

Crewe Deep Geothermal
District Heating Project
Wednesday 24th September
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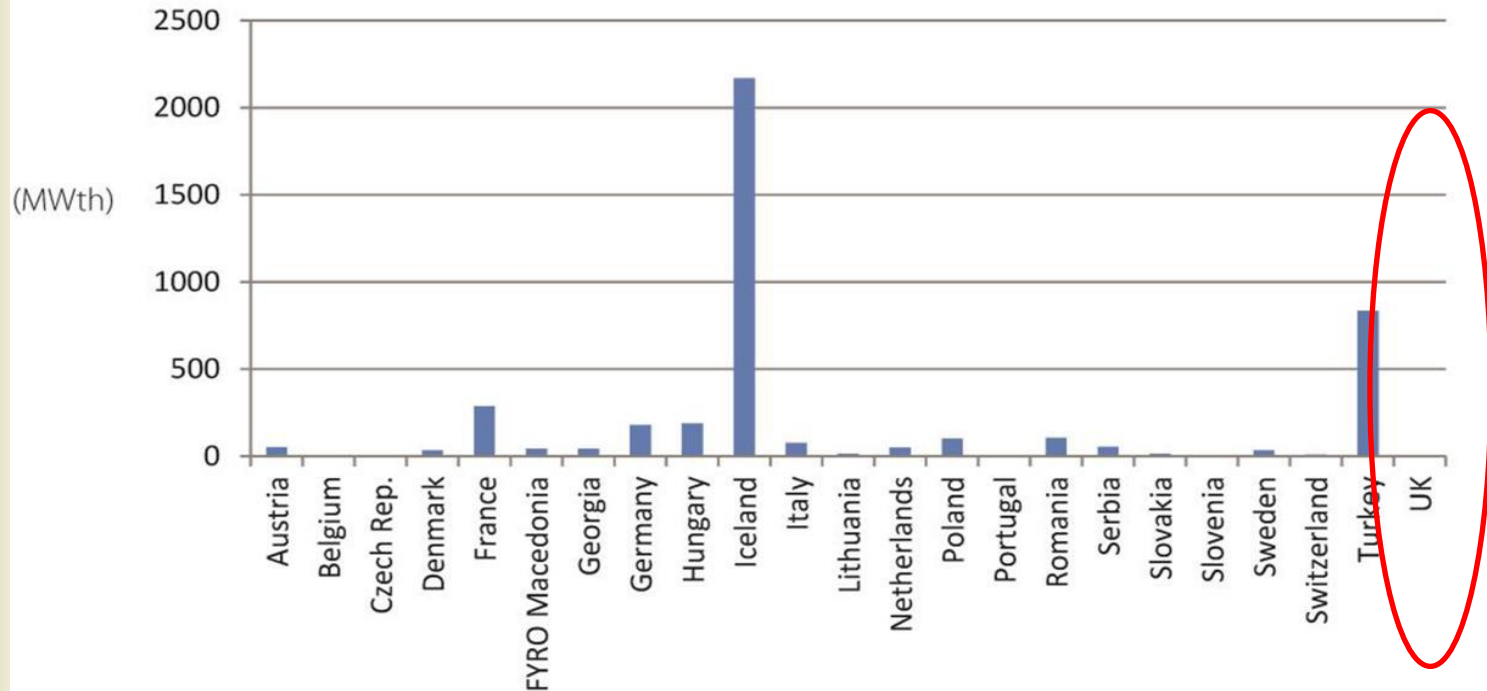


An ambitious energy agenda

- Reduce fuel poverty in Cheshire East, particularly amongst elderly and vulnerable residents.
- Increase the production of energy from renewable and low carbon sources.
- Increase the number of jobs in the Borough in the low carbon economy.
- Reduce carbon emissions of both businesses and residential areas in the Borough.



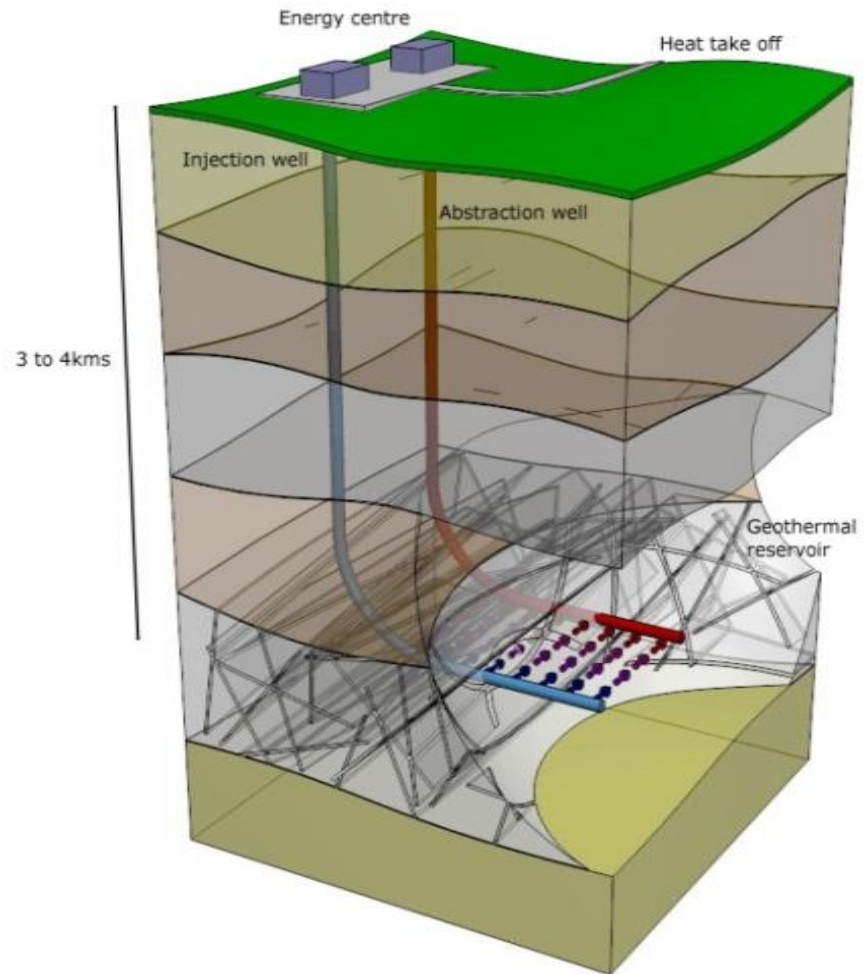
How can we get beyond this point?



Source: Geothermal District Heating Market Development V.2 (March 2013)

Background to project

- Step change in approach to Renewable Energy
- Strong Political support & Chief Officer commitment
- Recognition true partnership approach, this is the first opportunity of many across the Borough



Geothermal Energy in Cheshire East

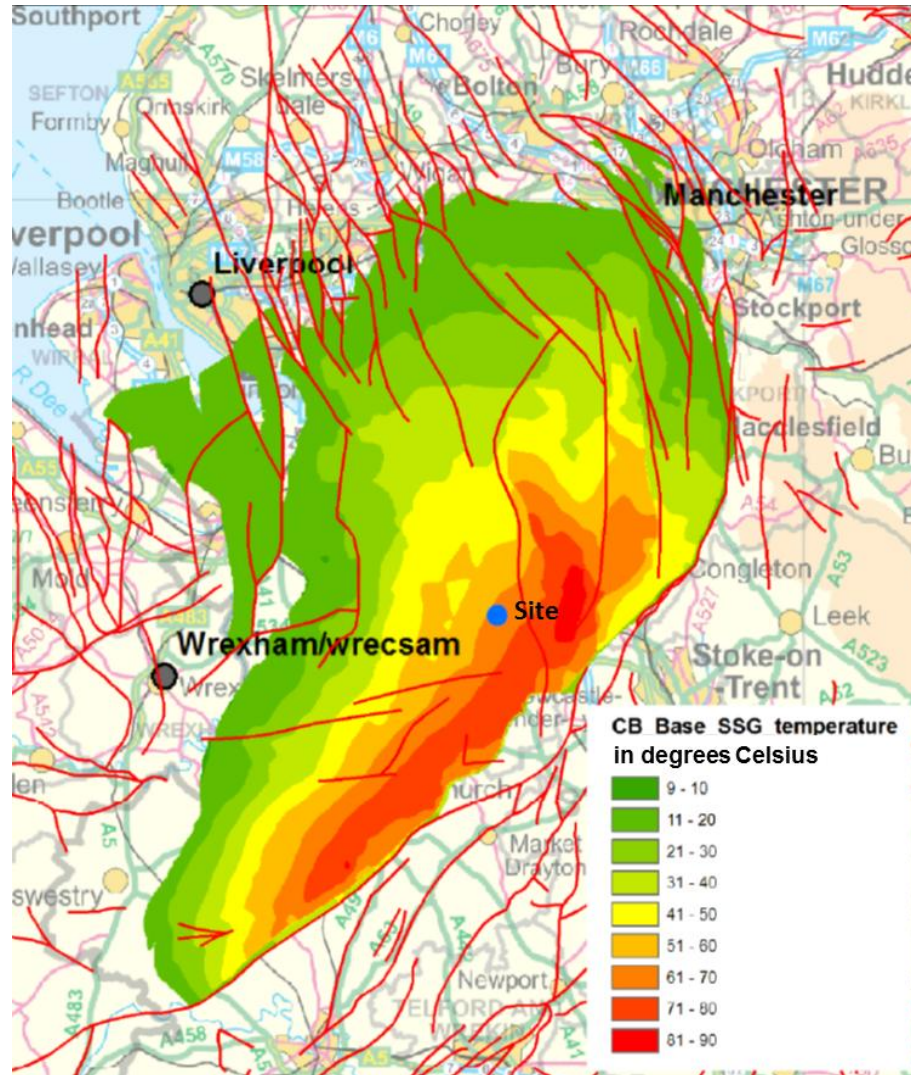


British
Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

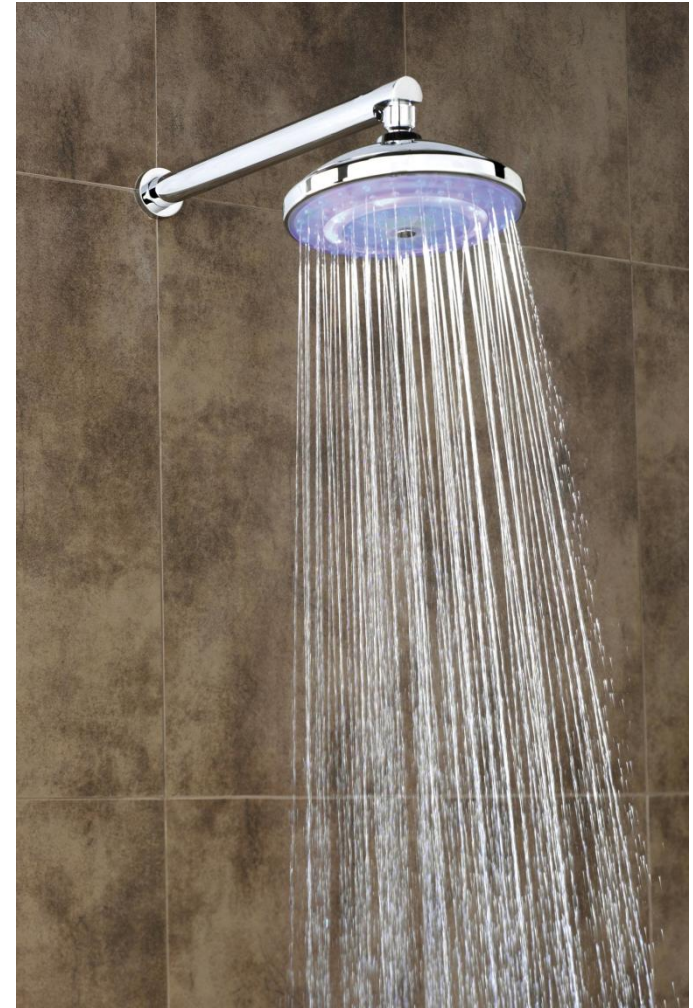


- British Geographical Survey 1999- Cheshire Basin
- In Triassic era 252-201million years ago there was a 4km deep canyon, over 3 times deeper than the Grand Canyon in Arizona.
- In ensuing years a desert developed, covering the area in fine grained sand (Permian Sands) and then more modern sediment and layers on which Cheshire is based.
- This means drilling is significantly easier in Cheshire than almost any other part of the UK.



Evidence Base

- British Geology Survey 1999 estimates the water underneath Cheshire holds around 4.6m Giga Watt hours of energy (GWh)
(4,600,000,000,000kWh)
- The total annual UK heat demand is circa 700,000 GWh
- Strong academic research provides conservative estimates that under Crewe the temperature of water is 48 °c at 1,500m and 95°c at 3,300m
- Research indicates that Cheshire East and Crewe are prime sites for commercial exploitation.



Technical Work

- British Geographical Survey- 1999
- SKM- Geothermal Energy Potential GB and Northern Ireland – 2012
- Arup- Cheshire East Energy Planning- Review of Geothermal Potential in Cheshire East- May 2013
- BRE & Greenfields- Heat Network Mapping for Leighton West- 2014
- All the above articulate a strong evidence base for Crewe Deep Geothermal Energy

Skills Sets

- Project Management
- Planning Policy
- Financial
- Geotechnical
- Engineering
- Surveying
- Legal
- Academic



A clear opportunity

- A deep geothermal district heating network to supply local demand.
- Public sector, industrial, and residential demand in close proximity.
- First of its kind in the UK since the 1980s.



How we access the Energy?

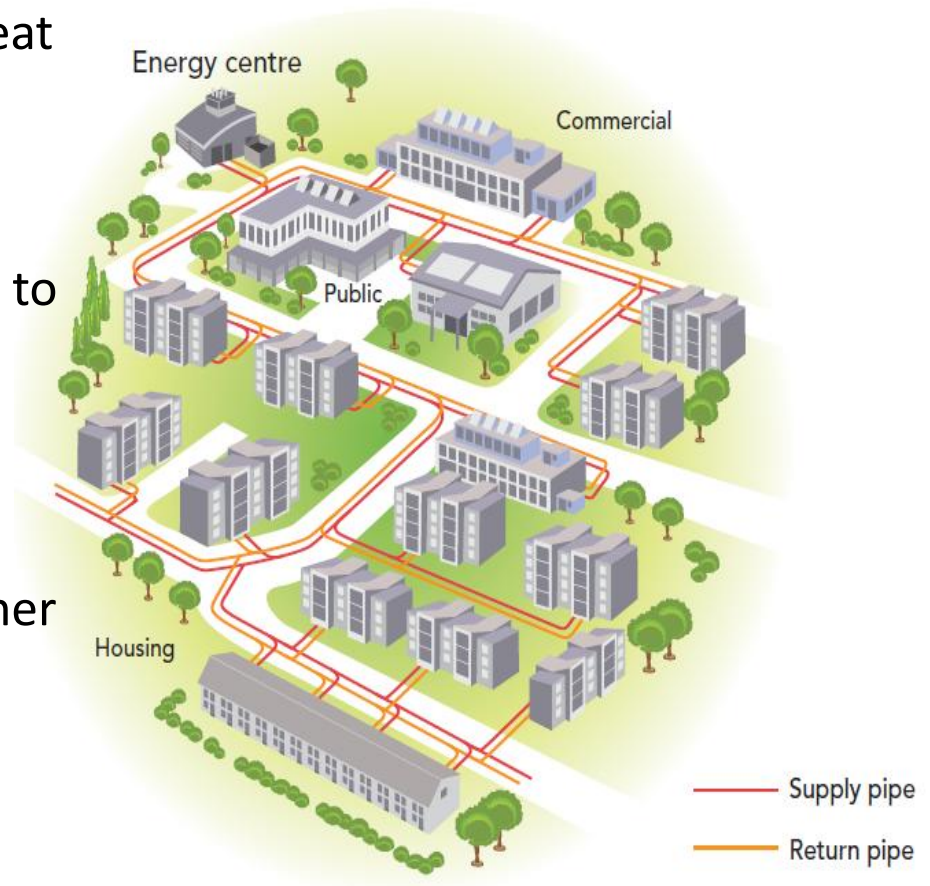


Basic parts of a district heating scheme

energy centre containing the heat source/s

heat distribution network used to deliver the heat to end users

customer connection e.g. heat exchangers, linking each customer to the wider heat distribution network



Ambitious Plans for Crewe



- £198k from HNDU to carry out feasibility work
 - Significant public and private sector heat loads
 - Strong local political support
 - Supportive planning regime
 - Potential to expand to Crewe Town Centre in future phases and supply HS2 developments
- BUT – the industry is not yet ready to deliver**

Where are we now?

GIB /
private
investment

HNDU



DECC funding



Questions?

