



# Scotland Heat Map

2.2 Metadata, Limitations and  
Data Management

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This document provides a guide to the data, its use and management in three sections:

- Metadata
- Limitations and protections for use and analysis
- Data management

## 1. Metadata

The Scotland heat map holds data covering the following area:

- OS Mastermap and Addressbase [PSGA members]
- Heat demand
- EPC Data
- Home Analytics Data
- Actual Energy Demand (Public Sector)
- Heat Demand Layer (combined)
- Tenure
- Energy Supply Layer
- District Heating Networks
- Constraints
- Layer options
- Additional layers
- Utilities Layout

The Scottish Government has provided metadata for the four derived data layers:

- Heat Demand
- Energy Supply
- Heat Networks
- Tenure

## 2. Limitations and protections for use and analysis

The guide outlines the Limitations and protections for data use and analysis for Scotland heat map data as outlined in the Scotland heat map - [Framework Agreement 1.0](#), and in particular **Section 7- Specific limitations on data use**.

Scotland heat map - User Guide – [2.1 Data Dictionary](#) outlines all the data used to create each layer of the Scotland heat map public sector dataset. Different data comes with different limitations to use.

There are a number of different types of data used to create the Scotland heat map:

- Data provided through agreement
- Data provided through online resources or from other organisations
- Derived data, which has been transformed or manipulated for use in the Scotland heat map. The Scottish Government is the data owner for derived data.

The Scotland heat map is provided in a number of separate layers. Different data sets are drawn together, or held, in these separate layers. Using the Scotland heat map binds you to the data restrictions for all the data used in creating the data layers. All analyst staff approved to access the data are cleared at Baseline Personnel Security Standard (BPSS) or similar and have received protecting information training.

## 2.1 Data review

While participants using the Scotland heat map data are under a duty to comply with all relevant obligations under the Data Protection Act 2018 (“the DPA”) and General Data Protection regulation (GDPR), **the Scotland heat map is considered to be non-personal** within the meaning of the DPA as outlined in Section 2 of the Scotland heat map [Framework Agreement 1.0](#). This duty also complements any ethical duty participants might have under the general principles of their organisation or professional body on the use of data.

The Scottish Government has reviewed the Scotland heat map dataset with the aim of making as small as possible the risk releasing confidential information whilst maximising the access to useful, high quality data. Because of this personal data has not been included in the Scotland heat map dataset. To test out possible scenarios the Scottish Government has used Statistical Disclosure Control to review this risk.

In our review of statistical disclosure control we sought to assess the risk of disclosing information unintentionally through making the heat map data available to users. This involved testing the data to see if any attributes could be attributed to individuals, households or businesses in a way that would allow a user to learn more data about one of these units than is already available from public sources.

The approach taken gave consideration to; the data environment that data are to be released into i.e. what data are publicly available that share similar attributes; the sensitivity of the data’s attributes i.e. what attributes should be considered in need of specific protection; and the relative uniqueness of records and the potential for attribution to identifiable people or businesses. The latter are tested using scenarios that encompass attempts to match the data to publicly available sources such as the electoral register.

The review concluded the data could not, with any degree of certainty, be attributed to individuals, households or businesses. The level of geography at different layers in the heat map also provides a degree of ambiguity in the attribution of attributes to individual buildings. This supports the conclusion above that the statistical disclosure risk is very low.

As the data environment changes over time this review process will be repeated and relevant documentation updated.

## 3. Data layers

### 3.1 Heat demand

Provides potential demand sources for modelling opportunities for heat, energy reduction and linking to supply opportunities. The heat demand layer must be aggregated before it is released to third parties. The modeled kWh heat demand data can only be released at or above a 50 meter grid. Other data can only be released under the terms of each dataset detailed in 3.3 Underlying data.

### 3.2 Heat supply

Provides potential supply sources for modelling opportunities for heat networks or energy reduction and supply opportunities. The heat demand layer must be aggregated before it is released to third parties. Data can only be released under the terms of each dataset detailed in 3.3 Underlying data.

### 3.3 Underlying data

#### 3.3.1 Area data

Local authority, postcode and settlement boundaries are available from the [National Records of Scotland](#) on [Open Government Licence](#). Datazone and intermediate datazone are available from [www.data.gov.uk](http://www.data.gov.uk) on [Open Government Licence](#).

#### 3.3.2 Cooling towers

Cooling tower data was provided by local authorities under [Freedom Of Information](#). These have been used for the heat supply layers.

#### 3.3.3 Distilleries

Distillery data is property of the [Scotch Whisky Association](#) and includes site of distilleries and volumetric production. This has been used for heat demand and heat supply layers.

#### 3.3.4 District heating network

The district heating network data within the Scotland heat map has been reviewed and classified by the Scottish Government as non-personal data. It provides potential and actual district heat networks for connection and expansion and supply modelling opportunities.

The Heat Network layer is comprised of data from two sources; Heat Network Metering and Billing Regulations (HMBR) collected by the [Department for Business, Energy and Industrial Strategy \(BEIS\)](#), and the Low Carbon Heat Database (LCHD) collected by [Zero Waste Scotland](#) and was formerly referred to as the Heat Network Partnership (HNP) database, which was updated by members of the Heat Network Partnership.

### 3.3.5 Energy from Waste

[Waste Resources Action Programme](#) (WRAP) maintains a list of energy from waste sites. This material has been reproduced from the website [www.wrap.org.uk](http://www.wrap.org.uk) of The Waste and Resources Action Programme.

### 3.3.6 Energy Performance Certificates

Energy performance Certificate data is part of the heat demand layer. Local authorities are the enforcement bodies for [The Energy Performance of Buildings \(Scotland\) Regulations 2008](#) (last amended 2016) and have access to register data. Use of data is restricted to named individuals and for specific purposes, namely supporting Scottish Government policies on:

- Climate change mitigation and adaptation,
- Reducing the need for heat,
- Efficient heat supply, including district heating and heat storage, and low carbon and renewable heat sources, including recovering excess heat
- Housing and fuel poverty
- Scottish Planning Policy and planning for low carbon heat and power

Any sharing of EPC data must conform to the conditions set out in the data sharing agreement between Building Standards Division (SG) and OCEA: Economic Analysis (SG). A copy can be made available on request.

### 3.3.7 Home Analytics

Home Analytics is a product delivered by the [Energy Saving Trust](#) that models energy demand (including heat) and efficiency characteristics for domestic properties in Scotland where an Energy Performance Certificate (EPC) is not available. Extracts of the Home Analytics dataset are included in the heat map, including estimates of heat demand. Data from Home Analytics is to be used by Local Authorities only and is subject to the same conditions as EPC data (above).

### 3.3.8 Geothermal

Coal mine data on positions, depth and scale, mine abandonment plans, mine entries, and pumped water are all held by the [Coal authority](#). Use of Coal Authority data within the heat map is restricted to statistical and research purposes only with named individuals. Research includes the feasibility of different heat and energy efficiency solutions. [British Geological Survey](#) provided data on geothermal resource. Use of data within the heat map is restricted to statistical and research purposes only with named individuals. Research includes the feasibility of different heat and energy efficiency solutions. These have been used for the heat supply layers. Borehole temperatures, opportunities from coal mines, sedimentary hot aquifers and hot granites are available through [Study into the Potential for Deep Geothermal Energy in Scotland: Volume 2](#).

### 3.3.9 Office of gas and electricity markets (Ofgem)

[Ofgem](#) collates statistical analysis or research and development on the

[Renewables Obligation](#) RO, [Feed-in-Tariff](#) (FIT) scheme and [Renewable Energy Guarantees of Origin](#) (REGO). Data is provided through [Ofgem E-serve](#) including limitations of use.

### **3.3.10 Constraints**

Conservation sites can be downloaded from [NatureScot](#) and is available using an [Open Government Licence](#).

Historic Properties In Care, Listed Buildings, Scheduled Monuments and Battlefields can be downloaded from [Historic Environment Scotland](#).

### **3.3.11 Ordnance Survey AddressBase product**

Use of the Scotland heat map requires the user to be part of the [Public Sector Geospatial Agreement](#).

### **3.3.12 Public and other organisations energy data**

All public sector organisations who control their building energy have provided building energy use for the heat demand layer. Each providing body is the data owner. Data has also been provided as part of the [Public Sector Procurement](#) for [electricity](#) and [natural gas](#). Use of underlying Public Sector Procurement data is for research and statistical purposes and is restricted to named users and cannot be provided to a third party.

### **3.3.13 Renewable energy**

The [Energy Saving Trust Scotland](#) and [Forestry Commission Scotland](#) collate data on Renewable Heat generation for the Scottish Government. Use of data is restricted to statistical and research purposes only with named individuals. Research includes the feasibility of different heat and energy efficiency solutions. These have been used for the heat supply layers.

Wind energy sites can be downloaded from [Scottish Natural Heritage](#) and is available using a [Open Government Licence](#).

The Department for Business, Energy and Industrial Strategy (BEIS), collate the [Renewable Energy STATisticS database](#) (Restats). This contains performance statistics on all relevant renewable energy sources in the United Kingdom. Guidance for use is provided. These have been used for the heat supply layers.

### **3.3.14 Scottish Environmental Protection Agency (SEPA)**

The [Scottish Pollutant Release Inventory](#) (SPRI), Combined Heat and Power (CHP) generation and Energy from Waste data and heat plans are used for the heat supply layer. SEPA data has [limitations for use](#). Limitations include, but are not limited to, data must not be sold on or used for any commercial activity without agreement of SEPA ([www.sepa.org.uk](http://www.sepa.org.uk)).

### **3.3.15 Scottish Water**

[Scottish Water Horizons](#) holds data on Waste Water Treatment Works and Anaerobic Digestion. Use of data is restricted to statistical and research purposes only with named individuals. Research includes the feasibility of

different heat and energy efficiency solutions. These have been used for the heat supply layers.

### **3.3.16 Tenure**

Tenure data within the Scotland heat map has been reviewed and classified by the Scottish Government as non-personal data. This provides necessary information for modelling opportunity for heat networks or energy reduction and supply opportunities.

Datazone tenure data from the [Census 2011](#) is available on [Open Government Licence](#). Tenure data by datazone has been used in the heat map.

Individual building tenure data is has been provided by local authorities and the [Scottish Federation of Housing Associations](#).

Tenure data provided in the Scotland heat map cannot be used for unsolicited marketing as outlined by the [Information Commissioners Office](#).

### **3.3.17 Utility**

Local Authorities can approach [Scotia Gas Networks](#) for high and medium pressure gas pipe shapefiles. This require a separate Agreement for the provision of maps data in GIS format.

High pressure gas pipe shapefiles for Scotland are available from the [National Grid](#). Terms and conditions apply.

## **4. Data management**

It is recommended that there is a single lead for coordinating data management and collection for each participating organisation. You may also wish to identify data controllers for each data source. Key areas often include:

- GIS
- Planning
- Energy and Asset Management
- Housing
- Economic Development

Where data is changed, such as correction or adding new data, then this should be part of the Scotland heat map – User guide [2.3 Validation & improvement](#).

### **4.1 Data provision for the Scotland heat map**

Data provision is included in the Scotland heat map – [2.0 user guide](#).

#### **4.1.1 Tenure**

- Building tenures (Attributes of tenure and address, including Unique Property Reference Number)



- Socially rented owned by the data provider (Attributes of building, energy sources and energy efficiency measures, including Unique Property Reference Number)

#### **4.1.2 Cooling towers**

- Environmental Health cooling tower records (Attributes of address)

#### **4.1.3 Heat supply opportunities**

- Energy supply plant (Attributes of plant, address including building, energy supplied and potential spare capacity, including Unique Property Reference Number where applicable)

#### **4.1.4 District heat networks**

- Energy centres (address, energy supplied and potential spare capacity, including Unique Property Reference Number where applicable)