

## The Built Environment Special Interest Group

### Cambridge Geothermal Heat Networks, a collective pathway to Decarbonisation of Heat?

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#### Panel

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#### Challenges

- High upfront costs, which government schemes could offset to promote its utilisation
- Limited research on certain geothermal areas
- Resilient strategies in design
- Education: proper understanding of GSHP design and installation needed to prevent costly mistakes and have successful outcomes which further promote adoption of GSHPs
- Competing with cheaper (less sustainable) alternatives

#### Discussion Points

- The discussion focused on the challenges of implementing GSHP systems and the opportunities that exist to promote further utilisation, based on experience from industry and government.
- Identified issues from the previous session: big installations can work better as economies of scale in GSHPs are colossal, heating and cooling demand can be combined to recharge the ground (as cooling demand is expected to rise over the years), government strategy needs a consistent policy environment, GSHP have local manufacturing base and their use is of higher value to PLC compared to ASHP, ecological impacts can be minimised (GSHPA paper), GSHP is an economical solution which can be uniquely tailored to a project.
- Heat networks in the UK are seeing a massive growth. They are important towards decarbonising society and we need a low-cost and resilient system, for the future.
- The proper education and infrastructure is required for GSHP system installation, construction teams need to be aware of specifics – experience and education.
- Resilience is key and can discourage customers if not addressed and explained properly. Needs to mitigate risk in design.
- Three opportunities for geothermal: using deep geothermal installations in the UK, using the ground as a thermal energy storage medium (TES) and linking the subsurface and the surface, requiring (financial) support from the government, more ground investigations, educating stakeholders, publicising existing schemes and research funding, amongst others.
- Final remarks: Any building can be supplied with a GSHP system - simply a question of cost, emphasis needs to be put on educating users, resilience in design needs to be considered – appropriate for the technology

#### Opportunities

- Whole system costs and return on investments need to be optimized through design. Not enough evidence yet to build confidence among stakeholders.
- The geothermal potential of cities/towns need to be quantified as a whole – this needs to be based on credible combinations of modelling and monitoring.
- UoC to integrate its strengths across monitoring, modelling, and economic analysis.

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