



Carbon & Energy Mapping

'Working to provide solutions for a better climate'

The Climate Change Act 2008 puts into statute the UK's targets to reduce carbon dioxide (CO₂) emissions by at least 26% by 2020 and 60% by 2050.

The UK housing stock contributes some 30% of our estimated CO₂ emissions and is one of the key areas where we can easily act to reduce such emissions.

Local Authorities, through National Indicators 185 and 186, are required to reduce carbon emissions from their operations to meet government targets.

For housing the first step towards reducing CO₂ emissions is to obtain a baseline of the current residential carbon emissions. The GeoInformation Group has produced a comprehensive Cities Revealed **Carbon & Energy Mapping** programme to support Local Authorities in this task.

Carbon & Energy Mapping is a low cost, authority-wide baseline model for residential CO₂ emissions. It is based on a nationally accepted energy model and takes into account the physical properties of each house. It provides a consistent, robust and accurate mechanism

for obtaining and validating domestic property level CO₂ emission data. The baseline CO₂ emission value (kg CO₂/yr) for each property is based on nearly 220 separate parameters, including key property information such as age, structural type, building material, floor space and the recently added thermal profile (* see over). **Carbon & Energy Mapping** is based on SAP2005, and is the Government's Standard Assessment Procedure for Energy Rating of Dwellings.

SAP 2005 is adopted by government as part of the UK's national methodology for calculation of the energy performance of buildings. This collective information provides an accurate and consistent baseline model for creating an authority-wide CO₂ reduction plan.

Surrey Heath District Council Case Study

To understand the energy budget of their domestic properties Surrey Heath DC used the Cities Revealed **Carbon & Energy Mapping** product. A thermal survey was flown in the winter of 2009 and combined with a detailed building age and type survey delivered early 2010.

The CEM product produced results that showed various CO₂ levels with property age, type and size. Thermal imaging helped refine these results. The database will now be used by the housing, climate change and strategic policy units to develop an active energy efficiency campaign.



Features

SAP2005 building energy model, which receives key input items from Cities Revealed Building age and type databases, and where available thermal heat loss surveys.

Output of Roof and total building CO₂ emissions (kg/ CO₂/yr) and energy use, both Gas and electric (kWh/yr).

Comprehensive and unique residential property database that identifies property age and structure

Approximately 100 separate parameters are used to produce a highly robust CO₂ and energy calculation for each residential property

The outputs are provided in a mapping database and are linked to address records

Emissions can be aggregated and calculated at the street, postcode, ward or authority level; or any geographic area of the user's choice

Integrates with your existing GIS

Flexible model to accommodate revisions based on new property level data from the authority

Benefits

Cities Revealed **Carbon & Energy Mapping** offers distinct advantages over gathering CO₂ emissions from householder surveys, which are subject to low return rates and inconsistencies.

The figures produced from householder surveys are often based on basic energy models and as a result can be less effective in tackling CO₂ reduction. In addition, authority wide field surveys undertaken by councils are costly and time consuming. **Carbon & Energy Mapping** is a complete GIS-ready solution that provides consistent and accurate CO₂ data linked to residential addresses.

1. Based on industry and government accepted procedures (SAP)
2. Addition of residential building age, type and area to improve the results of the model
3. Unique enhancement of thermal imaging (where available) to improve estimation on energy budget and provide additional heat loss values for properties
4. All data provided in a mapping database with options to link to the customer's address database for improved analysis and targeting of grants and support
5. Provision of baseline model for CO₂ emissions with flexibility to upgrade at a later date based on energy reduction measures undertaken by the user.

Applications

Cities Revealed **Carbon & Energy Mapping** can be utilised in work towards achieving success in the following National Indicators:

185 CO₂ reduction from Local Authority operations

186 Per capita CO₂ emissions in the LA area

When combined with a **Thermal Survey** the **Carbon & Energy Mapping** solution is enhanced and will benefit those departments working towards delivering the following National Indicators:

187 Tackling fuel poverty - people receiving income based benefits living in homes with a low energy efficiency rating

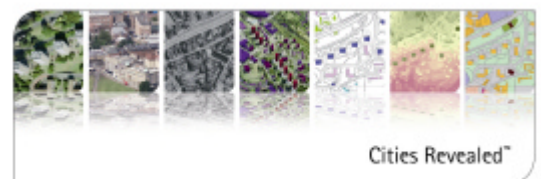
188 Adapting to climate change

For a free Information Toolkit including a slide show, sample data, screen shots and a white paper on **Carbon & Energy Mapping** please contact us at the address below.



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* Thermal Imaging is a separate product and requires an additional survey. It is priced separately from the **Carbon & Energy Mapping** product, please ask for further information if you would like this included in your product