



Kirkby Stephen Low Carbon Heat Network

CLIENT: eQuality Homes Cooperative Group Ltd

LOCATION: Kirkby Stephen, Cumbria



Prospus Group was appointed to undertake a feasibility study funded by the Rural Community Energy Fund (RCEF), for a low carbon heating system for a 22-development housing scheme in Kirkby Stephen, Cumbria.

Details

The RCEF funding and the works generally were supported by Local Energy - North West Hub.

As part of the feasibility study the Prospus team assessed the forecast energy loads for the new homes using a range of design tools and local weather data to determine accurate energy loads every 10 minutes throughout the year.

The team then developed computer models to compare various heating systems to determine the optimal heating approach, which included comparing the option to use a gas boiler with various low carbon alternatives.

The analysis confirmed that low carbon technologies can compete with traditional gas boilers to offer an effective heating system at a lower cost to the residents.

The optimal configuration combined ground source heat pumps (GSHP) with an innovative shared 'ambient borehole loop' and solar energy system.

Solar energy, comprising both thermal and photovoltaic, was used to improve the operating efficiency of the GSHP system and reduce the cost of imported grid energy required.

In addition to providing hot water for the system, solar thermal energy will also be used to 're-charge' the borehole network with heat during periods where there is a surplus of solar energy over the summer to improve the efficiency of the system over the whole year, and in particular the cold winter months when there was less solar energy available. This novel system will demonstrate that you can secure benefits from solar energy, even when the sun isn't shining.

Prospus have also helped secure further funding to undertake on-site tests and detailed design work for the system.