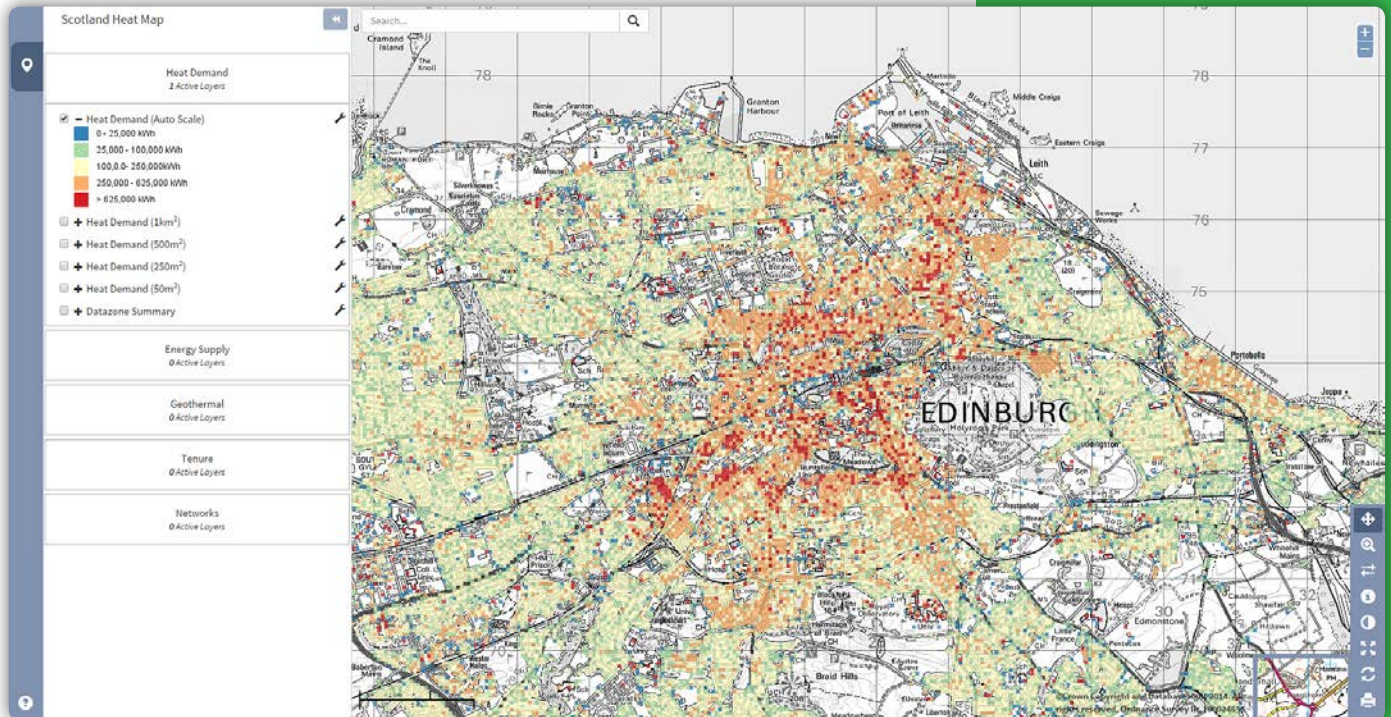


Scottish Government Heat Map



Customer

In Scotland, over 50% of energy consumed is used to heat and cool buildings and processes in homes, offices, hospitals, business and industry. So, in June 2015, Scottish Government's Heat Policy Statement set out an approach for decarbonising its heat system and diversifying heat sources. It also aimed to reduce pressure on household energy bills and maximise the economic opportunities of the transition to a low carbon heat sector.

Problem

Geographic heat mapping was recognised as a powerful and informative tool to visualise opportunities, to assess heat demand and heat source or supply, and to determine how these could be connected in an efficient way to reduce the cost of heat supply and the carbon intensity of heat generation in Scotland. Combined with other spatial data, the heat map could also be used as a tool to identify specific needs and priority areas.

Scottish Government required the design and development of an online web-based heat mapping solution to help support the work set out in the Scottish Government's Draft Heat Generation Policy Statement on District Heating.

The aim of publishing the heat map and associated information was to help inform local authorities, businesses, developers, housing associations and communities about heat demand and supply opportunities in local areas.

"thinkWhere provided the most cost-effective way to share the Scotland Heat Map with members of the public."

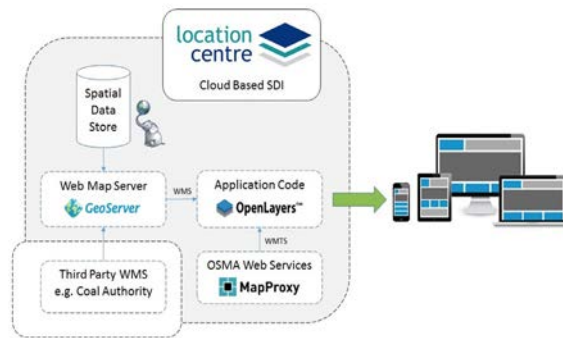
"thinkWhere also provided a bespoke data analysis tool – delivering a suite of data queries, in a clear and accessible way, to the typical non GIS user."

Andrew Seaton
Head Data Analyst, Office of the
Chief Economic Advisor, **Scottish
Government**

Scottish Government Heat Map

Solution

An online GIS tool was developed by thinkWhere built upon an open source technology stack including PostGIS, GeoServer and OpenLayers. The application offered 3 main capabilities; a map viewer to allow exploration of various layers including raster heat maps, vector data, such as point energy sources, and access to third party services, such as the Coal Authority WMS.



The application also offered INSPIRE compliant download of selected datasets as well as offering a data analysis and reporting capability allowing dynamic production of area based heat map reporting.

In Action

The Scotland Heat Map draws together a wide range of data from Scottish Government, Local Authorities and public and private party organisations. All data has been reviewed, normalised and delivered in standard OGC and INSPIRE compliant formats accessible over the web. Styling using SLDs was applied for each layer including bespoke symbology designed specifically for the project.

Reporting Tools allow users to define an area on the map, or select pre-defined areas, and use these defined areas to generate bespoke on-the-fly heat map reports that can be exported in a range of standard formats including CSV and PDF. Information that can be extracted, analysed and reported on includes summary area information (km²), total heat demand for defined area (kWh), number of actual and potential energy sources within the defined area and number of public buildings and their total heat demand.

The application is publicly available and implemented in a responsive manner allowing information to be accessed via a range of devices. heatmap.scotland.gov.uk

Benefits

- An easy to use, interactive heat map incorporating data from multiple sources
- Accessible, online from a range of connected devices
- Reporting and data query tools for non-technical users
- Compliant with international standards for GIS data processing and data sharing

Summary

Using thinkWhere's extensive experience on complex information projects and building online web mapping and data visualisation solutions, the online interactive heat map allows users to easily see where there are opportunities for decentralised energy projects across Scotland, to identify where there are opportunities for heat networks and to assess heat density and proximity to heat sources.

“Our feedback was readily incorporated during the development process and the final result is a professional quality map that is understandable and easy to use – all in all we have been very happy with the service provided.”

Andrew Seaton
Head Data Analyst, Office of
the Chief Economic Advisor,
Scottish Government

thinkWhere uses leading edge cloud, Open Source and GIS technologies, to develop innovative software and solutions, backed by a wide range of GIS implementation, consultancy, support and training services.

thinkWhere provides an online platform for storing, sharing and using maps and geographic data, and help solve real-world problems using open data and open technology.