



Department of the  
**Environment**  
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## Statistical Bulletin

# NORTHERN IRELAND GREENHOUSE GAS INVENTORY, 1990 - 2009

6 September 2011

## Northern Ireland greenhouse gas emissions down by over 20% since 1990

The latest emission figures published today in the Devolved Administrations Greenhouse Gas Inventories, 1990 – 2009, estimates the 2009 Northern Ireland emissions at 19,508 kilotonnes of carbon dioxide equivalent. This represents a reduction of just over 20% since the base year with over one third of the reduction being achieved in the latest inventory year. The Programme for Government sets a target of a reduction of 25% in greenhouse gas source emissions by 2025 from the base year.

The majority of the emission source sectors have seen a decreasing trend since the base year with power generation experiencing a notable 24% reduction in emissions in the latest inventory year alone. This was mainly because coal fired generation had fallen by a third in 2009 as a result of a reduction in overall electricity demand and an increase in electricity imported from Scotland.

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In contrast, transport emissions have increased by almost 28% since the base year although, since a peak in 2007, there has been a reduction of just over 5% over the last two reported years.

Although emissions are over 20% lower than the base year, Northern Ireland has the lowest level of reduction amongst the countries of the UK with Scotland experiencing the largest reduction, approaching 31%, over the same period. However, caution should be exercised when comparing the relative performance of individual countries due to the level of uncertainty around each individual estimate.

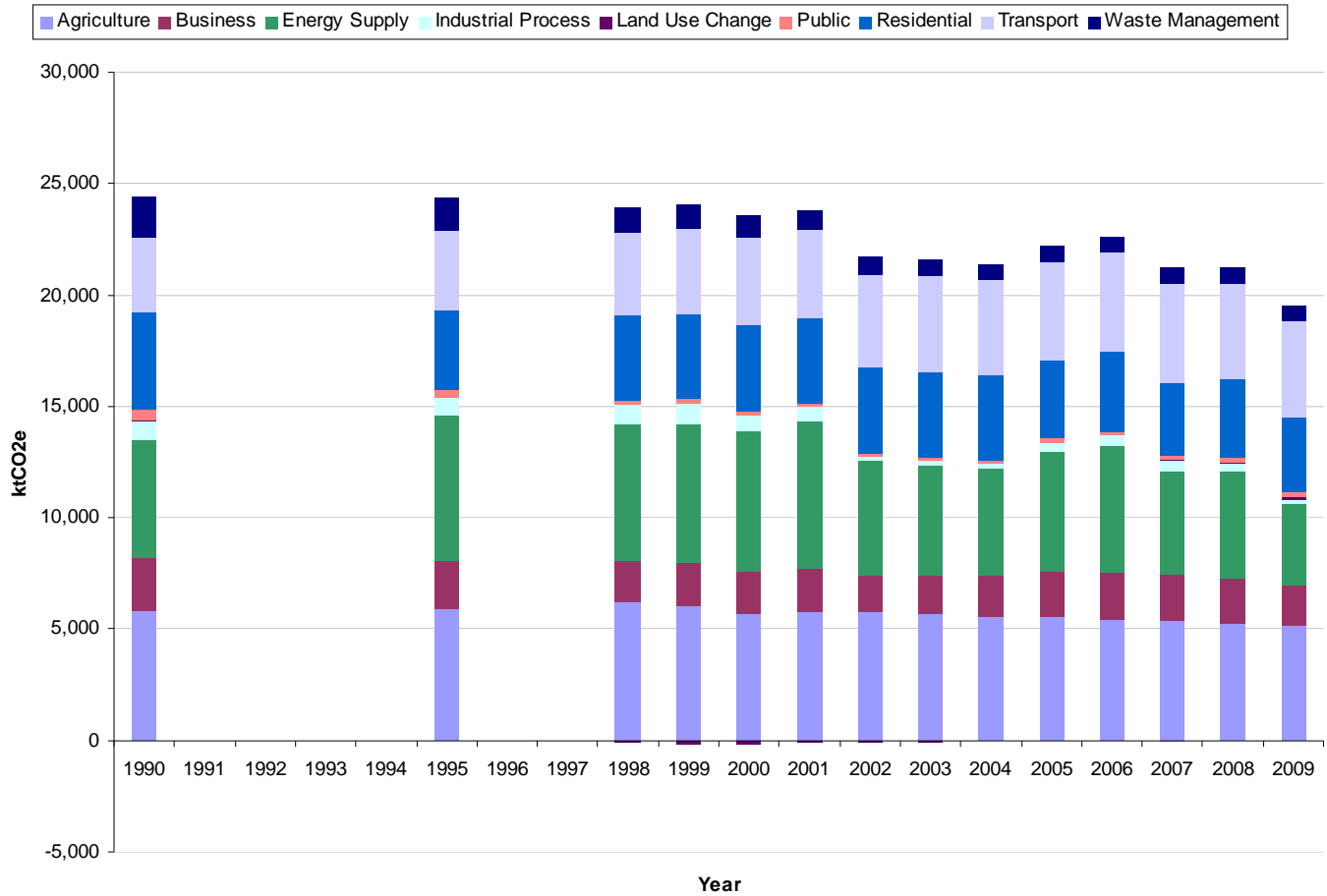
## **Source Inventory**

The Source Inventory provides information on greenhouse gas emissions by source sector, such as agriculture, transport, waste management activities and energy supply. The emissions are attributed to the sector that emits them directly.

- In 2009, Northern Irish emissions of the basket of six greenhouse gases<sup>1</sup> were estimated to be 19,508 kilotonnes carbon dioxide equivalent<sup>2</sup> (kt CO<sub>2</sub>e). This is 20.3% lower than the base year<sup>3</sup>, whereas in 2008 the level of reduction on the base year level was 13.3%.
- Carbon dioxide is the main greenhouse gas, and accounted for 69.5% of all greenhouse gas emissions in Northern Ireland in 2009 (13,561 kt CO<sub>2</sub>e).
- In 2009, the main sources of greenhouse gas emissions were agriculture (26.6%), transport (21.8%), energy supply (18.8%), and residential combustion<sup>4</sup> (17.5%).
- Transport emissions have increased by 27.9% since the base year although, since a peak in 2007, there has been a reduction of just over 5% over the last two reported years. The majority of other sectors have seen a decreasing trend in

emissions since the base year. A complete breakdown by source is provided in Figure 1.

**Figure 1: Greenhouse gas emissions by source, 1990 – 2009**



- Northern Ireland’s greenhouse gas emissions account for 3.5% of the total UK greenhouse gas emissions. Within this however, Northern Ireland accounts for more than 7% of both the UK’s methane (CH<sub>4</sub>) and nitrous oxide (NO<sub>2</sub>) emissions. This is due to emissions from agriculture being much more significant in Northern Ireland compared to the rest of the UK.

### End-User Inventory

The End-User Inventory reallocates the emissions by source in accordance with where the end-user activity occurred. For example, all the carbon dioxide produced by a power station is allocated to the power station when reporting on a source basis.

However when applying the end-user method, these emissions are reallocated to the users of this electricity, such as domestic homes or large industrial users.

- The total greenhouse gas emissions for Northern Ireland in 2009 using the end-user inventory, excluding exports emissions, were 20,849 kt CO<sub>2</sub>e. This is a decrease of 17.6% on the base year. Exports refer to the emissions associated with the production of fuel or electricity which is then exported from NI or used as fuel for international aviation or shipping.
- Three sectors accounted for just over three quarters of these end-user emissions in 2009. These were residential (26.5%), agriculture (26.0%), and transport (22.9%).
- As in the source inventory, transport has seen a significant increase since the base year, with emissions having increased by 25.9% compared to the base year but has seen a decrease in emissions of 5.5% since a peak in 2007. The majority of other sectors have either shown a decreasing trend or remained steady.
- Residential sector emissions have experienced the biggest absolute decrease, falling by 1,295 kt CO<sub>2</sub>e since the base year, reflecting a shift in the fuel mix in the domestic sector, i.e. increase in natural gas usage.
- In 2009, Northern Ireland accounted for 3.8% of the UK's greenhouse gas end-user emissions, excluding exports emissions.

### **Reduction Target & Performance**

- The Programme for Government sets a target of a reduction of 25% in greenhouse gas source emissions by 2025 based on 1990 levels. By 2009 the level of reduction in Northern Ireland was 20.3%.

- The trends in greenhouse gas source emissions since the base year for the UK countries are summarised below, but it should be noted that estimates for the individual countries are less certain than the overall UK estimate:
  - UK has reduced emissions by 28.3%
  - England has reduced emissions by 29.5%
  - Scotland has reduced emissions by 30.5%
  - Wales has reduced emissions by 23.3%
  - Northern Ireland has reduced emissions by 20.3 %

### **Uncertainty around the Reported Estimates**

Caution should be exercised when interpreting the statistics in this report due to the level of uncertainty around the published estimates. For example, the estimated reduction of 20% in Northern Ireland greenhouse gas emissions since 1990 lies within a 95% confidence interval of a reduction of 12% and a reduction of 28%. More information is available in the Background Notes 4 & 5.

### **Further Information**

The full report can be accessed through the National Atmospheric Emissions Inventory website, <http://www.naei.org.uk/reports.php> .

Emissions in this bulletin are reported according to NC (National Communication) source categories.

## **Explanatory Notes**

<sup>1</sup>The basket of six greenhouse gases consists of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

<sup>2</sup> Emissions are presented as carbon dioxide equivalent, in line with international reporting protocols.

<sup>3</sup> The base year is 1990 for carbon dioxide, methane and nitrous oxide, and 1995 for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

<sup>4</sup> Residential Combustion considers emissions from domestic cooking and heating.

## **Background Notes**

1. This is the second Northern Ireland Greenhouse Gas Inventory Statistical Bulletin, and will be updated annually. The estimates are produced by AEA on behalf of the Department for Energy and Climate Change, The Scottish Government, the Welsh Assembly Government and The Northern Ireland Department of the Environment.
2. Each year the greenhouse gas inventory is extended and updated, and the whole historical data series is revised to incorporate methodological improvements and new data. This takes into account revisions to the datasets which have been used in its compilation. Therefore, once the latest year's Inventory is published, the previous version becomes redundant and cannot be used for comparison purposes. However, the latest Inventory represents a single consistent data series going back to 1990, and this can be used to examine trends.
3. More detailed information on emissions by both NC source sector and Intergovernmental Panel on Climate Change (IPCC) source sector categories is available in Excel format and can be accessed through the National Atmospheric Emissions Inventory website, <http://www.naei.org.uk/reports.php> .

4. There is always going to be some level of uncertainty in the estimates of greenhouse gas emissions, and this uncertainty changes from year-to-year as the methodology and input data of the inventories changes. These uncertainties are presented as confidence intervals and such figures are contained within the main UK report. The width of the confidence interval gives us some idea about how uncertain we are about the estimate. Confidence intervals calculated at a 95% level means that we are 95% confident that the true value will fall within the range quoted.
  
5. The uncertainty estimates for the NI Inventory were reported for the base year, the latest year (2009) and percentage change (base year to 2009). For the base year, the 95% confidence interval is +/-44% around a central estimate of 24,483 kt CO<sub>2</sub>e and in 2009 the 95% confidence interval is +/-39% around a central estimate of 19,508 kt CO<sub>2</sub>e. The 95% confidence interval for the percentage change between 1990 and 2009 is between -28% and -12%, with a central estimate of -20%. The confidence intervals have increased from the 2008 inventory due to the relative increase in the amount of emissions from the agriculture sector, which are more uncertain than emissions from the other sectors. These uncertainties have been carried forward into the end-user inventory, and additional uncertainties are introduced due to the limited availability of sector specific electricity data at Devolved Administration level and assumptions made for exported fuels.
  
6. UK Greenhouse Gas Inventory National Statistics User Guide provides a simple guide to the origins and use of data in the compilation of the UK Greenhouse Gas Inventory. This guide can be accessed through the Department of Energy and Climate Change website,  
[http://www.decc.gov.uk/assets/decc/statistics/climate\\_change/404-gg-inventory-user-guide.pdf](http://www.decc.gov.uk/assets/decc/statistics/climate_change/404-gg-inventory-user-guide.pdf)

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