



Department  
of Energy &  
Climate Change



# Local authority carbon dioxide emissions estimates 2012

Statistical release

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This document is also available from our website at: <https://www.gov.uk/government/publications/local-authority-emissions-estimates>

# Contents

|  |    |
|--|----|
| Executive summary .....  | 4  |
| Introduction.....  | 5  |
| Use of the estimates.....  | 8  |
| 2012 emissions .....   | 10 |
| 2012 emissions by region .....   | 10 |
| 2012 emissions by sector .....   | 12 |
| Local Authorities with large changes in emissions since 2011.....  | 15 |
| Improvements since last year and revisions to the data for 2005 to 2011 .....                                  | 17 |
| Emissions trends since 2005.....   | 19 |
| Regional trends since 2005 .....   | 19 |
| Local Authority trends since 2005.....   | 20 |
| Sub-Sectoral Trends.....   | 21 |
| Carbon dioxide emissions within the scope of influence of LAs .....  | 23 |
| Reconciliation with the UK inventory .....   | 26 |
| Reconciliation Table.....  | 26 |
| Main differences between the Local Authority (LA) dataset and the Devolved Administrations (DA) datasets ..... | 28 |
| UK maps.....   | 31 |
| Regional sectoral variations.....  | 31 |
| Future updates to emissions estimates .....  | 39 |
| Notes for Editors.....   | 39 |

# Executive summary

This National Statistics publication provides the latest estimates of carbon dioxide emissions for Local Authority (LA) areas for 2005-2012. This report explains the background to the estimates, summarises the key results, and discusses some of the issues which need to be considered when using the data. Full details of the results and methodology are available in the Technical Report and accompanying spreadsheets, which can be found at the links below:

<https://www.gov.uk/government/publications/local-authority-emissions-estimates>

<https://www.gov.uk/government/publications/local-authority-carbon-dioxide-emissions-methodology-notes>

## Main Findings:

- Emissions on an end-user basis (i.e. emissions are allocated to the sector where they are used) have been assigned to all 406 Local Authorities in the UK: 326 of these are in England, 32 in Scotland, 26 in Northern Ireland and 22 in Wales.
- Since 2011, emissions have increased in 374 out of the 406 LAs (92% of LAs). This is consistent with an increase in UK emissions from 2011 to 2012. The main drivers of the increase in UK emissions in 2012 were an increase in residential gas use due to 2012 being a colder year than 2011, and increased use of coal for electricity generation.
- Overall in 2012, 42 per cent of end-user emissions assigned to local authority areas (excluding emissions from Land Use, Land Use Change and Forestry (LULUCF)) were attributed to the industry and commercial sector, 31 per cent to the domestic sector, and 27 per cent to transport. There are wide local variations on this mainly because of the economy and geography of different local areas.
- The industry and commercial sector had the highest share of end-user emissions in 40 per cent of authorities. The domestic sector the highest share in 35 per cent and the transport sector had the highest share in 24 per cent of authorities.
- In 2012, about 46 per cent of domestic end-user emissions came from gas use and 45 per cent were due to electricity consumption.
- In 2012, domestic end-user emissions were less than 2 tonnes per person in 14 per cent of LAs, between 2 and 2.5 tonnes per person in 65 per cent, between 2.5 and 3 tonnes per person in 19 per cent and above 3 tonnes per person in 1 per cent.

# Introduction

The UK compiles an annual inventory of its greenhouse gas (GHG) emissions in order to monitor progress against domestic and international targets such as the Kyoto Protocol. Disaggregated versions of the UK inventory are also produced for England, Scotland, Wales and Northern Ireland, along with maps estimating the geographical distribution of the sources of emissions.

Carbon dioxide (CO<sub>2</sub>) is the main greenhouse gas, accounting for about 82 per cent of the UK greenhouse gas emissions in 2012. In recent years, increasing emphasis has been placed on the role of regional bodies and local government in contributing to energy efficiency improvements, and hence reductions in carbon dioxide emissions. To assist this, this publication combines data from the UK's GHG inventory with data from a number of other sources, including local energy consumption statistics, to produce a nationally consistent set of carbon dioxide emissions estimates at local authority level.

The statistics show emissions allocated on an "end-user" basis where emissions are distributed according to the point of energy consumption (or point of emission if not energy related). Except for the energy industry, emissions from the production of goods are assigned to where the production takes place. Therefore, emissions from the production of goods which are exported will be included, and emissions from the production of goods which are imported are excluded.

The statistics are largely consistent with the UK national GHG inventory and with the Devolved Administration GHG inventories, but there are some minor methodological differences which are explained later in this publication. If you are looking for emissions figures at UK or DA level, you should use the UK or DA inventories rather than this publication (see links on the next page).

These statistics cover the period from 2005 to 2012. A consistent time series has been produced by re-calculating the 2005 to 2011 estimates to reflect the methodological changes used in calculating the 2012 estimates. This is important as it allows changes to be monitored over time.

Full details of the results and methodology are available in the supplementary reports and files published alongside this statistical release as listed below:

The following datasets are available for local authority emissions:

- [Local and regional carbon dioxide emissions estimates for 2005-2012: full dataset](#)  
The full dataset includes all the emissions that occur within the boundaries of each local authority
- [Emissions within the scope of influence of Local Authorities for 2005-12](#)  
This dataset of emissions within the scope of influence of Local Authorities excludes emissions that Local Authorities don't have direct influence over.

A number of supplementary reports/datasets are also available for local authority emissions. These are for users to refer to if they want more information on the methodology for producing the estimates:

- [Local Authority carbon dioxide emissions estimates 2012: Methodology summary](#)  
Summary of the methodology used to produce the emissions estimates.
- [Local and regional carbon dioxide emissions estimates for 2005-2012 for the UK: Technical report](#)  
Detailed report on the methodology used to produce the emissions estimates, for users who require more detail than is set out in the methodology summary.
- [Employment based energy consumption mapping in the UK](#)  
A report which outlines the methodology used to map emissions from smaller industrial and commercial sources.
- [Mapping carbon emissions & removals for the Land Use, Land Use Change & Forestry \(LULUCF\) sector](#)  
A report looking at LULUCF emissions and removals at the Local Authority level.
- [2011 Pollution inventory feeding into the Local Authority emissions datasets](#)  
This dataset provides the pollution inventory data used in the Local Authority emissions.

The following user guidance is available for sub-national emissions:

- [Sub-national emissions statistics: Frequently asked questions](#)

The following emissions outputs may also be of interest:

- [Devolved Administration Greenhouse Gas Inventories](#)  
Greenhouse gas emissions inventories are available for England, Scotland, Wales and Northern Ireland.
- [Final UK greenhouse gas emissions, 1990-2012](#)  
This publication provides the latest estimates of UK greenhouse gas emissions by source sector from 1990-2012.

Given the number of LAs, this statistical release does not provide a detailed explanation of all revisions to the historical data series or the year on year changes for each Local Authority. However, explanations of the reasons for any changes are available on request; any such requests should be sent to the following email address:

[climatechange.statistics@decc.gsi.gov.uk](mailto:climatechange.statistics@decc.gsi.gov.uk).

These statistics have been assessed by the UK Statistics Authority against the Code of Practice for Official Statistics. The Statistics Authority published its report on 12 June 2014: <http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/index.html>.

The Statistics Authority has determined that these statistics can be designated as National Statistics subject to DECC implementing a small number of requirements across the range of DECC statistics assessed, relating to further documentation on the needs of users, improving methodology on assumptions, assessing risks to use of admin data, improving clarity and linkages between the range of stats produced and review data release formats. These actions will be taken forward by end September 2014.

## Use of the estimates

The purpose of these estimates is to assist those wishing to understand and assess changes in local authority emissions. Local Authorities are not mandated to have greenhouse gas emissions reductions targets, but some LAs do have such targets. These statistics allow LAs to track their GHG emissions trends over time, and measure progress against any targets they have. While Local Authorities are the main users of the statistics, other users include non-profit organizations, the Devolved Administrations, government departments, and academia.

It is important to bear in mind that circumstances vary greatly between authorities, and that Local Authorities have relatively little influence over some types of emissions. For all these reasons, these statistics should be interpreted with caution. However, used with care they can provide help in setting priorities. In particular, the dataset is sufficiently robust to set a baseline against which to monitor action on climate change at a local level.

It should be noted that the results at areas formally known as Government Office Region level, which are also available from the dataset, are much more robust. Most of the difficulties in allocating data to Local Authorities have little impact at regional level. Problems of interpretation, such as economic activity or transport taking place across boundaries, still exist but are less acute at the regional level than at the local level.

There are some important limitations that users of these estimates should be aware of. These include:

- Unallocated electricity where electricity sales within the sub-national dataset cannot be successfully allocated to specific LAs, due to lack of information.
- Transport emission estimates rely on national traffic statistics, and distribution of traffic on minor roads has had to be imputed at local level from regional level data
- The local distribution of emissions from sources other than gas, electricity generation or transport largely has to be estimated from proxy information such as population or employment data
- Some of the key sources used for mapping emissions do not cover the whole of the UK, and therefore alternative methods have had to be used for authorities in Northern Ireland.

Further details on data quality and the methods used are available in the [Methodology Summary](#) and the [Technical Report](#).

## 2012 emissions

Estimates of carbon dioxide emissions have been produced for each local authority in the UK from the following broad source categories:

- Industry, commercial & public sector (including electricity-related emissions)
- Domestic (including electricity-related emissions)
- Transport
- Land use, land use change and forestry (including removals of carbon dioxide from the atmosphere, so that net emissions from this sector can sometimes be negative)

The level of sectoral detail is constrained by that available in the DECC statistics on local electricity and gas use. To estimate a further breakdown would have involved further general assumptions about energy use for different sectors, since local data is not available. However, further details, mostly in terms of fuel types, are shown in the [Technical Report](#) in order to provide additional insight into how the estimates are constructed.

## 2012 emissions by region

Table 1 shows a summary of the end-user emissions by region. Estimates are also given on a per-capita basis, based on the Office of National Statistics (ONS) mid-year population estimates for 2012, in order to make some allowance for the different size of regions. However, it should be noted that while emissions per resident may be a useful measure for domestic emissions, emissions from industry and transport are driven by many factors other than resident population. Therefore industrial and commercial, and transport emissions per capita should be interpreted with caution.

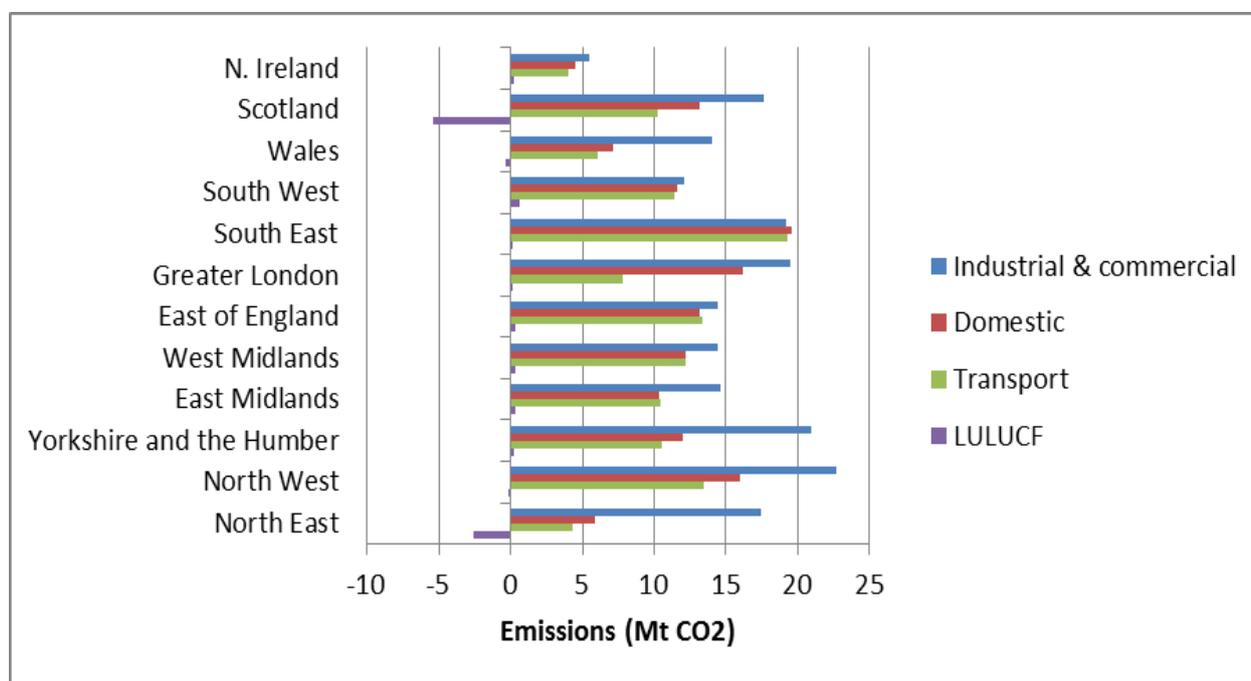
Results for individual LAs can be found in the [Full Dataset spreadsheet](#) published alongside this statistics release. There is a great deal of variation between LAs. In particular a significant amount of industrial emissions are concentrated in a few areas, so the contribution of industrial and commercial emissions in 2012 for specific LAs may be different from the regional averages in Table 1.

**Table 1: End-user carbon dioxide emissions 2012: Regional summary**

| Government Office<br>Region | Total emissions<br>(million tonnes carbon dioxide) |          |           |        |       | Per capita emissions<br>(tonnes carbon dioxide per resident) |          |           |        |       |
|-----------------------------|--|----------|-----------|--------|-------|--|----------|-----------|--------|-------|
|                             | Industrial &<br>commercial                         | Domestic | Transport | LULUCF | Total | Industrial<br>commercial                                     | Domestic | Transport | LULUCF | Total |
| North East                  | 17.4   | 5.9      | 4.4       | -2.6   | 25.1  | 6.7  | 2.3      | 1.7       | -1.0   | 9.6   |
| North West                  | 22.6   | 15.9     | 13.4      | -0.2   | 51.8  | 3.2  | 2.2      | 1.9       | 0.0    | 7.3   |
| Yorkshire and<br>the Humber | 20.9   | 12.0     | 10.5      | 0.2    | 43.7  | 3.9  | 2.3      | 2.0       | 0.0    | 8.2   |
| East Midlands               | 14.6   | 10.4     | 10.4      | 0.3    | 35.7  | 3.2  | 2.3      | 2.3       | 0.1    | 7.8   |
| West Midlands               | 14.4   | 12.2     | 12.2      | 0.3    | 39.0  | 2.5  | 2.2      | 2.2       | 0.1    | 6.9   |
| East of England             | 14.4   | 13.2     | 13.3      | 0.3    | 41.2  | 2.4  | 2.2      | 2.3       | 0.1    | 7.0   |
| Greater London              | 19.5   | 16.1     | 7.8       | 0.0    | 43.5  | 2.3  | 1.9      | 0.9       | 0.0    | 5.2   |
| South East                  | 19.2   | 19.5     | 19.3      | 0.1    | 58.1  | 2.2  | 2.2      | 2.2       | 0.0    | 6.7   |
| South West                  | 12.1   | 11.6     | 11.4      | 0.6    | 35.6  | 2.3  | 2.2      | 2.1       | 0.1    | 6.7   |
| England <sup>(1)</sup>      | 155.2  | 116.8    | 102.7     | -1.0   | 373.7 | 2.9  | 2.2      | 1.9       | 0.0    | 7.0   |
| Wales <sup>(1)</sup>        | 14.0   | 7.1      | 6.0       | -0.4   | 26.8  | 4.6  | 2.3      | 2.0       | -0.1   | 8.7   |
| Scotland <sup>(1)</sup>     | 17.7   | 13.2     | 10.3      | -5.4   | 35.7  | 3.3  | 2.5      | 1.9       | -1.0   | 6.7   |
| N. Ireland <sup>(1)</sup>   | 5.4  | 4.5      | 4.1       | 0.2    | 14.2  | 3.0  | 2.4      | 2.2       | 0.1    | 7.8   |
| UK <sup>(2)</sup>           | 196.8  | 142.0    | 123.0     | -7.7   | 454.1 | 3.1  | 2.2      | 1.9       | -0.1   | 7.1   |

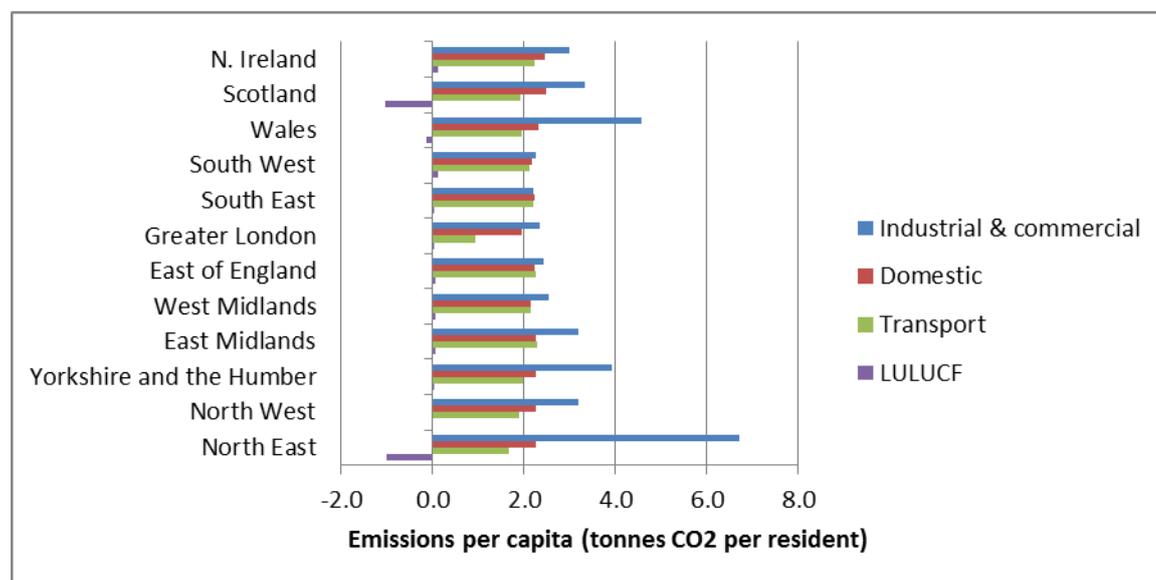
- (1) These data are not fully consistent with the equivalent data for the Devolved Administrations. A reconciliation of these two sets of figure can be found in the *Data tables*<sup>1</sup>.
- (2) Sum of local authority emission estimates differ from the official inventory for the UK (see Reconciliation section below).

**Figure 1: 2012 end-user carbon dioxide emissions by region and sector**



<sup>1</sup> [www.gov.uk/government/publications/local-authority-emissions-estimates](http://www.gov.uk/government/publications/local-authority-emissions-estimates)

**Figure 2: 2012 per capita end-user carbon dioxide emissions by region and sector**



## 2012 emissions by sector

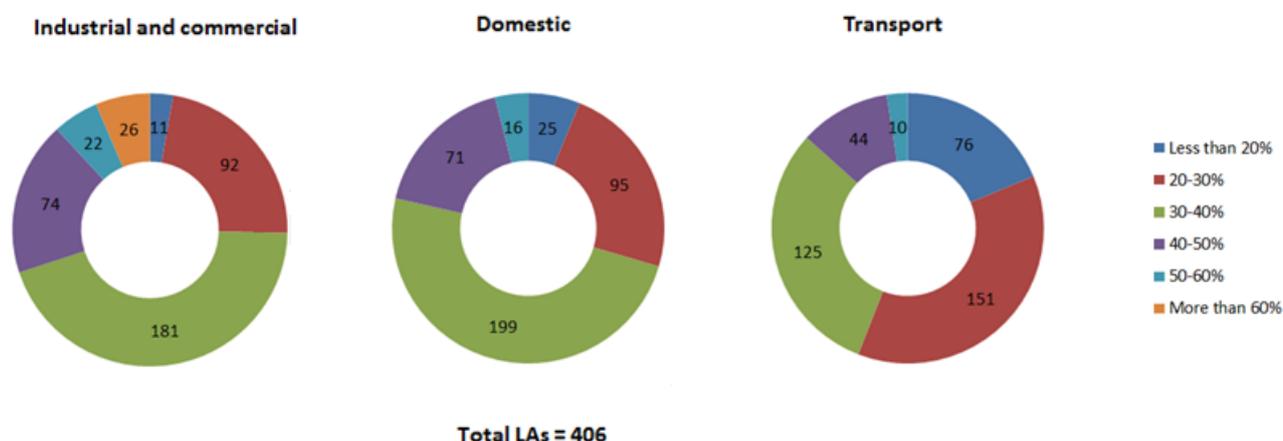
**Table 2** and **Figure 3** below show the number of Local Authorities with different proportions of emissions coming from the different sectors. The proportion of emissions from each sector differs considerably across LAs. For the majority of LAs there is no single sector that accounts for more than 50% of emissions.

There are some exceptions to this, for example there are 16 LAs for which the domestic sector contributes over 50% of emissions. Of these, 11 are located in Greater London, reflecting the higher population concentration in this region.

**Table 2: Sectoral breakdown of emissions: Number of Local Authorities with a given proportion of emissions in 2012 (excluding LULUCF)**

| Proportion of emissions | Sector (number of Local Authorities where sector accounts for corresponding proportion of emissions) |                 |                  |
|-------------------------|--|-----------------|------------------|
|                         | <u>Industrial and commercial</u>   | <u>Domestic</u> | <u>Transport</u> |
| Less than 20%           | 11   | 25              | 76               |
| 20-30%                  | 92   | 95              | 151              |
| 30-40%                  | 181  | 199             | 125              |
| 40-50%                  | 74   | 71              | 44               |
| 50-60%                  | 22   | 16              | 10               |
| More than 60%           | 26   | 0               | 0                |
| Total                   | 406  | 406             | 406              |

**Figure 3: Sectoral breakdown of emissions: Number of Local Authorities with a given proportion of emissions in 2012 (excluding LULUCF)**



### Domestic sector

In 2012, domestic sector emissions for all Local Authorities were higher than in 2011. The main driver for this was an increase in residential gas use. Domestic emissions are heavily influenced by external temperatures, and 2012 was, on average, colder than 2011. This led to increased demand for space heating in 2012, which resulted in increased emissions from domestic gas use.

In 2012, about 46 per cent of domestic end-user emissions arose from gas use, 45 per cent from electricity, and 9 per cent from consumption of other fuels.

Looking at longer term trends, national emissions from the domestic sector have decreased since 2005 and the same is true for all but 3 Local Authorities. The LAs with the largest decrease in domestic sector end user emissions since 2005 are Knowsley, Torfaen, West Dumbartonshire, North East Lincolnshire, Gateshead, and the City of Kingston upon Hull; which have all had a 15% reduction.

Emissions per resident vary least between areas for the domestic sector, and are dominated by gas and electricity consumption, for which real local data are available. DECC publishes domestic energy consumption data to regional and local authority level<sup>2</sup>. These data have been used to estimate emissions for the domestic sector for all Local Authorities, related to gas and electricity consumption. Domestic emissions here represent emissions from energy consumption in and around the home, including emissions attributable to the use of electricity, but not activities by private individuals elsewhere, such as personal travel.

In 2012, out of the 406 Local Authorities, domestic end-user emissions were the largest sectoral source of end user emissions (i.e. greater than the industrial and commercial, and transport sectors) in 143 (or 35% of all) Local Authorities.

<sup>2</sup> [www.gov.uk/government/organisations/department-of-energy-climate-change/series/sub-national-energy-consumption](http://www.gov.uk/government/organisations/department-of-energy-climate-change/series/sub-national-energy-consumption)

**Table 3: Breakdown of Local Authorities by carbon dioxide emissions per capita in the domestic sector**

| <b>Tonnes per person</b> | <b>Number of LAs 2011</b> | <b>Percentage of LAs 2011</b> | <b>Number of LAs 2012</b> | <b>Percentage of LAs 2012</b> |
|--------------------------|---------------------------|-------------------------------|---------------------------|-------------------------------|
| Less than 2              | 139                       | 34%                           | 57                        | 14%                           |
| 2 - 2.5                  | 241                       | 59%                           | 265                       | 65%                           |
| 2.5 - 3                  | 22                        | 5%                            | 78                        | 19%                           |
| More than 3              | 4                         | 1%                            | 6                         | 1%                            |

This sector can be influenced by the fuel types used, the type and condition of the housing (including its insulation), the average temperature (urban areas can be much warmer and therefore easier to heat than rural areas), average household size, type of household and the income and preferences of the occupiers.

### **Transport sector**

Transport emissions include freight and passenger transport, both private and for business purposes. The estimates are made on the basis of the distribution of traffic, therefore some of the emissions within an authority represent through traffic, or part of trips into or out of the area whether by residents or non-residents. In some authorities this can be particularly significant, and the issue has to be borne in mind when looking at either totals or per capita estimates. The [Technical Report](#) shows how the estimates break down between major and minor roads, to help with consideration of this point. On the end-user basis, transport emissions include a share of emissions from oil refineries.

More than three-quarters (325 out of 406) of all Local Authorities in the UK have experienced a decrease in transport emissions between 2011 and 2012, with an overall average decrease of 1.1 per cent. Since 2005, all but one Local Authority has seen a decrease in emissions from this sector. This is consistent with national trends, where transport emissions increased up to 2007 but have steadily decreased since then.

### **Industrial, commercial and public sector**

These emissions are dominated by industrial and commercial electricity consumption. The estimates are based on sub-national electricity consumption data published by DECC, which have been used to map carbon dioxide emissions from electricity generation to the point of consumption. For some Local Authorities, emissions from large industrial installations will be the dominant factor, and these have been mapped using the NAEI database of point sources.

Most Local Authorities (323 out of 406) in the UK have experienced an increase in emissions from this sector between 2011 and 2012. This is consistent with national trends where relatively high gas prices led to an increase in coal for electricity generation, which increased emissions. However, looking at longer term trends, all but 43 Local Authorities have seen decreases in emission from this sector since 2005.

## Local Authorities with large changes in emissions since 2011

Overall, emissions increased in 374 out of 406 Local Authorities between 2011 and 2012. The table below gives some examples of Local Authorities that had particularly big increases or decreases in emissions and the sub-sector(s) driving this change.

**Table 4: Examples of Local Authorities that had large changes in emissions between 2011 and 2012**

| Local Authority      | Percentage change | Sub-sector(s) most responsible (proportion of all changes in that area) |
|----------------------|-------------------|---|
| Redcar and Cleveland | 120% increase     | Large industrial installations (99%)                                    |
| Northumberland       | 31% decrease      | Large industrial installations (116% <sup>(1)</sup> )                   |
| Barrow-in-Furness    | 28% increase      | Industry and commercial electricity (78%)                               |
| Swale                | 23% decrease      | Industrial and commercial gas (68%)                                     |
| Neath Port Talbot    | 23% decrease      | Large industrial installations (92%),                                   |

(1) This percentage exceeds 100% because the absolute decrease for the sub-sector in question is greater than the overall absolute decrease in emissions, due to increases in emissions from other sub-sectors.

**Table 5: Emissions in 2012 (kilotonnes CO<sub>2</sub>) by region and sub-sector**

| Sector                                   | North East | North West | Yorkshire and the Humber | East Midlands | West Midlands | East of England | Greater London | South East | South West | Wales  | Scotland | Northern Ireland | Unallocated | Total   |
|--|------------|------------|--------------------------|---------------|---------------|-----------------|----------------|------------|------------|--------|----------|------------------|-------------|---------|
| A. Industry and Commercial Electricity   | 3,611      | 10,854     | 7,364                    | 6,501         | 7,426         | 8,418           | 14,629         | 11,993     | 7,344      | 4,654  | 7,887    | 2,417            | 4,442       | 97,540  |
| B. Industry and Commercial Gas           | 1,740      | 5,304      | 4,479                    | 2,894         | 3,259         | 3,270           | 4,312          | 3,770      | 2,223      | 1,945  | 4,378    | 629              | 41          | 38,245  |
| C. Large Industrial Installations        | 11,298     | 4,534      | 7,190                    | 3,033         | 1,630         | 578             | 88             | 1,169      | 104        | 5,770  | 3,326    | 570              | 0           | 39,290  |
| D. Industrial and Commercial Other Fuels | 649        | 1,615      | 1,648                    | 1,932         | 1,758         | 1,895           | 478            | 1,934      | 1,755      | 1,137  | 1,324    | 1,373            | 0           | 17,497  |
| E. Agricultural Combustion               | 144        | 329        | 241                      | 258           | 309           | 214             | 9              | 340        | 661        | 512    | 749      | 461              | 0           | 4,225   |
| F. Domestic Electricity                  | 2,322      | 6,833      | 4,906                    | 4,418         | 5,390         | 6,245           | 7,445          | 9,138      | 5,872      | 2,935  | 6,129    | 1,503            | 335         | 63,469  |
| G. Domestic Gas                          | 3,151      | 8,067      | 6,137                    | 5,001         | 5,884         | 5,803           | 8,382          | 9,125      | 4,499      | 3,002  | 5,770    | 353              | 38          | 65,213  |
| H. Domestic 'Other Fuels'                | 410        | 1,031      | 993                      | 956           | 897           | 1,138           | 303            | 1,285      | 1,210      | 1,196  | 1,293    | 2,607            | 0           | 13,317  |
| I. Transport (A roads)                   | 2,301      | 4,442      | 4,151                    | 5,109         | 4,157         | 6,270           | 4,405          | 7,457      | 4,865      | 3,048  | 5,010    | 1,884            | 0           | 53,101  |
| J. Transport (Motorways)                 | 312        | 4,696      | 2,803                    | 2,026         | 3,669         | 2,437           | 582            | 5,747      | 2,310      | 841    | 1,775    | 335              | 0           | 27,534  |
| K. Transport (Minor roads)               | 1,610      | 3,805      | 3,182                    | 2,899         | 3,769         | 4,167           | 2,593          | 5,440      | 3,793      | 1,962  | 3,175    | 1,764            | 0           | 38,159  |
| L. Transport Other                       | 104        | 238        | 233                      | 258           | 247           | 172             | 63             | 340        | 280        | 105    | 190      | 40               | 0           | 2,271   |
| M. Diesel Railways                       | 31         | 265        | 119                      | 149           | 352           | 276             | 136            | 281        | 125        | 74     | 114      | 41               | 0           | 1,963   |
| N. LULUCF Net Emissions                  | -2,615     | -185       | 245                      | 305           | 287           | 312             | 39             | 55         | 598        | -389   | -5,445   | 239              | -1,168      | -7,722  |
| Total                                    | 25,069     | 51,828     | 43,690                   | 35,741        | 39,034        | 41,194          | 43,464         | 58,072     | 35,640     | 26,792 | 35,675   | 14,214           | 3,689       | 454,102 |

**Table 6: Percentage change in emissions from 2005 to 2012 (kilotonnes CO<sub>2</sub>) by region and sub-sector**

| Sector                                   | North East | North West | Yorkshire and the Humber | East Midlands | West Midlands | East of England | Greater London | South East | South West | Wales | Scotland | Northern Ireland | Total |
|--|------------|------------|--------------------------|---------------|---------------|-----------------|----------------|------------|------------|-------|----------|------------------|-------|
| A. Industry and Commercial Electricity   | -26%       | -10%       | -17%                     | -19%          | -16%          | -6%             | 2%             | -6%        | -11%       | -25%  | -12%     | 7%               | -12%  |
| B. Industry and Commercial Gas           | -31%       | -17%       | -21%                     | -18%          | -24%          | -16%            | -15%           | -23%       | -27%       | -26%  | -7%      | 61%              | -19%  |
| C. Large Industrial Installations        | -21%       | -19%       | -35%                     | -25%          | -19%          | -45%            | -32%           | -68%       | -90%       | -26%  | -23%     | -51%             | -30%  |
| D. Industrial and Commercial Other Fuels | -31%       | -27%       | -23%                     | -17%          | -24%          | -25%            | -30%           | -30%       | -30%       | -29%  | -30%     | -13%             | -25%  |
| E. Agricultural Combustion               | -8%        | -8%        | -8%                      | -7%           | -7%           | -7%             | -4%            | -8%        | -8%        | -8%   | -10%     | -11%             | -8%   |
| F. Domestic Electricity                  | -2%        | -1%        | -4%                      | -2%           | 0%            | -1%             | 3%             | 1%         | -2%        | -1%   | -5%      | -7%              | -1%   |
| G. Domestic Gas                          | -19%       | -19%       | -16%                     | -15%          | -17%          | -13%            | -15%           | -13%       | -15%       | -19%  | -13%     | 66%              | -15%  |
| H. Domestic 'Other Fuels'                | -4%        | -6%        | -7%                      | -7%           | -7%           | -9%             | 0%             | -9%        | -8%        | -7%   | -7%      | -12%             | -8%   |
| I. Transport (A roads)                   | -11%       | -14%       | -14%                     | -10%          | -12%          | -11%            | -15%           | -15%       | -13%       | -11%  | -11%     | -13%             | -13%  |
| J. Transport (Motorways)                 | -4%        | -9%        | -9%                      | -11%          | -8%           | -7%             | -2%            | -9%        | -9%        | -10%  | -7%      | -9%              | -8%   |
| K. Transport (Minor roads)               | -14%       | -11%       | -9%                      | -7%           | -10%          | -9%             | -13%           | -10%       | -5%        | -9%   | -6%      | -4%              | -9%   |
| L. Transport Other                       | 5%         | 10%        | 8%                       | 5%            | 8%            | 7%              | 12%            | 9%         | 8%         | 13%   | 12%      | 21%              | 9%    |
| M. Diesel Railways                       | -21%       | 1%         | 1%                       | 0%            | 7%            | 1%              | -11%           | -3%        | -5%        | 0%    | -12%     | -19%             | -2%   |
| N. LULUCF Net Emissions                  | -13%       | 4%         | -33%                     | -20%          | -22%          | -3%             | -24%           | -49%       | -23%       | -31%  | 28%      | -218%            | 19%   |
| Total                                    | -20%       | -13%       | -18%                     | -14%          | -13%          | -10%            | -7%            | -14%       | -14%       | -19%  | -15%     | -5%              | -14%  |

# Improvements since last year and revisions to the data for 2005 to 2011

In the production of the 2012 estimates, new data were introduced, together with some improvements to the underlying methodology. In order to ensure that the data for 2005 to 2011 are consistent with the data now available for 2012, the estimates for these years have been revised to incorporate both the new data and the improvements in the underlying methodology. For some LAs, these revisions have resulted in noticeable changes to the emissions estimates in the earlier years for some sectors. More information and specific examples are given in the [Methodology Summary](#).

## **Large Industrial Installations:**

Some additional Other Petroleum Gases (OPG) combustion emissions have been included in the point source estimates for 2005-2007 following the inclusion of new sites and the reclassification of some fuels.

## **Industrial and Commercial Other Fuels:**

There have been some revisions in national emissions estimates for industrial stationary oil combustion, following revisions and reallocations in the Digest of UK Energy Statistics (DUKES).

## **Domestic (other fuels)**

Distribution grids for domestic solid and liquid fuel consumption have been updated using Census 2011 data. Additionally, allocation to domestic oil consumption to Northern Ireland Local Authorities has been decreased.

## **Road Transport**

There have been some revisions to national diesel fuel consumption, primarily affecting emissions in 2007. This affects emissions from all road types.

## **Transport Other**

A new grid has been used to map emissions from coal use in rail transport, based on information from the latest version of the 'UK Heritage Railways' website. These emissions were previously mapped using the diesel railways grid.

## **Land Use, Land Use Change and Forestry**

In the 2012 national inventory there was a major change in the methodology used for modelling Forest Land. The changes to modelling methodology include a better UK representation of forest areas in existence before 1920, and the distribution of tree species, growth rates and forest management practices. The improved representation of Forest Land in the LULUCF Sector has increased the estimates of the size of the removals from Forest Land and therefore the LULUCF Sector as a whole.

## Emissions trends since 2005

When the Local Authority emissions are aggregated, estimated total carbon dioxide emissions decreased by around 14% between 2005 (the earliest year for which data are available at Local Authority level) and 2012 – falling from 527.9 million tonnes to 454.1 million tonnes. However, over this period there has not been a steady downward trend, with emissions increasing between 2009 and 2010 and between 2011 and 2012 (largely due to variations in temperature). For information on the drivers of trends at national level, see National Statistics on Final UK Greenhouse Gas Emissions<sup>3</sup>.

### Regional trends since 2005

**Table 7: End-user carbon dioxide emissions 2005 and 2012: Region comparison**

| Region / country          | 2005                 |                | 2012                 |                |
|---------------------------|----------------------|----------------|----------------------|----------------|
|                           | Total emissions (Mt) | Per capita (t) | Total emissions (Mt) | Per capita (t) |
| North East                | 31                   | 12.3           | 25                   | 9.6            |
| North West                | 59                   | 8.7            | 52                   | 7.3            |
| Yorkshire and the Humber  | 53                   | 10.5           | 44                   | 8.2            |
| East Midlands             | 41                   | 9.6            | 36                   | 7.8            |
| West Midlands             | 45                   | 8.4            | 39                   | 6.9            |
| East of England           | 46                   | 8.3            | 41                   | 7.0            |
| Greater London            | 47                   | 6.2            | 43                   | 5.2            |
| South East                | 67                   | 8.2            | 58                   | 6.7            |
| South West                | 41                   | 8.2            | 36                   | 6.7            |
| England <sup>(1)</sup>    | 432                  | 8.5            | 374                  | 7.0            |
| Wales <sup>(1)</sup>      | 33                   | 11.1           | 27                   | 8.7            |
| Scotland <sup>(1)</sup>   | 42                   | 8.2            | 36                   | 6.7            |
| N. Ireland <sup>(1)</sup> | 15                   | 8.7            | 14                   | 7.8            |
| UK <sup>(2)</sup>         | 528                  | 8.7            | 454                  | 7.1            |

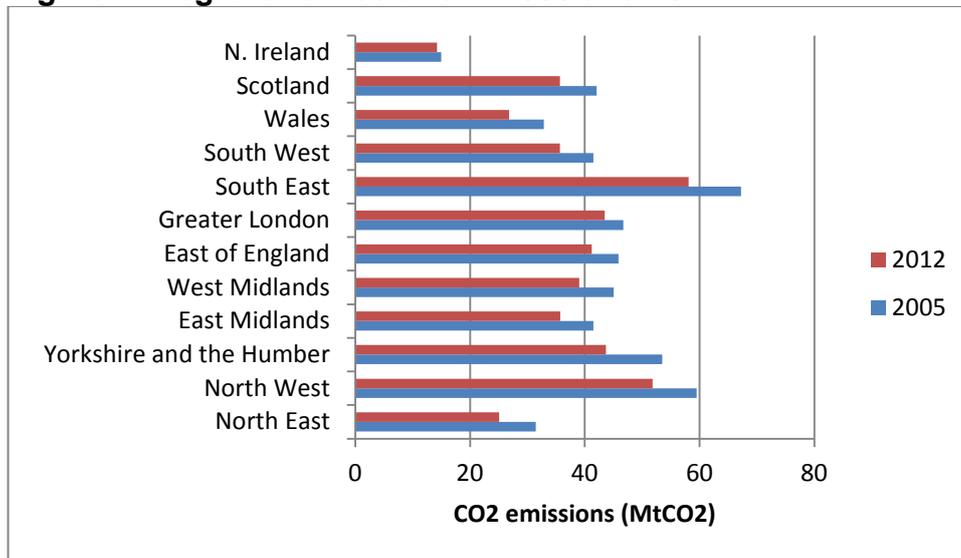
(1) These data are not fully consistent with the equivalent data for the Devolved Administrations. A reconciliation of these two sets of figure can be found in the *Data tables*.

(2) Sum of local authority emission estimates differ from the official inventory for the UK (see Reconciliation section below).

<sup>3</sup> <https://www.gov.uk/government/publications/final-uk-emissions-estimates>

Emissions have decreased in all regions since 2005. The largest decrease in per capita terms of 2.7 tonnes per person was seen in the North East.

**Figure 4: Regional emissions in 2005 and 2012**



## Local Authority trends since 2005

There is more variation in trends at Local Authority level than at regional level. In particular, emissions for many Local Authorities are heavily influenced by activities at industrial sites, and changes at a single site can have a big impact on emissions trends.

Out of 406 Local Authorities, 386 have shown a decrease in total emissions between 2005 and 2012.

- From 2005 to 2012, the largest percentage decrease:
  - in total emissions was in Dumfries and Galloway (down 87%). This LA has a large LULUCF sink, which has become a bigger sink since 2005.
  - in emissions from the industrial and commercial sector was in Gravesham (down 84%). This was primarily due to the closure of a cement works during 2008;
  - in emissions from the domestic sector was in Knowsley (down 15%); and
  - in emissions from transport was in Worthing (down 20%).
- From 2005 to 2012, the largest percentage increase:
  - in total emissions was in Slough (up 21%);
  - in the industrial and commercial sector was in Slough (up 57%);
  - in the domestic sector was the City of London (up 5%)
  - in the transport sector was Eilean Siar (up 4%).

**Table 8: Breakdown of size of decrease in emissions since 2005 at Local Authority level**

| Change in emissions since 2005 | Number of Local Authorities |
|--------------------------------|-----------------------------|
| Decrease of more than 20%      | 39                          |
| Decrease of 15%-20%            | 69                          |
| Decrease of 10%-15%            | 155                         |
| Decrease of 5%-10%             | 91                          |
| Decrease of 0% to 5%           | 32                          |
| Increase                       | 20                          |

Only 20 Local Authorities had higher emissions in 2012 than in 2005 (the earliest year for which data are available). However, for other Local Authorities there is a lot of variation in the scale of the decrease seen, as shown by the above table.

## Sub-Sectoral Trends

When Local Authority figures are aggregated, 2012 emissions are lower than 2005 emissions in all sectors and sub-sectors except for Diesel Railways.

The 3 largest absolute decreases were in the following sub-sectors:

- Large industrial installations (-17.0 million tonnes)
- Industry and commercial electricity (-13.1 million tonnes)
- Domestic gas (-11.7 million tonnes)

## Changes by sector at the Local Authority level

As discussed above, many Local Authorities have seen large decreases between 2005 and 2012. The tables below provide some information on the 5 Local Authorities that have experienced the largest percentage decreases and increases in emissions since 2005.

**Table 9: Examples of Local Authorities that had large decreases in emissions between 2005 and 2012**

| Local Authority       | Percentage decrease | Sub-sector most responsible (proportion of all decreases in that area) |
|-----------------------|---------------------|--|
| Dumfries and Galloway | -87                 | LULUCF (43%)   |
| Gravesham             | -65                 | Large industrial installations (91%)                                   |
| Argyll and Bute       | -52                 | LULUCF (54%)   |
| Highland              | -51                 | LULUCF (43%)   |
| Ribble Valley         | -49                 | Large industrial installations (89%)                                   |

For some LAs, particularly in Scotland, a LULUCF sink is a big factor in the trend of their emissions. At national level, the size of the LULUCF sink increased from 2005 up to 2011 and decreased slightly in 2012. For the 2012 inventory there were methodological changes to the way LULUCF emissions were calculated, which led to the size of the LULUCF sink over the period 2005-2011 being revised upwards.

**Table 10: Examples of Local Authorities that had increases in emissions between 2005 and 2012**

| Local Authority              | Percentage increase | Sub-sector(s) most responsible (proportion of all increases in that area)       |
|------------------------------|---------------------|---|
| Slough                       | 21                  | Industry and commercial electricity (146% <sup>(1)</sup> )                      |
| King's Lynn and West Norfolk | 16                  | Industry and commercial gas (71%),<br>Industry and commercial electricity (62%) |
| Tower Hamlets                | 14                  | Industry and commercial electricity (110% <sup>(1)</sup> )                      |
| Clackmannanshire             | 10                  | Industry and commercial gas (125%)  |
| Newham                       | 7                   | Industry and commercial electricity (204% <sup>(1)</sup> )                      |

(1) This percentage exceeds 100% because the absolute increase for the sub-sector in question is greater than the overall absolute increase in emissions, due to decreases in emissions from other sub-sectors.

# Carbon dioxide emissions within the scope of influence of LAs

Alongside the full dataset, we have also published a subset which represents carbon dioxide emissions within the scope of influence of LAs. The full dataset includes all the emissions that occur within the boundaries of each local authority; however, the dataset of emissions within the scope of Local Authorities excludes emissions that Local Authorities don't have direct influence over. The emissions that are removed from the full dataset are:

- Motorways – all emissions from the “Transport (motorways)” sector have been removed.
- EU Emissions Trading System (EU ETS) sites – these emissions have been removed from the “Large industrial installations” sector, with the exception of energy suppliers (e.g. power stations), whose emissions are indirectly included via the end-user estimates for electricity use. Note that not all the emissions from the “Large industrial installations” sector are produced by EU ETS installations, hence the fact that there are emissions remaining in this sector in the subset.
- Diesel railways – all emissions from the “Diesel Railways” sector have been excluded;
- Land Use, Land Use Change, and Forestry – all emissions belonging to the “LULUCF Net emissions” sector have been excluded.

Removing these emissions has a much bigger impact on some Local Authorities than others, as some LAs have a much bigger proportion of emissions from the above sources than others. Table 9 shows the Local Authorities with the decrease in emissions within the scope of influence of the LA between 2005 and 2012. None of these were among the top 5 LAs for decreases in overall emissions (which are shown in Table 7 in the previous section). This is because the largest decreases in overall emissions were driven by increases in the size of LULUCF sinks, which are not considered to be within the scope of influence of the LA, and by decreases to the Large Industrial Emissions sub-sector, large aspects of which are also considered to be outside the LA's scope of influence.

**Table 11: Examples of Local Authorities that had large decreases in emissions within the scope of influence of the Local Authority between 2005 and 2012**

| Local Authority      | Percentage decrease | Sub-sector(s) most responsible (proportion of all decreases in that area)      |
|----------------------|---------------------|--|
| Isle of Anglesey     | -37                 | Large industrial installations (71%)   |
| Newport              | -30                 | Industry and commercial electricity (58%)                                      |
| Redcar and Cleveland | -29                 | Industry and commercial electricity (33%)<br>Industry and commercial gas (32%) |
| Exeter               | -28                 | Industry and commercial gas (93%)  |
| Thurrock             | -28                 | Industry and commercial gas (76%)  |

Only 13 Local Authorities had an increase in emissions within the scope of the Local Authority between 2005 and 2012, compared with 43 Local Authorities that had an increase in their overall emissions. However, the Local Authorities had the biggest increases in their overall emissions (shown in Table 8), are largely also the ones with the biggest increases in emissions within the scope of the LA, as can be seen by comparing Table 12 below with Table 10 in the previous section.

**Table 12: Examples of Local Authorities that had increases in emissions within the scope of influence of the Local Authority between 2005 and 2012**

| Local Authority              | Percentage increase | Sub-sector(s) most responsible (proportion of all increases in that area)      |
|------------------------------|---------------------|--|
| Slough                       | 30                  | Industry and commercial electricity (124% <sup>(1)</sup> )                     |
| King's Lynn and West Norfolk | 17                  | Industry and commercial gas (69%)<br>Industry and commercial electricity (60%) |
| Clackmannanshire             | 16                  | Industry and commercial gas (110% <sup>(1)</sup> )                             |
| Tower Hamlets                | 14                  | Industry and commercial electricity (110% <sup>(1)</sup> )                     |
| Craigavon                    | 9                   | Industry and commercial gas (122% <sup>(1)</sup> )                             |

(1) This percentage exceeds 100% because the absolute increase for the sub-sector in question is greater than the overall absolute increase in emissions, due to decreases in emissions from other sub-sectors.

Looking at changes in emissions within the scope of influence of Local Authorities between 2011 and 2012, only 28 LAs had decreases in their emissions over this period. The table below shows the LAs with the biggest percentage changes to the emissions within their scope of influence. Some of the LAs (Swale and Barrow-In-Furness) also appeared in the list of LAs with the biggest changes to overall emissions over this period. This is because the main driver to emissions changes in these LAs was industry and commercial gas and electricity, which is considered to be within the scope of LAs.

**Table 13: Examples of Local Authorities that had large increases or decreases in emissions within the scope of influence of the Local Authority between 2011 and 2012**

| Local Authority           | Percentage change | Sub-sector(s) most responsible (proportion of all changes in that area) |
|---------------------------|-------------------|---|
| Swale                     | 33% decrease      | Industry and commercial gas (69%)                                       |
| Barrow-In-Furness         | 26% increase      | Industry and commercial electricity (87%)                               |
| Stockton-On-Tees          | 25% increase      | Large industrial installations (113% <sup>(1)</sup> )                   |
| Brent                     | 19% increase      | Industrial and commercial electricity (67%)                             |
| Cheshire West and Chester | 18% increase      | Industrial and commercial electricity (58%)                             |

(1) This percentage exceeds 100% because the absolute increase for the sub-sector in question is greater than the overall absolute increase in emissions, due to decreases in emissions from other sub-sectors.

# Reconciliation with the UK inventory

## Reconciliation Table

These local estimates are designed to be as consistent as possible with the national inventory for the UK. However, some differences are unavoidable.

A number of emission sources included in the UK inventory are not included in the local estimates, as there is no obvious basis for doing so. Excluded sources are principally linked to aviation and shipping.

A small proportion of the gas and electricity consumption allocated to the domestic sector in these estimates is attributed to business in the UK inventory. This is because it is not possible to distinguish between domestic customers and smaller businesses in the meter point consumption data used in these local estimates.

**Table 14** shows a summary of the reconciliation between the UK inventory and the local inventory. The different elements of this reconciliation should be interpreted as follows:

- **"Excluded"** are the sectors that have been deliberately excluded from the local level allocation, as it would not have been appropriate to include them;
- **"Unallocated methodological differences"** are differences which have become apparent due to the different methodological approaches used in deriving the UK Inventory and local level estimates. These include gas and electricity consumption which cannot be allocated to LAs due to confidentiality concerns at high emitting sites, and harvested wood products.
- **"Methodological differences"** are the differences that have caused the discrepancies between the national inventories and the Local Authority carbon dioxide dataset. These are explained after the UK reconciliation table.

**Table 14: Reconciliation of 2012 local emission estimates with UK inventory**

|   | (million tonnes CO <sub>2</sub> ) |               |
|---|-----------------------------------|---------------|
|   | <b>Details</b>                    | <b>Totals</b> |
| <b>1. End-user emissions allocated to local areas</b> |                                   | <b>450.4</b>  |
| <i>Unallocated methodological differences:</i>        |                                   |               |
| Unallocated consumption                               | 1.2                               |               |
| Large electricity users with unknown location         | 2.5                               |               |
| Total unallocated                                     |                                   | 3.7           |
| <b>2. Total UK end-user emissions (local method)</b>  |                                   | <b>454.1</b>  |
| <i>Excluded from local allocation:</i>                |                                   |               |
| Domestic shipping                                     | 1.6                               |               |
| Domestic aviation                                     | 1.6                               |               |
| Military transport                                    | 2.8                               |               |
| Exports   | 13.4                              |               |
| Total excluded  |                                   | 19.5          |
| <i>Methodological differences:</i>                    |                                   |               |
| Domestic sector                                       | -3.4                              |               |
| Industrial and commercial sector                      | 2.2                               |               |
| Transport sector                                      | 0.1                               |               |
| Total methodological differences                      |                                   | -1.1          |
| <b>3. UK total CO<sub>2</sub> emissions</b>           |                                   | <b>472.5</b>  |
| Emissions from Crown Dependencies                     |                                   | 1.6           |
| <b>4. UK Greenhouse Gas Inventory total</b>           |                                   | <b>474.1</b>  |

## Main differences between the Local Authority (LA) dataset and the Devolved Administrations (DA) datasets

This section of the report describes where there are unavoidable differences between the methodologies used in the estimation of emissions for this Local Authority carbon dioxide (CO<sub>2</sub>) emissions dataset, and for the Devolved Administration emissions datasets.

The following section sets out where and why these differences occur.

### Gas and Electricity Consumption data

The definitions used for domestic and industrial and commercial consumers differ between the two datasets. In the Local Authority CO<sub>2</sub> dataset, the split is as defined by the DECC sub-national energy consumption dataset. The Devolved Administration greenhouse gas inventory (DA GHGI), however, is based on DA-wide electricity consumption statistics which are available in the electricity generation and supply section of DECC's *Energy Trends* publication. These two underlying datasets are not fully consistent, and therefore result in differences between the Local Authority dataset and the DA inventories for gas and electricity use, as described below.

Looking first at gas consumption, the sub-national energy dataset underlying the LA CO<sub>2</sub> emissions data uses the gas industry standard cut-off point of 73,200kWh (2,500 therms) and classifies consumers using under that annual consumption as domestic consumers. The data are also weather-corrected using a 17 year average. In addition, the data cover the gas year – the period covering 1 October through to the following 30 September – as opposed to the calendar year, as used in the LA CO<sub>2</sub> dataset. Finally, gas consumption in the LA CO<sub>2</sub> dataset is mapped using the sub-national energy consumption data, along with excluded large gas users for GB, and gas consumption data from the energy suppliers for Northern Ireland.

In respect of the DA inventory however, the underlying *Energy Trends* dataset does not have the abovementioned complications. Firstly, there is no cut-off point used to differentiate between domestic and industry and commercial users. Secondly, the *Energy Trends* data are not weather corrected, and are also collected annually on a calendar year basis. Finally, *Energy Trends* uses all gas consumption data from the point source database with the remaining consumption mapped using a combination of sub-national gas consumption and NAEI mapping grids.

Turning to electricity, in compiling the LA CO<sub>2</sub> dataset, each meter in the sub-national energy dataset is allocated a profile class, which enables consumption by domestic customers to be identified separately from consumption by industrial and commercial customers. However as part of the data validation process, all users initially identified as domestic customers with either a recorded consumption greater than 100,000kWh, or with both recorded consumption greater than 50,000kWh and address information indicating non-domestic use, are reclassified as industrial and commercial customers.

In respect of the DA inventory however, the nature of the *Energy Trends* dataset means that this does not require any reclassification between domestic and industrial and commercial users. It should, however, be noted that the *Energy Trends* dataset used in the DA inventory (with the exception of half-hourly data) covers the year 27 January 2012 to 26 January 2013. This therefore differs from the sub-national dataset used in the LA CO<sub>2</sub> estimates, which is based on a calendar year.

## **Unallocated Gas and Electricity Consumption data**

In the sub-national energy datasets, some gas data cannot be allocated to LAs, due to reasons of confidentiality. In part, these gaps in the emissions estimates are filled through the point source database (mentioned above). However, in doing so, this introduces some uncertainty. In the DA inventory though, there is no unallocated consumption; point source data is supplemented by employment and other surrogate data to allocate all of the national fuel use between the four DAs.

In the LA dataset, some electricity consumption data cannot be allocated to LAs. This is due to both commercial confidentiality concerns for high-consuming sites, and also where it is not possible to map these data. In these instances, these data are therefore assigned to the 'unallocated' category. The DA inventory, on the other hand, reports emissions against a wider geographical coverage, effectively negating the data disclosure concerns, and hence there is no need to exclude specific emissions from the DA inventories.

## **Unallocated LULUCF data**

Harvested wood products can be allocated to particular DAs but not to particular LAs. Within the LA carbon dioxide dataset, these emissions/removals are therefore assigned to the 'unallocated' category. These are the differences which can be seen in each of the DA reconciliation tables. All other LULUCF estimates are fully consistent across UK, DA and LA data.

## **Use of additional gas data for Northern Ireland**

Both datasets now include consideration of new gas consumption data supplied by Firmus Energy, which shows a large growth in gas use within Northern Ireland from 2006 onwards. The DA GHGI approach includes estimates for the fuel-switching from oil and solid fuels that this growth in gas use has displaced. In the Local Authority carbon dioxide data, these estimates of fuel switching have not been possible, given the more greater level of detail required by the data, and the UK emissions distribution grids have been used solely.

## **Distribution of 'Other Fuels' across DAs**

There are some areas where emissions mapping methods differ between the two datasets due to the availability of data.

In the iron and steel sector, the methodology used for the Local Authority carbon dioxide emissions assumes that all emissions from the iron and steel sector from industrial process, process gases and solid fuels occur at large point sources. Emissions from the consumption of oil in the iron and steel sector are mapped using a combination of point sources and area sources (as described in Section 4 of the [Technical Report](#)). In the DA GHGI, fuel use data supplied by the Iron and Steel Statistics Bureau (ISSB) is used, since it is available on a DA basis.

There is also a difference in the estimation of emissions from peat in the domestic sector. In the Local Authority carbon dioxide emissions methodology, peat use is mapped using the domestic fuel use mapping grids which are produced by AEA as part of the mapping process for the National Atmospheric Emissions Inventory programme. For the DA GHGI, this is mapped using a DA specific distribution calculated by CEH.

For domestic oil combustion, the allocation of emissions to LAs is based on housing and energy supply data. The mapping grids are unchanged from last year's publication. For the DA inventory, some assumptions are made based on oil delivered from Great Britain to Northern Ireland and Great Britain emissions are then distributed using these same distribution grids.

For domestic coal combustion, the LA emissions use domestic mapping grids as above. There are unique mapping grids for each fuel. The DA inventory uses an earlier version of these mapping grids to ensure a more consistent time series over a longer period.

## **Railways**

Local Authority carbon dioxide emissions from railways are spatially disaggregated using data from the Department of Transport's Rail Emissions Model, as described in Section 11 of the [Technical Report](#). For the DA GHGI, emissions from railway locomotives in Great Britain are disaggregated based on diesel oil consumption data supplied by ATOC for passenger services and NAEI estimates for freight services.

## **Point Sources**

There are also some differences between the estimates of emissions at large point sources and those in the national totals. An explanation for these differences is provided in the [Technical Report](#).

## **Transport**

Since the introduction of the Department for Transport's (DfT's) Automatic Number Plate Recognition (ANPR) data into the national and mapped emissions inventories, there is now a better match between DA and LA inventories. This means that DA specific fleet composition and vehicle kilometres can be used and applied directly to specific road links. The small differences still observed (~1%) are due to the method used for splitting vehicle kilometres between DAs. The DA inventories use data supplied by DfT and NI DRD whereas the LA mapping uses road link data attributed to certain LAs.

## UK maps

A range of maps showing 2012 carbon dioxide emissions per capita at Local Authority level are presented on the following pages. The maps also include map of carbon dioxide emissions by source on a 1km<sup>2</sup> resolution map. Data at this spatial resolution are generated as part of the NAEI programme on behalf of Defra and are published on the NAEI website:

<http://naei.defra.gov.uk/data/map-uk-das>.

## Regional sectoral variations

As **Figures 6 to 9** show, emissions per capita can vary noticeably between regions in the UK. This is particularly evident in the domestic and LULUCF sectors.

As **Figure 6** shows, in 2012, for the domestic sector, emissions per capita were higher in Scotland, Northern Ireland, and Wales compared than the rest of the UK. Per capita emissions are high in Northern Ireland predominantly because there is limited availability of natural gas in these areas; this results in the combustion of more carbon intensive fuels instead, such as coal, burning oil and gas oil, which are assigned to the domestic 'other fuels' sector. Wales also has a higher proportion of emissions from 'other fuels' than the rest of the UK, though to a lesser extent. In Scotland, 'other fuel' use is at a similar level to the rest of the UK, but per capita emissions from both domestic gas and domestic electricity use are higher than in the rest of the UK. The lowest per capita emissions are in Greater London and South West England.

There are less clear trends in the industrial and commercial, and transport sectors. As **Figures 7 and 8** show, within all regions there is a mixture of areas with high, medium and low carbon dioxide emissions per capita. With respect to the industrial and commercial sector, this is expected, since emissions from this sector are heavily dependent on whether there are large industrial sites situated in that area. It is more difficult to identify reasons behind the variations observed in the transport sector, since there are numerous factors (such as composition of the vehicle fleet and average annual daily statistics by vehicle type) which feed into these

estimates. Further information on how transport emissions have been estimated is available in section 10 of the [Technical Report](#).

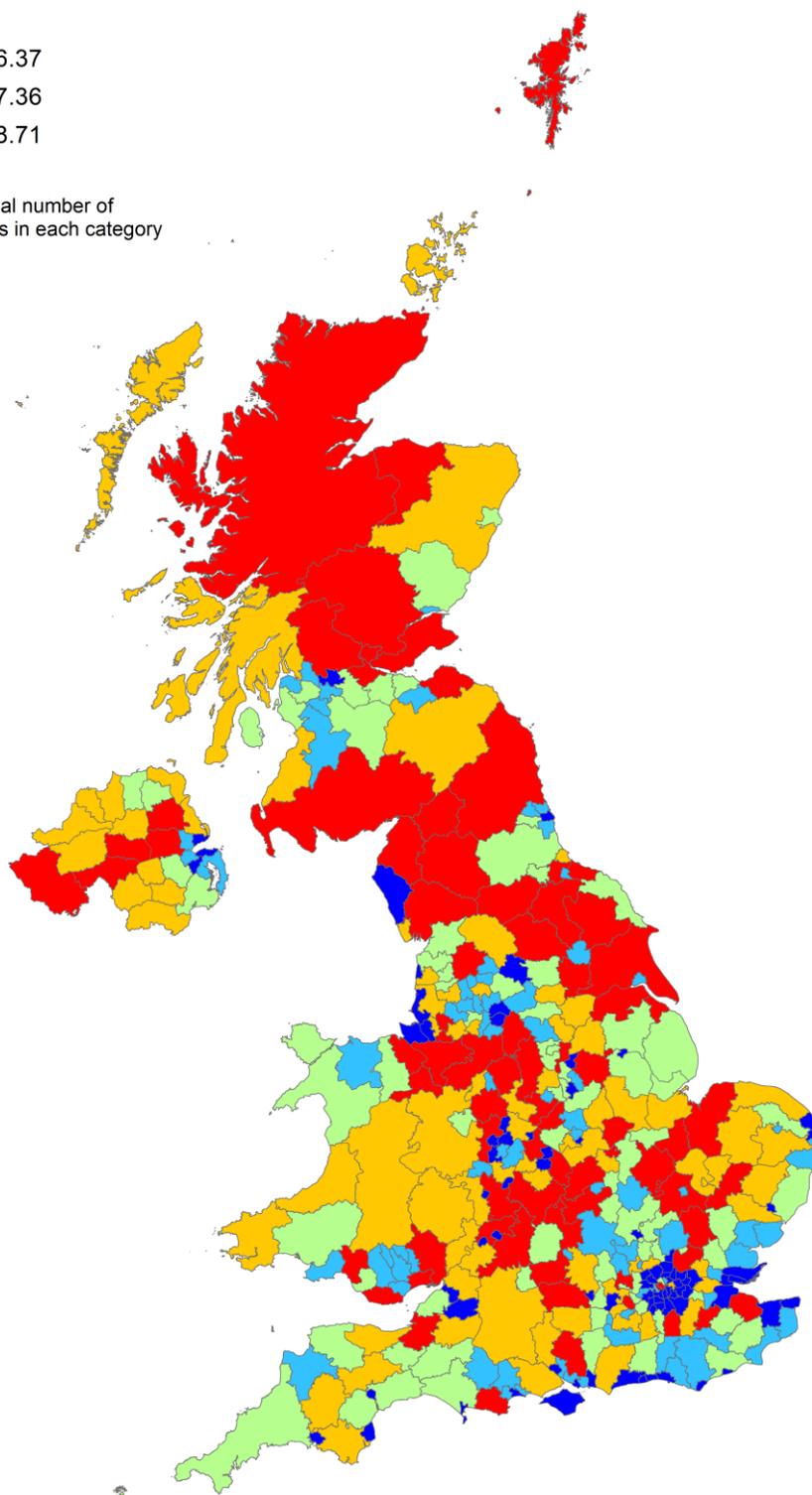
- In the LULUCF sector, there are clear regional trends in per capita emissions (**Figure 9**). In large parts of Scotland, Wales, and the north of England in particular there are large sinks of carbon dioxide. In other parts of the UK, such as in Northern Ireland and South West England, LULUCF is a large source of carbon dioxide emissions. Northern Ireland has the highest LULUCF emissions per capita, due to the clearing of land for the maintenance and creation of settlements and croplands. There are some noticeable changes compared to the map presented in the 2013 Local Authority Emissions statistics – in particular LULUCF emissions in the East of England are higher. This is due to changes to the way LULUCF emissions are calculated (explained in the [Mapping carbon emissions & removals for the Land Use, Land Use Change & Forestry \(LULUCF\) sector report](#)

**Figure 5: Emissions of carbon dioxide per capita by Local Authority (tonnes CO<sub>2</sub> per capita), excluding LULUCF**

**2012 Total Emissions excluding LULUCF (tonnes Carbon Dioxide per capita)**

- < 5.37
- 5.37 - 6.37
- 6.38 - 7.36
- 7.37 - 8.71
- > 8.71

There is an equal number of Local Authorities in each category



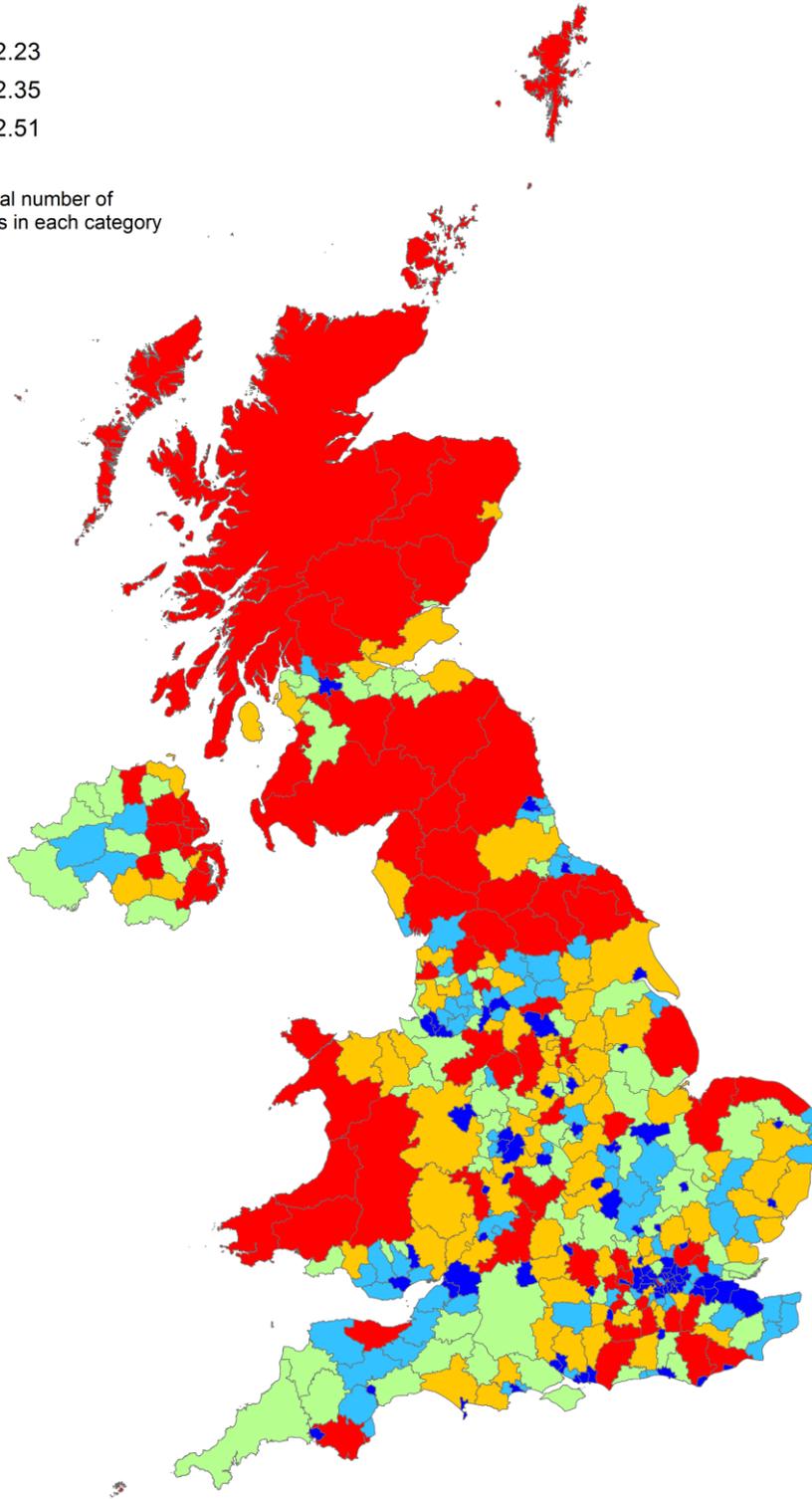
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**Figure 6: Domestic CO<sub>2</sub> per capita emissions by Local Authority (tonnes CO<sub>2</sub> per capita) for 2012**

**2012 Domestic Emissions (tonnes Carbon Dioxide per capita)**

- < 2.07
- 2.07 - 2.23
- 2.24 - 2.35
- 2.36 - 2.51
- > 2.51

There is an equal number of Local Authorities in each category



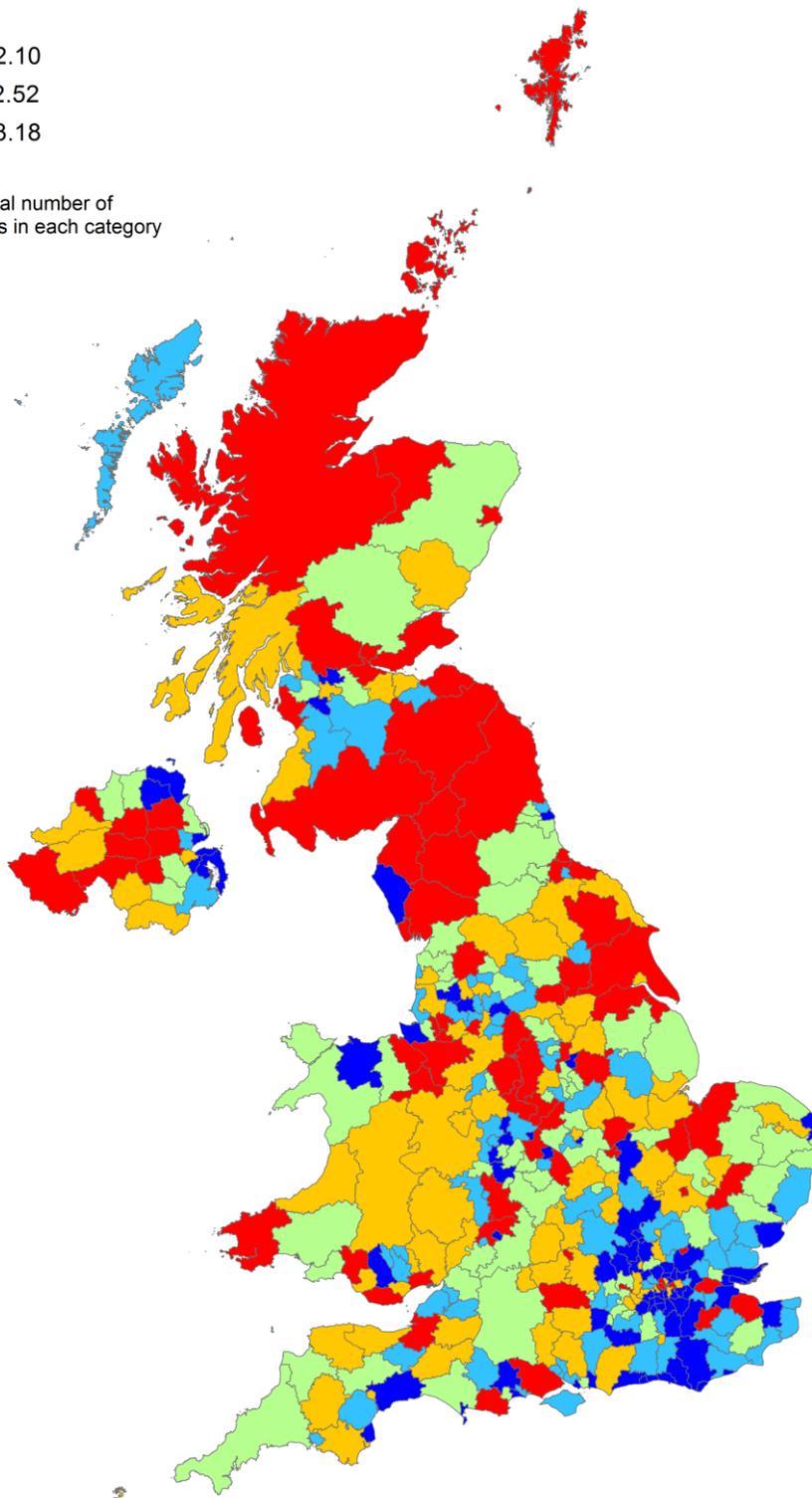
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**Figure 7: Industrial and commercial per capita CO<sub>2</sub> emissions by Local Authority (tonnes CO<sub>2</sub> per capita) for 2012**

**2012 Industrial and Commercial Emissions (tonnes Carbon Dioxide per capita)**

- < 1.74
- 1.75 - 2.10
- 2.11 - 2.52
- 2.53 - 3.18
- > 3.18

There is an equal number of Local Authorities in each category



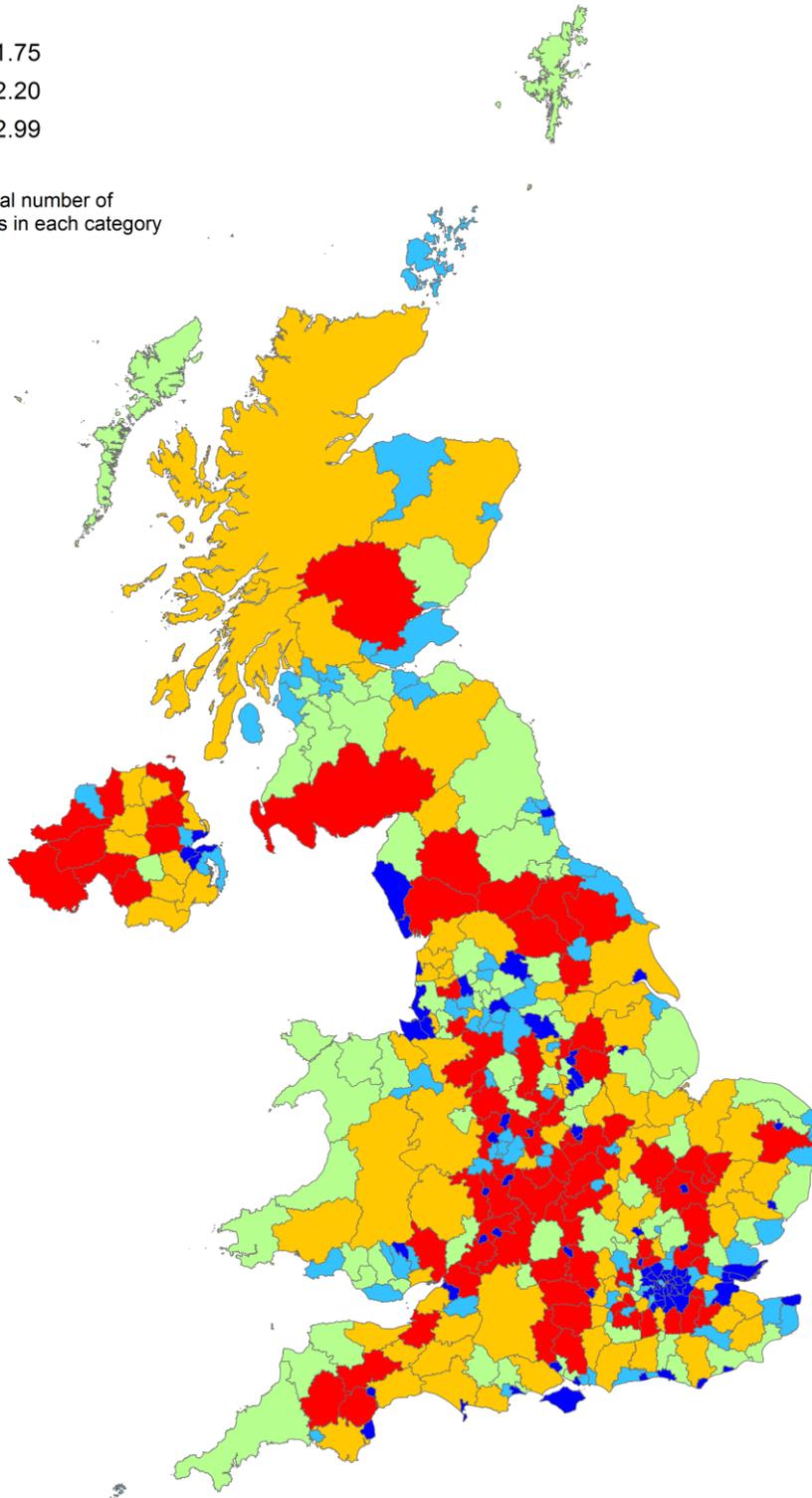
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**Figure 8: Transport CO<sub>2</sub> emissions per capita by Local Authority (tonnes CO<sub>2</sub> per capita) for 2012**

**2012 Transport Emissions (tonnes Carbon Dioxide per capita)**

- < 1.21
- 1.21 - 1.75
- 1.76 - 2.20
- 2.21 - 2.99
- > 2.99

There is an equal number of Local Authorities in each category



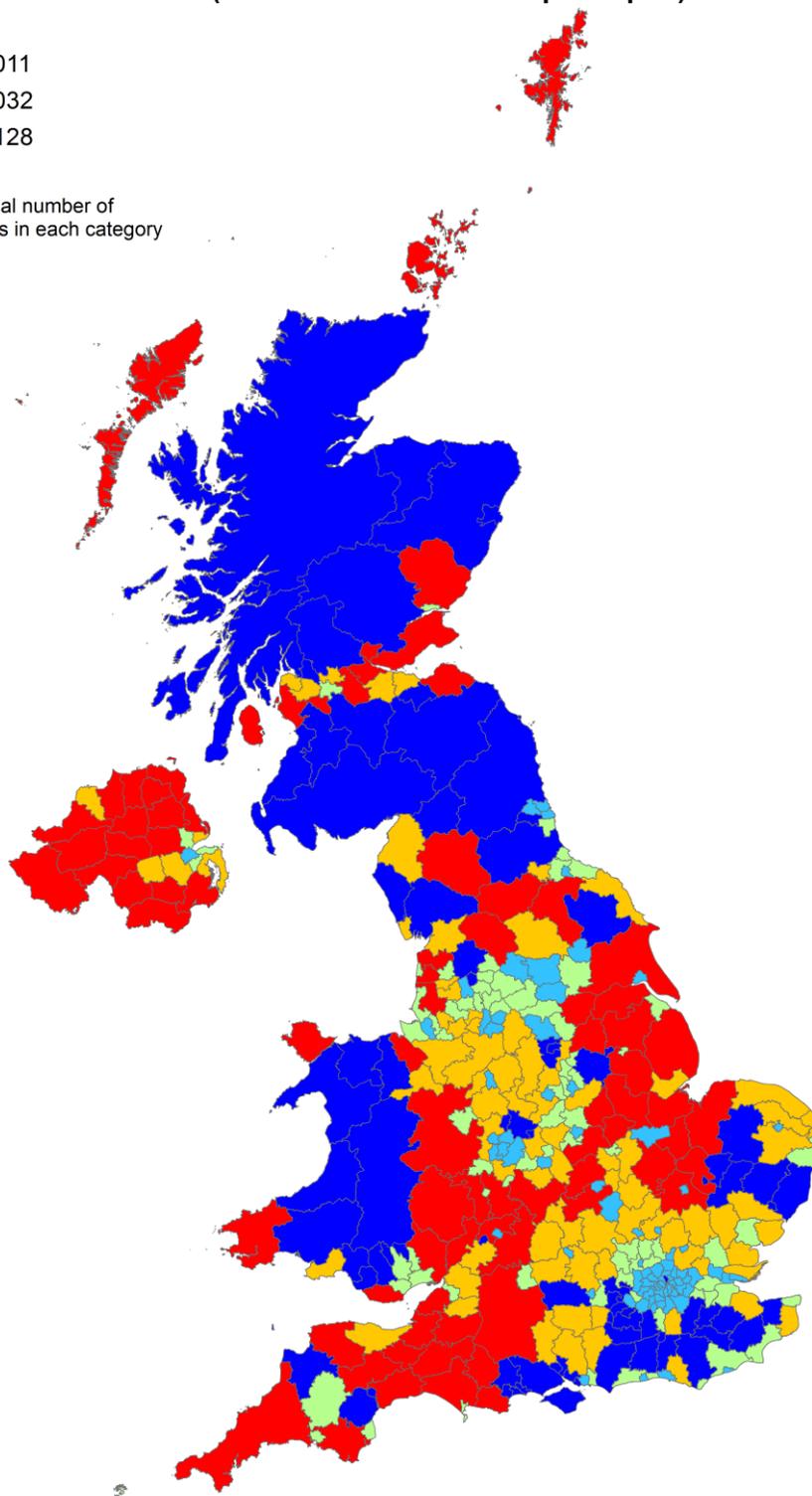
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**Figure 9: Land use change CO<sub>2</sub> emissions per capita by Local Authority (tonnes CO<sub>2</sub> per capita) for 2012**

**2012 LULUCF Emissions (tonnes Carbon Dioxide per capita)**

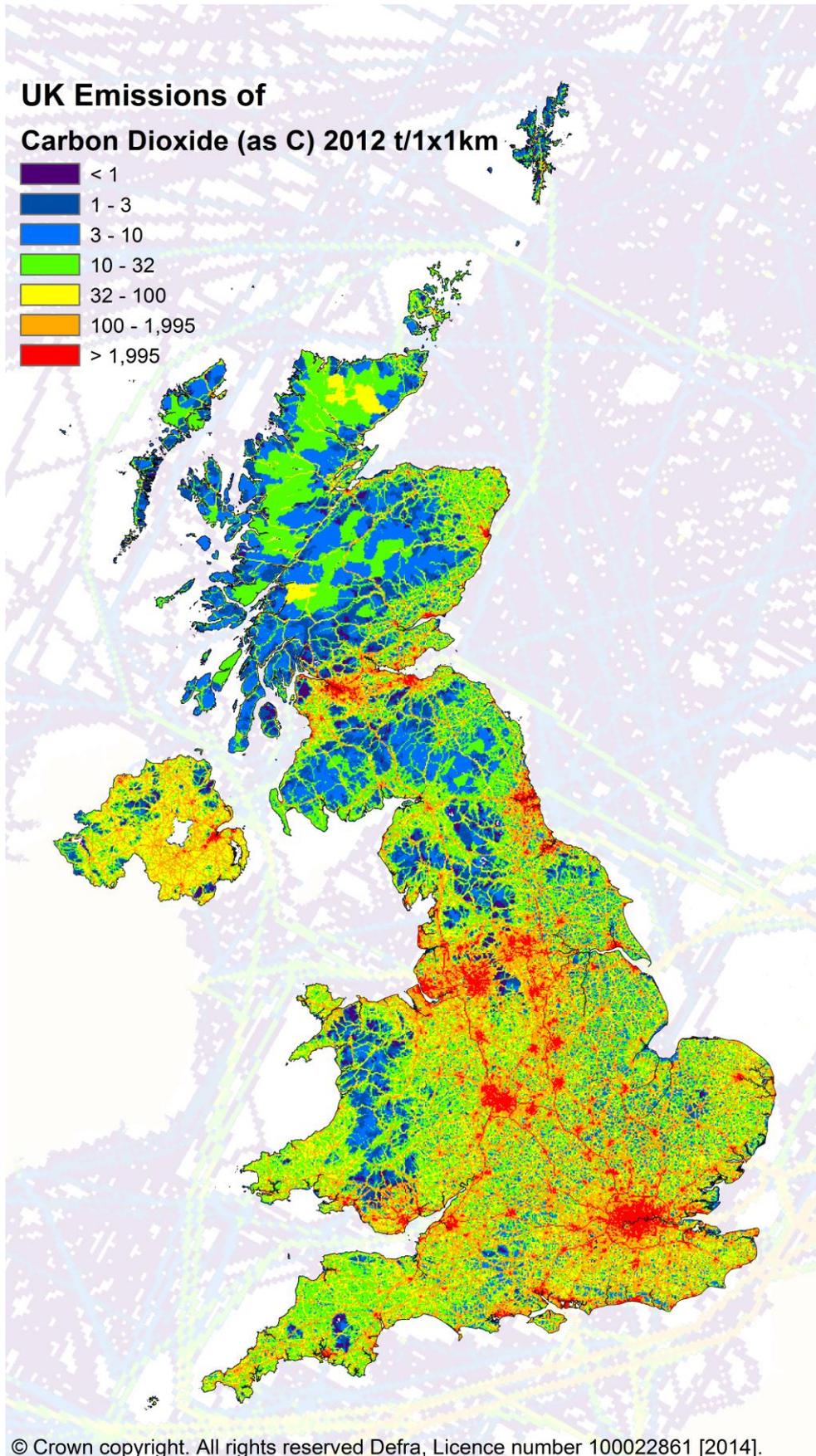
- < 0.003
- 0.003 - 0.011
- 0.012 - 0.032
- 0.033 - 0.128
- > 0.128

There is an equal number of Local Authorities in each category



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Figure 10: 1km<sup>2</sup> resolution emissions map of CO<sub>2</sub> for 2012 (exc LULUCF)



# Future updates to emissions estimates

The next National Statistics on Local Authority carbon dioxide emissions estimates, covering the period 2005-2013, will be published in summer 2015.

## Notes for Editors

1. The full set of data tables that accompany this statistics release can be found at <https://www.gov.uk/government/publications/local-authority-emissions-estimates>. Methodology documents can be found at <https://www.gov.uk/government/publications/local-authority-carbon-dioxide-emissions-methodology-notes>
2. Further information on UK greenhouse gas emissions statistics, including Excel tables with additional data on UK emissions, can be found on the Gov.uk website at: <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/uk-greenhouse-gas-emissions>
3. This Statistical Release and the related data tables are part of the National Atmospheric Emissions Inventory (NAEI) for 1970-2012, produced for DECC and the Devolved Administrations by Ricardo-AEA. For further information on the UK Greenhouse Gas Inventory, see the NAEI web site.
4. The latest UK sub-national energy statistics including revisions to earlier years' data, can be found at the gov.uk website <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics> (scroll down the page to see a series of links to sub-national energy statistics outputs).

A National Statistics publication

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