**Appendix 7 (ii)**

**District Heat Networks - Frequently asked questions**

**Are there other heat networks in the UK, how do we know they are effective?**

There are over 5000 district heat networks in the UK and several in the Midlands e.g. in Birmingham, Coventry, Leeds, Leicester, Nottingham, Sheffield and Warwick University:

See attached

- Government - Heat Network Case Studies
- Association of Decentralised Energy – Heat Networks in the UK

**Why there aren't more heat networks in market towns ?**

This is probably just a reflection of smaller local authority teams taking longer to develop projects, as well as lower heat densities in some cases. There are a number of heat networks in development in market towns. Some examples of other towns developing heat networks: Colchester (Commercialisation, although this is outside the Town Centre on a greenfield site); Barnsley (Detailed Project Development, DPD), St Helens (Feasibility), Crawley (Commercialisation); Stratford-upon-Avon (DPD); Bridgend (Commercialisation).

**How is so much carbon saved?**

- A heat network enables the cost effective incorporation of low carbon heat sources at scale.
- The proposed heat sources are:

  Ground Source Heat Pumps (GSHP):

  - heat in aquifer water = zero carbon
  - requires electricity to upgrade aquifer heat to necessary temperatures (through a heat pump) but 1 unit of electricity in = 3 units of heat out, so still much better than a gas boiler or direct electrical heating and increasingly grid electricity comes from renewable sources
  - a gas Combined Heat and Power unit is lower carbon than burning gas and using electricity at property-level - until a certain level of grid decarbonisation occurs, by which time you would look to replace it with an alternative lower carbon heat source

**District Heat Networks - Frequently asked questions**

**What is the situation with funding contributions from other Stakeholders?**

- Mutually co-operative relationships will be vital to the success of this project and we have been very grateful for the time and information given by Stakeholders to this project so far, as well as offers of funding.
- Initially Key Stakeholders were asked by Officers whether they could contribute a small amount of match-funding to demonstrate commitment to the project and £10k was immediately forthcoming from Bromsgrove School whereas Public Sector stakeholders have had to go through more lengthy approval processes.
- All parties seem fully behind the project at this stage and Bromsgrove School have committed £10k funding towards the DPD stage of the project. BDHT and the NHS have advised they are taking the project forward to their boards January / February 2020. The Chief Executive, Kevin Dicks, is following up with Partners regarding match-funding.
- As part of the regular Board meetings that will be necessary between key Partners, match-funding contributions for Stage 2 can be finalised.
- Until there is more information the end of Stage 1, it is not known what the final locations of the energy centre etc. will be. During Stage 2 the commercial, financial and legal structures for any future heat network will be developed to balance risk and benefit for all Partners.

**What is involved in a test borehole?**

- The British Geological Society (BGS) holds data from all boreholes that have been drilled in the area and this has been reviewed as part of the Feasibility Study.
- The purpose of the test borehole is to both confirm the geology and the water characteristics to better estimate the costs of the boreholes.
- The test borehole can become one of the final heat network boreholes.
- A drilling rig will be set up on Bromsgrove School grounds by a specialist company at this stage.
- A borehole would be drilled 200m into the aquifer. This is a common process e.g. undertaken by water companies.
- Timing of drilling will be set to minimise noise disruption to surrounding areas.
- The actual drilling should only take a few weeks.

- After the drilling rig is removed only a manhole cover is visible.

**How does heat loss during heat transport and transmission affect the viability of the project?**

- The amount of pipework involved is estimated at 7.5 kilometres. This is highly insulated.
- The heat losses on the heat network (e.g. distribution pipes, heat exchangers) will decrease the carbon saving (and cost saving), it is important to minimise this through good design.
- On a networked system you would use 'smart' controls to efficiently blend low carbon technologies to meet the profile of demand and deliver the carbon and financial benefit that we are seeking. These can also enable the system efficiency to be similar to property level efficiency even given system losses.

**Will work be required inside connected buildings?**

Heat would most likely be transferred to the heating systems of connected buildings via heat exchangers at each building which would be approximately the size of a boiler. The network has been designed at temperatures compatible with existing heating systems in general, so would not require significant internal changes for connected buildings, though the arrangements for individual building would be confirmed at stage 2.

**Is it possible to recycle the heat within buildings?**

The heat emitted within buildings will remain and reduce demand on the network as long as the building is well insulated.

**Will it be possible to link new developments to the system?**

From the existing Bromsgrove Local Plan:

To contribute to the carbon reduction target, the Council will support large scale low/zero carbon energy generation projects when adverse impacts are addressed satisfactorily. For developments in areas where low carbon/ renewable resources/opportunities are available and technically feasible, the Council will expect the development to incorporate the relevant technologies, such as photovoltaic and district heating network. Where there is a firm plan on the delivery of a district heating supply developments nearby will be required to connect to these energy supplies.

**What happens if the heat transfer pipes burst?**

**District Heat Networks - Frequently asked questions**

Given the huge emphasis and need to be thermally efficient, Heat Network pipes are generally fitted with leak detection systems to allow rapid response and targeting of any leaks. A major incident could take out a network pipe and connected buildings but the same would be true for mains gas pipes.

**How will the build of the network impact on the roads in the district, what level of disruption will there be?**

- The size of pipes will be determined during the DPD stage of the work but the scale is likely to be around a 220 mm diameter (circa 9 inches).

- As with any infrastructure project, there would be some temporary disruption during construction. The majority of pipework would be routed via soft-dig and minor roads. Using the current phased rollout plans New Road and the Stourbridge road junction with Market Street would be temporarily affected. Roadworks will be staged and would not require full closure of both side of the road, this is similar to works on other utilities such as water and gas and would be managed accordingly. Our Consultant has had preliminary discussions with Strategic Planning and Highways as to future planned development and the possibility of co-ordinating with other planned works to minimise disruption.

**What is the availability of grant funding of the project from Central Government, what are the associated deadlines and what would be the impact if the funding for detailed project development from Central Government was not received?**

- The HNDU funding programme is an open rolling programme with a budget agreed every 12 months by the Treasury. An application was submitted by this year's deadline of 3rd January. Unfortunately all the 2019/20 funding had been allocated so if the project was accepted it would be funded in the 2020/21 financial year subject to Treasury approval.

- Without the government funding to prime the project it would not be viable to proceed. However the Bromsgrove project is a good fit with the funding requirements and we were advised by our heat network specialist in HNDU to pursue the application.

**What is the urgency for a decision?**

- In order to be sure of applying to the government Heat Network Investment Project (HNIP) for funding towards construction of the heat network, we would need to have an Outline Business Case completed by the end of 2020.

Although the project could access other funding sources, this project is a good fit for HNIP funding and it would be ideal if we could apply for it.

- To achieve this Officers will begin working now on procuring project management subject to funding, with the aim of this commencing in April if funding is received.