoid weakening the flood defence performance.
- Construction timescales – the abstraction point construction activities will require to be done when river flows are at a low enough level for the time required. This should be possible through summer but if there is rainfall similar to November to January 2015 – 2016 then the works could not be carried out.
- Finance – the project costs are such that for the project to attract investment support in the form of grants will be necessary to establish the scheme initially. Once the main sections of the district heating network are established, expanding the scheme is financially attractive. There are risks associated with changes in fuel costs, RHI rates and other factors considered in the sensitivity analysis but these are in general moderate or low in impact and low in likelihood.

1.6. Constraints

Financial and Political Constraints

The total project investment required to deliver the project is significant, c.£8m. The availability of funding sets a constraint on the project and requires that a phased approach is taken to implementation. The initial project has therefore been developed to focus on areas of highest fuel poverty need targeting 211 homes in the North Muirton area. The scheme has been designed to be financially viable based on this level of use. Once in place the scheme subject to securing approval and future funding could be extended further as future extensions of the scheme should become more financially viable.

Statutory Constraints

An Abstraction (CAR) Licence will be required from SEPA. SEPA have been consulted at the stakeholder workshop and stated that the CAR licence would be favourably received as it is for renewable energy and the water is returned to the river close to the abstraction point. As the volume of the abstraction is low compared to the river flow, at all flow conditions, the temperature difference of up to 3^{o}C was not expected to cause any concerns. They noted that as it is a new type of development for SEPA it would take longer to process the application than the standard 3 – 6 months. Up to nine months has been suggested for this and allowed for in the project plan.

Planning Consent will be required. As part of this process other stakeholders will require to be further consulted including SNH and neighbouring landowners.

Commercial Constraint

The proposals will have to operate on a financial viable and sustainable manner. There is therefore a commercial constraints in that future expansion of the scheme will be limited by the economic viability and sustainability of the initial development.

Legal Constraint

A legal structure will require to be developed and put in place for future governance of the new District Heating Network as a trading entity.

Environmental Constraint

The proposed scheme involves abstracting water from the River Tay which is classified as an Special Area of Conservation.

1.7. Dependencies

Internal		External	
Area	Description of dependency	Area	Description of dependency
Planning	Detailed Planning Consent will be required.	SEPA	An abstraction (CAR) Licence will be required from SEPA
Greenspace Flood defense	The proposed route of the DHN will cross areas of public open space and flood defense.	OFGEM	Certification for Renewable Heat Incentive

1.8. Impact on the Community and Community Co-production

The local residents (social and private housing), local businesses and public buildings will all be direct beneficiaries of the project.

It is anticipated that the local businesses will benefit from the first year by reducing their energy bills by £3,400 per year in total, reducing their overheads, using green credentials to develop market shares and be able to invest in their growth with the potential to maintain and create jobs.

The Council will also be able to reduce energy costs (£1,100 per year in total), reducing overheads and avoid possible staff reduction if such savings were not realised.

211 home owners will share £42,200 of benefit annually, and it is expected that some of this will be spent in the local economy. North Muirton is an area of high fuel poverty so the scheme will bring major benefits in tackling this.

The financial benefits are annual savings and these will continue. In the first 5 years these are likely to remain similar, and heat costs are pegged at 10% below the equivalent cost for individual gas boilers, meaning the benefits continue regardless of fuel cost changes.

Within the first five years the scheme will expand and will serve more customers, with a longer term goal of over 1,700 homes in North Muirton and the New Muirton estate, further tenants in the Food and Drink park, further Council buildings and other local commercial customers.

Overall, the local economy will benefit by improving the area attractiveness as an eco-innovation leader and costs reduction generating inward investment and business growth. The Project will also stimulate job creation through construction, but also maintenance and operations.

1.9. Sustainability

The Project will meet Scottish Government policy aims by

- Increasing low carbon heat production to meet local demand and contributing to Scotland's target

- Reducing Carbon emissions and contributing to Scotland's target

- Offering cheaper heat price to social and private housing to reduce fuel poverty

- Reducing heat costs for businesses and public buildings and their carbon footprints

1.10. Inclusion and Equality

The project seeks to help address fuel poverty in residences in the North Muirton area of Perth by providing low cost heating to targeted local houses. The project will contribute to tackle inclusion issues due to lack of financial capacity.
The project also seeks to provide low cost heating to prospective occupiers of the Perth Food & Drink Park, thereby providing an incentive for business investment and the creation of local employment opportunities.

1.11. Resource efficiency

The project is inherently resource efficient in seeking to use a highly dependable and sustainable source of heat (the River Tay) to provide low cost heating to local residences and business premises.

A feasibility study was carried out by AECOM, completed in March 2015. This study include concept designs for the river heat exchange and district heating network, and modelled options for the heat source including the heat pumps, biomass and CHP. Different network options were investigated based on possible phasing options.

The AECOM team included specialists from the district heating, water and environment teams. Different aspects of the scheme were discussed with suppliers and manufacturers with quotes and indicative costs provided for the heat pumps (Star Refrigeration), river heat exchange filtration and heat exchangers (GEA and Industrial Purification Systems), district heating pipes (PowerPipe).

Heat loads for the buildings were developed from the Scotland Heat Map, energy consumption data for Council buildings and benchmarks for the buildings on the Food and Drink park.

The design developed from a workshop with environmental stakeholders. The main challenges identified during the workshop are protecting the species in the river and crossing the flood defences to reach the energy centre building.

A further workshop was carried out midway through the feasibility study to discuss the design proposals. This included district heating specialists from Zero Waste Scotland and the Edinburgh Centre for Carbon Innovation, who made suggestions about the proposals to help improve the design.

The intake has low intake speed filtration designed to protect the species present in the river. The lade design helps to protect both the species and the filtration pods. One of the main species of concern was fresh water pearl mussels. Survey work has been carried out and it has been confirmed that they are not present at the location, and it is not favourable habitat.

The lade intake design was based on the number of filtration modules, which was determined from the required flow rate at the peak design heat load condition. The temperature change on the river water side was set at 3^{o}C, based on typical requirements and confirmed by SEPA and SNH. The abstraction rate at the peak condition was found to be under 2% of the lowest recorded flow at a gauging station 15km upstream. The stakeholders did not express any concerns at this level of abstraction. At times of low water temperature, from close to 3^{o}C or lower, the heat pump output would reduce or the heat pumps would shut down to prevent ice formation. The design includes full backup boiler plant.

The heat source options and the district heating network were modelled using AECOM's in-house modelling software, which has been used for numerous projects throughout the UK. It provides pipe sizes for the network and the fuel requirements for the different heat sources. Different network configurations were considered to optimise the pipe routes to reduce costs and improve efficiency of the network. A whole life cost model was used to assess the financial performance of the different options and phases. The performance of the heat pumps was calculated using river temperature data obtained from SEPA.

This project will be highly innovative as it will be one of the first district heating schemes in Scotland and the UK to use river source heat pumps, particularly at the scale of interest (2 - 4MW). The River Tay is an iconic salmon river, and also has other environmental designations including the location for this scheme. Finding an approach that will work in this location should allow many further river source schemes to be developed, using the learning from this project. The feasibility study included a section on the methodology for assessing further schemes, as a first step to the dissemination of learning.

SEPA and SNH were involved in the feasibility study, providing input through a stakeholder workshop. This allowed all parties to get a better understanding of the requirements and challenges facing the project. Discussions at the workshop and a site survey led to the lade based design for the abstraction point. This is innovative and achieves a number of advantages:

- Filtration pods are protected from large debris that may be swept down the river during high flow conditions
- There is less work required in the main river channel reducing the impact
- The concrete channel of the lade will not be an attractive habitat, particularly for fresh water pearl mussels, reducing the likelihood of future threat to the scheme in the case of a colony becoming established

- Lades were often used on the River Tay in the past so there is some precedence to this approach

SEPA noted that the abstraction (Controlled Activities Regulations (CAR)) licence would be a new type for them, so this would also bring some wider innovation and benefit future schemes by allowing them to develop the required processes.

Large heat pumps for district heating have been used in other countries, such as Norway and Sweden, but are yet to be established in Scotland for this purpose. The scheme once fully built out would have a capacity of 4 MW of heat output from the heat pumps, with 2MW included in the scheme covered under this application. This initial phase is providing new buildings at the Food and Drink Park, housing with wet heating systems to be installed and two existing Council buildings. In line with the Heat Networks Code of Practice the aim will be to run the network at the lowest possible temperatures, which gives better heat pump efficiency and reduces heat loss. It is expected that a design flow temperature of 75^{o}C will be targeted for the initial phase, which might require some modifications to the existing building systems. If higher network temperatures are required, this can be achieved with heat pumps, as demonstrated at the Drammen scheme in Norway for instance.

The scheme will follow the Heat Networks Code of Practice for the UK for the remainder of the project to ensure that the heat network is designed, constructed and operated to a high standard and with high levels of service for customers.

An addition, a possible further development of a second network at the southern side of the network proposed in this application possibly using heat recovery for waste water could create a unique and very innovative ways of recovering heat using different water heat pump systems. Contacts have been made with Scottish Water Horizons who has indicated an interest.

2. Economic Case

2.1. Critical Success Factors (*the crucial attributes essential to the successful delivery of the project against which the available options are assessed);*

Critical Success Factors		
Critical Success Factor	Option Appraisal Scoring Weighting (W) (cumulative 100)	Reason for Weighting
CSF1 – Provide sustainable low cost renewable heating to residences, thereby reducing fuel poverty.	40	Fit with PKC strategic priorities
CSF2 – Provide sustainable low cost renewable heating to businesses, thereby encouraging investment and the creation of jobs.	30	Fit with PKC strategic priorities
CSF3 – Reduce carbon emissions due to heating.	20	Fit with PKC strategic priorities
CSF4 – Create and operate an economically viable and innovative renewable energy supply capable of being replicated elsewhere.	10	Fit with PKC strategic priorities

2.2. Options (*including do minimum and a transformational option*)

Each option outlined below should include the following elements:

- Narrative summary of option
- Economic appraisal of cost and benefits
- Optimism bias – describe what this means
- Risk assessment

Option 1

Summary of Option
Do nothing/ do minimum The Housing Service has identified funding to renew heating systems serving around 400 residences in the North Muirton area. The heating systems currently serving these residences are nearing the end of their operational life and require to be renewed or replaced.

The Do Minimum option is therefore to restrict the Council's investment to that required to replace these existing heating systems with modern and more efficient gas fired boilers. The 400 residences would include the 211 priority residences in the target North Muirton area that currently use the most inefficient electric heating systems. Due to the improved efficiency of new gas boiler systems, carbon emissions would be reduced by these replacement boilers however not to the extent of alternative options discussed below.	
Summary of Financial Resource Requirements	
Indicative Capital Investment Required	£400k
Optimism Bias (**%)	£20k (5%)
Rationale for Optimism Bias	Do nothing/ do minimum The Housing Service has identified funding to renew heating systems serving around 400 residences in the North Muirton area. The heating systems currently serving these residences are nearing the end of their operational life and require to be renewed or replaced. The Do Minimum option is therefore to restrict the Council's investment to that required to replace these existing heating systems with modern and more efficient gas fired boilers. The 400 residences would include the 211 priority residences in the target North Muirton area that currently use the most inefficient electric heating systems. Due to the improved efficiency of new gas boiler systems, carbon emissions would be reduced by these replacement boilers however not to the extent of alternative options discussed below.
Total Capital Investment Required	£420k
Source of Indicative cost:	PKC Housing
Professional Fees included ☒	Inflation included ☐

Recurring Annual Revenue Requirements	These should be lower as the new heating systems should require less maintenance and repairs
Source of Indicative cost:	PKC Housing

Appraisal of Options against Critical Success Factors

Critical Success Factor	Benefits of implementation of Option 1 (Strengths)	Score (S) 0 - 5	Weighted Score (A) = (S x W)
1: Provide sustainable low cost renewable heating to residences, thereby reducing fuel poverty.	Due to improved efficiency of new boilers, heating costs would be reduced from current levels, especially where electrical heating systems are replaced with new gas boilers. Despite the improved efficiency costs to consumers will still be higher than other more sustainable options.	3	120
2: Provide sustainable low cost renewable heating to businesses, thereby encouraging investment and the creation of jobs.	There is no alternative plan to provide sustainable low cost heating to local businesses.	0	0
3: Reduce carbon emissions due to heating.	The improved efficiency of new residential gas boilers will help reduce carbon emissions.	2	40
4: Create and operate an economically viable and innovative renewable energy supply capable of being replicated elsewhere.	There would be little or no innovation in the Do Minimum option.	0	0

Risks associated specifically with option

Likelihood Scoring		Impact Scoring	
5	Highly Likely	5	Major impact to project delivery
4	Likely	4	Significant impact to project delivery
3	May or not occur	3	Manageable impact on project delivery
2	Unlikely	2	Minor impact to project delivery
1	Highly Unlikely	1	No impact to project delivery

Description of Risk	Likelihood of Risk (L)	Impact of Risk (I)	Score (B) = (L x I)
Risk1 - Financial Risk – delivery of this option may cost more than initial estimates	2	4	8
Risk2 - Reputational Risk – choosing an option that minimises innovation and sustainability may reflect poorly on the Council when other options are available.	2	3	6
Risk3 - Management Risk – this option will undermine the future viability of other more sustainable options for several years as it would be uneconomic (for some considerable time) to change once new gas boilers are installed.	4	2	8

Option 2

Summary of Option
This option would involve the creation of a river source heat pump and district heating network delivered on a limited basis to priority areas within the North Muirton area. The extent of the project would be to serve up to 4 plots at the Perth Food & Drink Park, two community buildings, and 211 priority residences. The scope of the project would be limited to a scale that was sufficient to show scheme viability. Further expansion of the initial scheme would only follow once the initial scheme is implemented and shown to be viable.

Summary of Financial Resource Requirements	
Indicative Capital Investment Required	£7.5M
Optimism Bias (**%)	£700k (10%)
Rationale for Optimism Bias	There are more unknowns and risks both at the implementation stage (eg construction costs) and through future operational stages (eg level of ongoing sales, RHI income). The proposals involve a degree of innovation and hence a higher degree of risk.
Total Capital Investment Required	£8.2M
Source of Indicative cost:	Aecom feasibility study.
Professional Fees included ☒	Inflation included ☐

Recurring Annual Revenue Requirements	Should be self financing.
Source of Indicative cost:	Aecom feasibility study.

Appraisal of Options against Critical Success Factors

Critical Success Factor	Benefits of implementation of Option 2 (Strengths)	Score (S) 0 - 5	Weighted Score (A) = (S x W)
1: Provide sustainable low cost renewable heating to residences, thereby reducing fuel poverty.	The restricted option delivers sustainable low cost heat and will allow for future expansion. The initial restricted proposal would focus on households likely to be subject to fuel poverty eg older residences currently using electricity for heating.	4	160
2: Provide sustainable low cost renewable heating to businesses, thereby encouraging investment and the creation of jobs.	As above the restricted proposal will make available low cost sustainable heating to local businesses with the prospect of a wider scheme once the initial scheme is proven.	4	120
3: Reduce carbon emissions due to heating.	A restricted scheme will reduce carbon emissions but to a more limited extent than a larger scheme.	4	80
4: Create and operate an economically viable and innovative renewable energy supply capable of being replicated elsewhere.	The economic viability of the scheme will be closely monitored before extending or replicating the scheme. The restricted scheme has the added benefit of allowing the viability to be tested at lower cost than a larger scheme.	5	50

Risks associated specifically with option

Likelihood Scoring		Impact Scoring	
5	Highly Likely	5	Major impact to project delivery
4	Likely	4	Significant impact to project delivery
3	May or not occur	3	Manageable impact on project delivery
2	Unlikely	2	Minor impact to project delivery
1	Highly Unlikely	1	No impact to project delivery

Description of Risk	Likelihood of Risk (L)	Impact of Risk (I)	Score (B) = (L x I)
Risk1 - Financial Cost: There is a risk that the costs to implement the restricted scheme are higher than initial estimates.	3	4	12
Risk2 - Financial Risk: Sales of heat may be lower than estimated undermining the viability of the scheme. This risk is again limited due to the restricted scale of the scheme.	2	4	8
Risk3 - Reputational Risk: As this scheme has a degree of innovation there will be reputational risks both at implementation and for the ongoing operation of the system.	4	4	16

Option 3

Summary of Option	
This option would involve the creation of a full-scale river source heat pump and district heating network delivered to a larger area within North Muirton. The extent of the project would be to serve up to 10 plots at the Perth Food & Drink Park, four community buildings, and up to 500 residences.	
Summary of Financial Resource Requirements	
Indicative Capital Investment Required	£12.5M
Optimism Bias (**%)	£2.5M (20%)
Rationale for Optimism Bias	This is a higher risk project which still involves a high degree of innovation.
Total Capital Investment Required	£15M
Source of Indicative cost:	Aecom

Professional Fees included ☒ Inflation included ☐

Recurring Annual Revenue Requirements	The scheme should be self financing after 5 years
Source of Indicative cost:	Aecom

Appraisal of Options against Critical Success Factors

Critical Success Factor	Benefits of implementation of Option 3 (Strengths)	Score (S) 0 - 5	Weighted Score (A) = (S x W)
1: Provide sustainable low cost renewable heating to residences, thereby reducing fuel poverty.	The full scale option delivers sustainable low cost heat.	4	160
2: Provide sustainable low cost reneable heating to businesses, thereby encouraging investment and the creation of jobs.	As above the restricted proposal will make available low cost sustainable heating to local businesses.	4	120
3: Reduce carbon emissions due to heating.	A full scale scheme will reduce carbon emissions.	4	80

4: Create and operate an economically viable and innovative renewable energy supply capable of being replicated elsewhere.	The economic viability of the full scale scheme will be closely monitored as it may take longer to make a larger full scale scheme viable. Operations may show that multiple smaller schemes are more viable than one large scheme	3	30

Risks associated specifically with option

Likelihood Scoring		Impact Scoring	
5	Highly Likely	5	Major impact to project delivery
4	Likely	4	Significant impact to project delivery
3	May or not occur	3	Manageable impact on project delivery
2	Unlikely	2	Minor impact to project delivery
1	Highly Unlikely	1	No impact to project delivery

Description of Risk	Likelihood of Risk (L)	Impact of Risk (I)	Score (B) = (L x I)
Risk1 - Financial Risk: There is a risk that the costs to implement the larger scheme are higher than initial estimates.	3	5	15
Risk2 - Financial Risk: Sales of heat may be lower than estimated undermining the viability of the scheme.	2	4	8
Risk3 - Reputational Risk: As this scheme has a degree of innovation there will be reputational risks both at implementation and for the ongoing operation of the system.	4	4	16

Success Factor (CSF) Summary

CSF	Weighted Score (A)			Total Risk Score (B)			Total Scoring (A-B)		
	Options			Options			Options		
	1	2	3	1	2	3	1	2	3
1: Provide sustainable low cost heating to residences, thereby reducing fuel poverty.	120	160	160	8	12	15	112	148	145
2: Provide sustainable low cost heating to businesses, thereby encouraging investment and the creation of jobs.	0	120	120	6	8	8	-6	112	112
3: Reduce carbon emissions due to heating.	40	80	80	8	16	16	32	64	64
4: Create and operate an economically viable and innovative renewable energy supply capable of being replicated elsewhere.	0	50	30	0	0	0	0	50	30
Total							**138**	**374**	**351**

Option appraisal scores summary

	Total Score
Option 1	138
Option 2	374
Option 3	351

Preferred Option = Option 2

3. Commercial Case (for preferred option - to be completed in conjunction with Corporate Procurement)

3.1. Procurement Strategy

Delivery of the project will require a staged approach to procurement.

An initial stage will require the procurement of i) technical and ii) project management expertise.

The second stage involves the main tender to commission a Design, Build and Operate (DBO) contractor.

Early technical expertise is required to assist in the preparation of a detailed technical brief for the subsequent DBO tender. In addition, the technical Expertise will be required through the DBO tender process to answer technical queries, to assess contractor suitability and to assess technical design submission proposals. The value of the Technical Expertise commission is estimated to be in the region of £50k to £100k over financial years 2016/17 and 2017/18. Client side technical expertise will be required after the DBO contract has been awarded to ensure that the DBO contractor is delivering in accordance with the brief.

Similarly early Project Management assistance is required to help take the project forward to project implementation stage. The implementation stage will be reached when Planning Consent is in place and the DBO contract is about to be awarded. It is estimated that external Project Management input can be secured for a budget in the region of £20k during financial year 2016/17. It is envisaged that by the “post-contract” stage, once the DBO contractor is appointed, PKC will have appointed a full time specialist project manager to help deliver the project. This full time role will take over project management responsibilities from the temporary Project Manager.

The DBO contract will comprise three elements:

Firstly, preparing the detailed technical designs and securing all necessary consents for the project. The technical design will be comprehensive and will include i) the Energy Hub building; ii) the water extraction systems; and iii) the heating distribution network. Secondly, the DBO contract will include the construction, testing and commissioning of the above elements.

Lastly the DBO contract will include on-going operation and management of the new network for a contract period of 10 to 20 years.

The DBO tender will be in the region of £8m capital (over financial years 2016/17 and 2017/18).

The design construction and operation of a District Heating Network is a specialist sector and hence early dialogue with prospective designer sand contractors/operators will be necessary to help ensure that an active and competitive market place can be achieved

through the procurement procurement process.

The scale of the DBO opportunity will require the tender to be advertised through OJEU. The Project Management and Technical Expertise commissions referred to above will be required to assist through the DBO process. The Technical Expertise role will extend further as it will be necessary to monitor the performance of the DBO contractor through delivery of the design and construction stages of the DBO contract.

3.2. Service Requirements

N/A

3.3. Charging Mechanism

N/A

3.4. Risk Transfer

The risks of securing all necessary consents (except for Planning) and for all technical design will be transferred to the contractor.
Subject to normal contract terms the construction risk will be transferred to the contractor as the contractor will be delivering their own design.
The risks of operating the new DHN will be transferred where possible however it is likely that the Council will require to retain a significant element of risk in respect of the future operation of the network. It is likely that a long term operator will require to have a base revenue income guaranteed by the Council. With a profit sharing arrangement in place for demand levels achieved above these base levels.

3.5. Key Contractual Arrangements

N/A

3.6. Personnel Implications

It is not envisaged that this project will give rise to any significant internal change to personnel.

3.7. Accountancy Treatment (to be completed in conjunction with Finance)

The assets will be added to the Councils asset register with valuations/depreciation etc calculated in line with the appropriate IFRSs.

4. Financial Case (for preferred option - to be completed in conjunction with Finance)

4.1 Capital and Revenue Requirements

Total estimated capital costs are £8.2m.

This will be funded by:
£2m LECF grant;
£1.4m CPIP;
£0.2m Housing Improvement Programme;
£0.1m Contributions from Businesses;
£4.5m new PKC borrowing.

There is not anticipated to be any revenue implications arising from this project however there may be a requirement for up to a £130k bridging loan to cover the cost of interest over the construction phase.

4.2. Net Effect on Prices

There are no anticipated effects of this project on prices.

4.3. Impact on Balance Sheet

The assets will be added to the Councils asset register with valuations/depreciation etc calculated in line with the appropriate IFRSs.

4.4. Impact on Revenue Budget

There is not anticipated to be any revenue implications arising from this project however there may be a requirement for up to a £130k bridging loan to cover the cost of interest over the construction phase.

4.5 Funding Mechanisms and Affordability (*including partnership and leverage)*

£2m out of the total £8.2m will be funded by the Local Energy Challenge Fund.

5. Management Case (for preferred option)

5.1. Programme and Project Management Methodology

N/A

5.2. Programme and Project Management Plans

N/A

5.3. Use of Specialist Advisers

N/A

5.4. Change and Contract Management Arrangements

N/A

5.5. Benefits Realisation

N/A

5.6. Risk Management

N/A

5.7. Post Implementation Evaluation Arrangements

N/A

5.8. Contingency Arrangements

N/A