



Open Loop design & installation:

Two-borehole pair, Sherwood sandstone, Lancashire

Carbon Zero Consulting (CZC) has had major involvement with many of the UK's larger commercial open loop ground-source heating and cooling schemes. We have the largest team of 'thermogeologists' in the UK dedicated to the design and development of this technology. It is estimated that there are approximately 50 commercial schemes in the UK in various stages of design and development, with many more to follow.

This technology has the potential to provide renewable heating and cooling at a fraction of the cost of traditional gas, oil and electric alternatives

Although many schemes are located in London CZC strongly believe that the major growth in open-loop technology will be in much of the midlands and north where the hydrogeology is more suitable.

In Lancashire, CZC undertook all technical design and viability work for a high profile 750kW cooling scheme. Under our supervision, two boreholes have been drilled 160m into the sandstone aquifer.

A sustainable yield of 20l/s has been tested with 100% of the water being re-injected. As this is a cooling-only scheme water is re-injected at a higher temperature once it has passed through a heat exchanger.

The ground-source system is now fully commissioned and ready for operation alongside other renewable heating and power technologies.

Our thermogeology input has been used to calculate and model the long term thermal interaction between boreholes and the wider environment. The Environment Agency requested that CZC calculate the nature and extent of the thermal 'plume' generated by the scheme within the aquifer. CZC provided calculations and a model to demonstrate the effects on the environment and other groundwater users were negligible.

