



Heat Network Briefings – Q&A and Stakeholder/NELC comments

Q: The heat demand mapping model is based on current usage data. In terms of fuel poverty how can we be sure figures are right for the model - if people who are experiencing fuel poverty and aren't currently using energy due to costs?

A: It is a good point. This will be considered and will be taken into account when looking at areas where it is known fuel poverty is an issue.

Q: Is planning on board with this heat network project? The stakeholder advised that planning seemed against it as they did not support a previous application for geothermal that was put in. It got dismissed. The stakeholder strongly felt it was a good viable proposition with value to the community (it focussed on a school) and that it was dismissed unfairly.

A: Cannot comment on a particular planning application. NELC will take the comment away and investigate and explore this.

Stakeholder Comment: Freeman Street is a good potential area and Freeman St Market 'greenest in the UK'. The idea of doing geothermal would be of interest.

Q: What are the returns per KWh? Bigger the network the more economic it is?

A: Typically when modelling a scheme for viability its costs must be no more expensive than the counterfactual. Scale is important. The Return on Investment on a good scheme is around the 6-8% mark. This level of return tends not to be considered usually commercially viable (so not usually that attractive) for private companies but there are good opportunities for LA s to get involved and low cost finance is available to them. From attending government workshops it is clear from experience in Norway and Sweden where the technologies are well developed and used by LA s and companies, that they can work well. These Nordic companies are now looking at UK as the next big market; there is an opportunity to learn from experience. Direct comparisons on costs against general supply are difficult and different aspects need to be looked at to get comparisons right (as infrastructure and capital investment on heat networks need to be considered when looking at this). Heat networks are a focus area for UK government who are also looking how these Nordic types of schemes and technologies can be adopted in UK.

Q: Why do stakeholders walk away (as described by other Local Authorities that had undertaken similar projects)?

A: The lesson learned was that LA s need to work with stakeholders throughout the project so that dialogue and communication is clear and stakeholders can be involved and engagement and commitment is understood at each stage. This is so this scenario is avoided.

Stakeholder Comment: A stakeholder described a potential local geothermal scheme in Cleethorpes (similar to Southampton) that had planned to feed back into a school.

He felt that you do not necessarily have to compete with energy companies. The plan for this local scheme at the time was to provide free energy as a community benefit.

Q: Is there a maximum distance from source of heat to end user?

A: It is an economic consideration – bigger distance in network means larger cost. If there is a big end user it may be viable but if it is a long distance to a small heat amount it may not be financially viable. It is very difficult to give a rule of thumb. Birmingham have a tri-centre (heating, cooling and power), this helps with viability as you can have more than one network and join them nowadays. Financial viability is key.

Q: How do you join an established network? Would you lose the system whilst new connections are added?

A: You need to look ahead at design stage to accommodate expansion in the future. Any system can be designed to accommodate that. The main transmission pipes must have a transmission capacity designed for the maximum potential demand including any future expansion. Branches can then be added at a later stage. Need to plan the system at the start so that you can add to it going forward

Stakeholder comment: At Olympic Park they have redundancy so supply isn't interrupted.

Q: If you have an opportunity to join a heat network is there a high cost for the interface units/heat exchanges?

A: Units in a home cost around £1500 and it depends on the size of the heat load for a business. There are connection costs to connect to the network and then there would be a standing charge. When looking at models we look at ensuring that consumers would not be worse off economically connecting. The maintenance of systems would be part of the service agreement with the heat supply. £33 million of funding is available to adapt existing buildings.

Stakeholder comment: The Briefing Presentation is clear. Just need to ensure that David Baker at Engie is contacted. Would appreciate contact with regard to new developments. Engie have been involved in a mapping exercise so all developments are already mapped so these can be shared.

Q: Does distance have an impact on costs? Further away is more expensive?

A: Cost is the same for the customer but there is a cost for installing the infrastructure. The operator of the system has to decide whether they want to connect to more distant demand. Tariffs would be standardised in the network.

Q: Are small areas best?

A: High heat density is always the most economically viable. If there is a big heat user it may be worth installing larger networks to connect that user. New build areas are also good.

Q: Could we put in networks capacity at new build stage in anticipation?

A: Yes, this has happened in some London networks.

Q: Is a copy of the Presentation available?

A: This is already available on the NELC website under <https://www.nelincs.gov.uk/renewnel/councils-energy-projects/> under heat networks

Q: When you talk about collating information are you talking about NELC and industry or community users?

A: Any are welcome but we are targeting large users. We're not targeting domestic customers at this point but any information from communities (such as schools etc.) is welcome, the more data the better

Q: There is some data from Taylors Avenue on geothermal, however the research says that the geothermal is not there. Facts and figures are available and will be passed onto Element Energy.

A: NELC have met with the developer and have put them in touch with Emma at Element Energy.

Q: There are some new housing developments coming forward in the next few years – are these included in the study?

A: The presentation did not capture everything, additional housing developments will be included in the study

Q: 6% return on capital is given as an example - what is the saving/what is the return? What is the incentive for the end user - value for money or the environmental benefit?

A: This is an iterative process. If it is a combination of new builds it is more straightforward, as case studies have shown. Islington Council scheme have a good transparent scheme as an example. It also depends on the type of scheme in terms of the benefit or return for the investor/heat user. Done properly it should be a substantial cost saving to the end user. It needs to be looked at in terms of how it is packaged and sold. The saving is not on the capital cost, it tends to be on the ongoing cost of heat

Q: How do you make sure you are paid as a provider, especially when you are in a fuel poverty area as you can't turn it off. Conversely you can have a company who is a provider on a new site how do you stop them charging what they like as they have an effective monopoly.

A: NELC advised that Local Authorities, if they are involved, can give a degree of protection against this (as happens in the Nordic Countries). In London it has shown that for social housing it works. There is a code of practice with schemes that set out standards. Developers and consumers need to know they are not at risk of being worse off.

NELC Comment - In parallel to this heat mapping and masterplanning activity we need to be thinking about commercial aspects so that we are engaging with these issues and understanding them so that risks around costs and viability can be addressed. Will be subject to the same rules in terms of metering for gas and electricity. These schemes can be set up and regulated to avoid the risks of exploitation by what is effectively a monopoly provider.

Q: The billing regulations came in 2014 and these protect the consumer. All new builds are now heat metered so that consumers are charged correctly in terms of their usage.

A: We will learn from existing schemes both home and abroad. We have met with Nordic Heat who are looking at expanding into this country and are interested in helping us look at overcoming barriers.

Q: What will happen with cooling systems which we are likely to see a greater use of?

A: There is a debate as to whether domestic properties should have cooling. There is a lot that can be done with passive cooling without using active cooling. If there is to be active cooling, there are various options for this to link with a heat network, including an absorption chiller system using heat from the network, or it could be a central system with a heat pump driving cool water round a scheme. This is relatively common in non-domestic schemes. The LA have looked at a system in Birmingham library - run by Engie - there are examples of where this works and that are growing organically.

NELC Comment - There is a lot of potential in NEL - it is about how we get this off the ground and make it work.

Q: Currently there is emphasis on biomass fuels from Louisiana and Mississippi in USA - conservationists object to this and they may be stopped. What will happen if this source is cut off where will we source biomass (an area the size of Wales is stripped in USA to provide the UK)?

A: We will look at this and where the risks lie to see which one has the best chance to get off the ground. Element Energy have been looking at this very issue as part of an analysis of the Renewable Heat Incentive in the Republic of Ireland. There is a shift in the UK on how this is being used. There is starting to be a shift away from biomass. What we will be looking for is waste and secondary heat with heat pumps, or geothermal, which tend to be viewed as the most sustainable ongoing options.

Q: What about shale gas as we are sat on a huge shale gas reserve?

A: This project is funded by BEIS/HNDU - they are trying to future proof long term. Gas CHP is a good for the moment but may not be viable in terms of longer term carbon future proofing. BEIS are therefore trying to move from gas CHP towards longer term more low carbon options.

Comment on biomass - our land is one of the most agricultural, is there an opportunity to grow it as part of crop rotation. There are vast amounts of maize and historically bales were bought off farmers as biomass fuel but costs went up after the 1st year dramatically so that viability was severely impacted and it could no longer be used.