

Geothermal energy development

Managing risks to ensure success

Geothermal energy

To reduce your costs and CO₂ emissions, you will need:

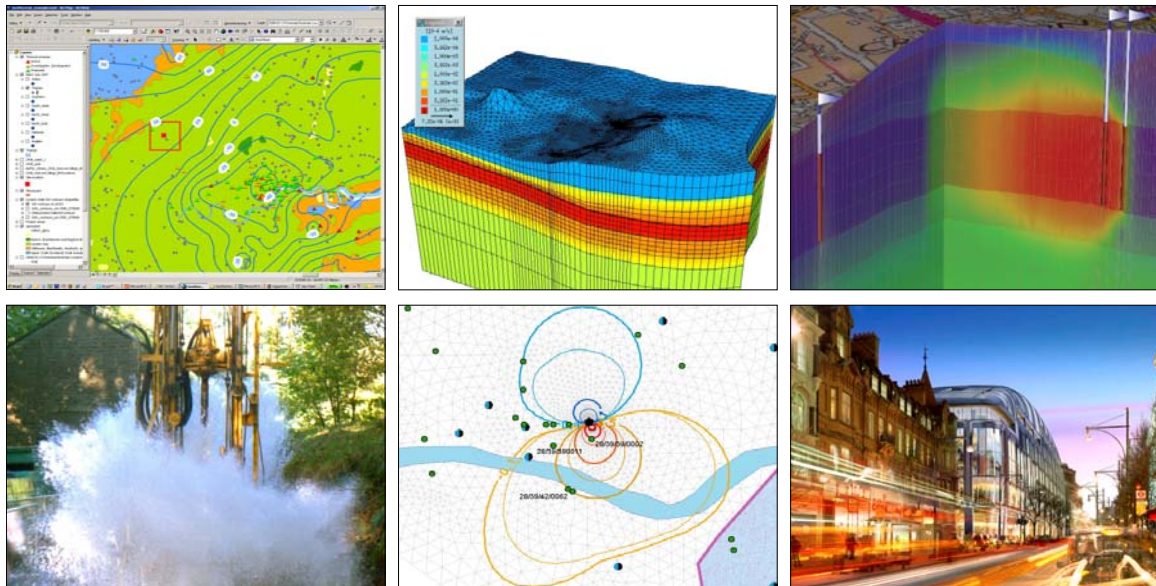
- The **right** advice about your options
- The **right** understanding of the ground and its water resources
- A **transparent** assessment of risk

Why choose ZenithGeothermal?

We have the **expertise** and **experience** required to assess and manage the risks in developing a geothermal scheme.

We have unparalleled **understanding** of the **hydrogeological** and **regulatory** issues involved in achieving sustainable geothermal schemes.

We achieve the **right result**, on **time** and on **budget**.



Which means you...

Achieve **real operational cost savings** through the adoption of a **low-risk strategy**.

Exceed **challenging CO₂ emission reduction** targets.

zenithinternational

specialist consultants to the food and drink industries worldwide

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Areas of expertise

Managing geothermal system risk

Our approach to geothermal system development is to carefully assess and manage the risks at each stage of a project and to keep the client fully informed throughout.

Feasibility studies

The main areas of risk that require evaluation prior to the development of an open loop geothermal system are: borehole yield, sustainability, interference effects, and regulation.

Numerical heat transport modelling

Understanding the interaction between groundwater and ground source heating and cooling is essential to both sustainable design and the management of regulatory risk. This is best done using numerical modelling.

System design

Designing successful open loop systems requires an integrated understanding of the three key design elements: building loads, borehole design, and heat exchanger design. We work closely with Building Services Engineers, Architects and Installers to optimise this design.

Impact assessment

Geothermal systems are becoming increasingly common, particularly in London. All new proposed systems must protect the interests of existing licence holders and the groundwater resource. It is therefore essential to evaluate the potential impacts early.

Consents & licensing

We have extensive experience in obtaining the necessary consents for groundwater and geothermal schemes, and have developed good working relationships with Environment Agency.

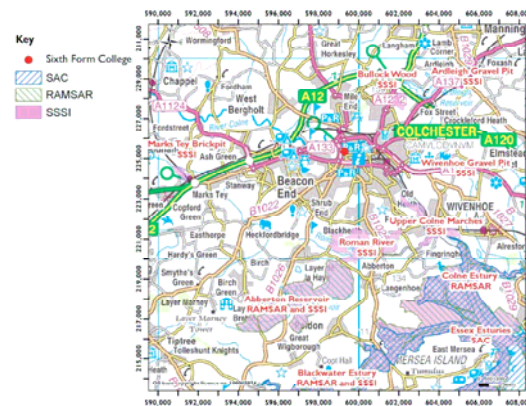
Case study

Geothermal Feasibility Study

A feasibility study reviews the available geological and hydrogeological information to provide a summary of the likely ground conditions, borehole yield and the local regulatory environment and is a first step prior to more detailed assessment involving the feasibility of servicing the building loads using ground source heat pumps.

Zenith, on behalf of The Energy Practice Ltd, undertook a feasibility study for a proposed scheme at The Sixth Form College, Colchester. The College prides itself in considering the environmental impact of its activities and it is keen to incorporate low CO₂ emission technologies that in the words of Principal Ian MacNaughton go “beyond double glazing”.

As a result of our study we have been able to assist our client in identifying the key development stages, and a number of alternative groundwater management strategies that would deliver the required thermal loads. We are continuing to work with the Energy Practice and The Sixth Form College, Colchester to refine these designs as part of the overall development of the college.



Generic Project Profile

Numerical Modelling of Sustainability

Zenith provides, using numerical groundwater and heat flow modelling, an early assessment of geothermal scheme sustainability and its wider impact. The primary aim is to reduce risk at all stages of a development.

Modelling is conducted in two stages: the first prior to any ground works during the initial feasibility assessment; the second after the boreholes have been drilled and extensive borehole testing has been conducted.

Modelling studies are used to iterate the design of the system, including borehole positions and assessment of changes to the building loads. The second stage of modelling is important for final design validation and for the licensing of the final scheme where the regulator has to be convinced that a comprehensive risk assessment has been conducted.

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