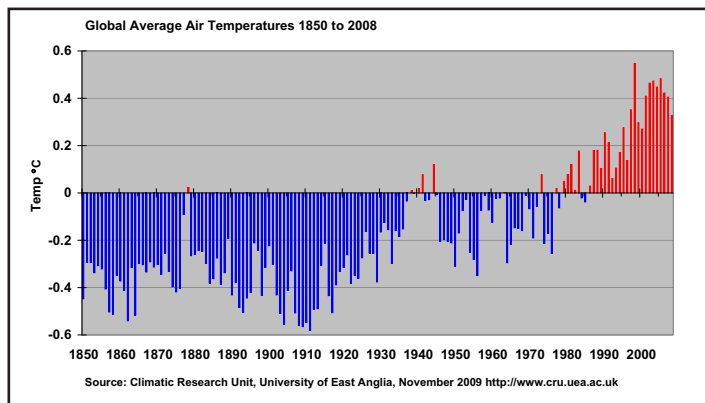


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Creating a climate resilient Hertfordshire

Climate change remains a significant concern for Hertfordshire and the county is actively responding to its threats and opportunities.

Since 1850, global average air temperatures have risen by just under 0.8°C, with about half of this occurring in the past 25-30 years.

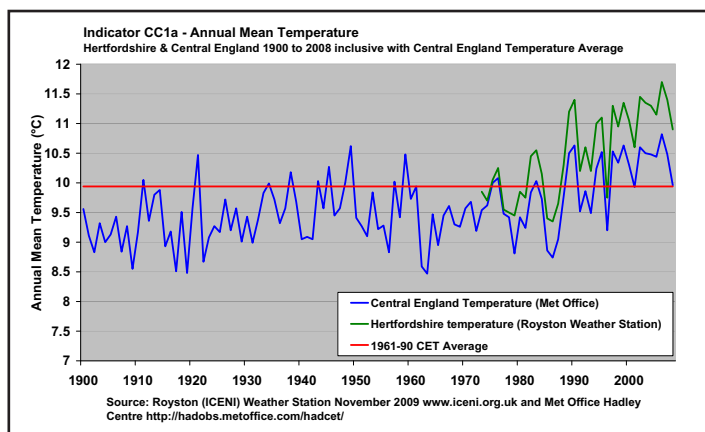


Climate Change Indicators

Meteorological records for Hertfordshire show how temperature and precipitation (rain and snow) have changed over time. Carbon dioxide (CO₂) emissions from a range of activities across the county can also be measured.

Indicator CC1a - Annual Mean Temperature

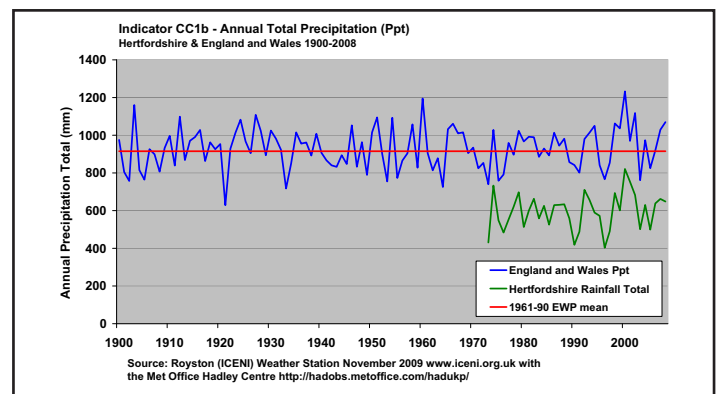
Despite a cooling phase in 2007 and 2008, the Hertfordshire and Central England Temperature (CET) records show a long term warming trend. Hertfordshire's temperature record correlates well with the CET, with slightly higher annual averages. This may be explained by the urban heat island effect caused by our close proximity to London, and the influence of warmer weather systems from the European continent.



Indicator CC1b - Annual Total Precipitation

Unlike temperature, there is no obvious trend in the annual average precipitation levels across Hertfordshire or at national level. The county is situated within the East of England, the driest region of the UK. Effective rainfall (the net rainfall available after evaporation) here is just 25% of the average rainfall for the region¹. With a high population density, the region already experiences water stress, which could be made worse by climate change.

Whilst the annual totals are a useful overall measure, they can hide seasonal variations. For example, changes in climate over the past 100 years or so has meant the UK experiences a general year-round warming with precipitation increasing during the winter months and falling during the summer².



Hertfordshire's Contribution to Climate Change

The first method presented to measure CO₂ emissions in Hertfordshire is based on local and regional CO₂ emissions estimates from the Department of Energy and Climate Change (DECC), broken down to district level (CC2a and CC2b).

Note: The data published here is not directly comparable to previous editions of the report due to ongoing development of statistical methodologies. The 2006 data presented here replaces the 2006 data reported last year and is directly comparable to the 2007 data presented alongside.

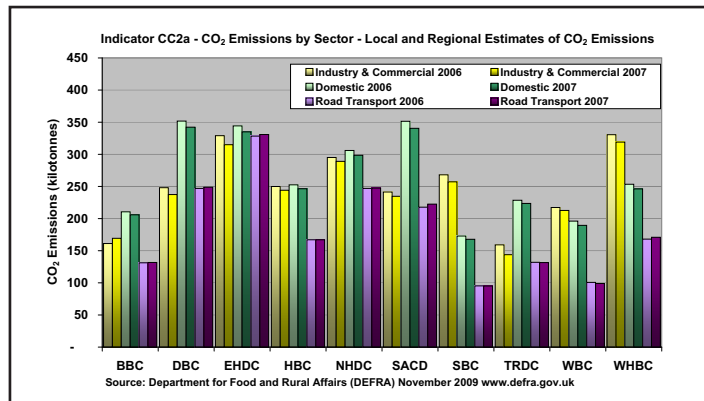
The second method, presented in Indicator CC3, looks at CO₂ emissions from the consumption of goods and services by businesses and residents in Hertfordshire.

Note: Due to improvements in the source data and methodology used, the 2006 data published here is not directly comparable to the 2004 data provided in the 2008 Quality of Life report.

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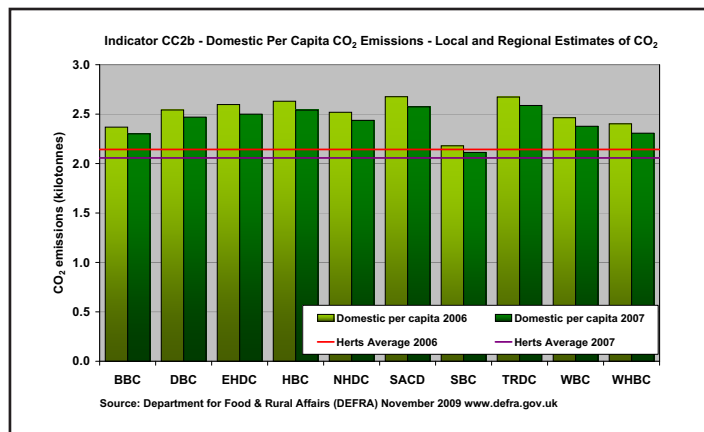
Indicator CC2a - CO₂ Emissions by Sector

In 2007, Hertfordshire's overall CO₂ emissions were 6,863,000 tonnes, a decrease of 2.0% from 2006. The domestic sector contributed the highest proportion of CO₂ emissions in Hertfordshire, at 37.8%. All Hertfordshire districts except Broxbourne showed a fall in emissions between 2006 and 2007.



Indicator CC2b - Domestic Per Capita CO₂ Emissions

This indicator provides a closer look at the county's carbon contribution from households. In 2007 St. Albans and Three Rivers both had the highest CO₂ domestic emissions per capita, each recording 2.6 tonnes per person.



Seven of the ten districts had a higher per capita figure than the East of England average of 2.3 tonnes per person although all districts' domestic per capita emissions fell compared to 2006, except Dacorum which remained the same.

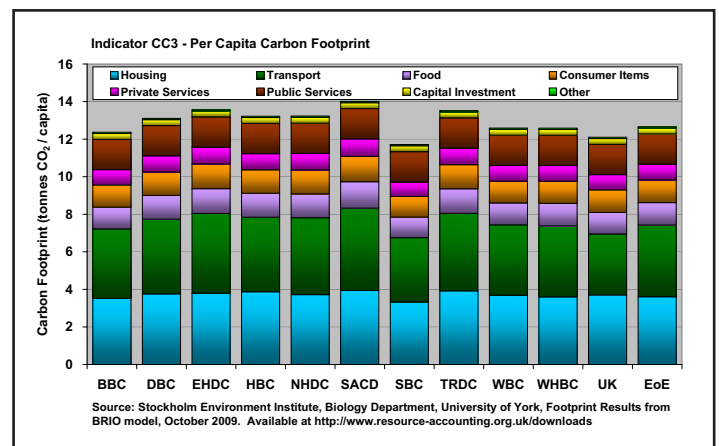
Indicator CC3 - Consumption-based CO₂ Emissions - Per Capita Carbon Footprint

'Carbon footprint' is a measure of the amount of CO₂ emitted by a human activity or accumulated over the

full life cycle of a product or service. The results here show CO₂ emissions per capita for each Hertfordshire district based on a consumption classification of individual expenditure by purpose.

In 2006, the county's CO₂ emissions were 8.1% higher than the UK average of 12.10 tonnes per capita. Stevenage was the only Hertfordshire district with a carbon footprint below the UK average, at 11.71 tonnes per capita.

These figures indicate a high consumption based carbon footprint for Hertfordshire, whilst CO₂ emissions by sector (CC2a and CC2b) show a downward trend. This could be due to our growing use of imported goods, meaning we are having an increasingly higher impact on overseas emissions, with a corresponding lower impact domestically.



Future Climate Change and its Impact on Hertfordshire's Quality of Life

In June 2009, Government published the latest UK climate projections (UKCP09) which provide information on how the UK's climate is likely to change in the 21st century³.

The data show future scenarios for temperature and precipitation for the 2020s, 2050s and 2080s, under low, medium and high emissions scenarios.

Looking at the East of England central estimates, across all time periods and emission scenarios, key findings suggest the following possible changes to the region's climate:

- Summers: temperature increases of 2.4°C – 4.5°C and up to 26% less rainfall;
- Winters: temperature increases of 1.0°C – 3.7°C with up to 26% more rainfall.

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Responding to Climate Change

Whilst it is important to look at how we can reduce CO₂ emissions from our activities, there is also a case for adapting to the changes in our climate that are already occurring. Implementing adaptation measures will ensure we are better prepared for the impacts of future climate change.

Climate Change Legislation

There has been considerable progress in legislative measures during 2009 to deal with climate change.

DECC published the 'UK Low Carbon Transition Plan: the National Strategy for Climate Change and Energy'. It aims to move the UK onto a permanent low carbon footing and to maximise economic opportunities, growth and jobs. One of its key elements is the adoption of a higher level of emissions reduction target as set out in this year's budget (34% on 1990 levels by 2020) and it maps out how the UK will meet this.

All documents relating to the 'UK Low Carbon Transition Plan' are available here:

http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

The Climate Change Act 2008 stated that a national climate change risk assessment must take place every five years. It also gave Government a power to ask public sector organisations, and statutory bodies (such as energy and water companies) to report on their assessment of the risks climate change poses to them, and the actions they are planning to take in response. This is known as the Adaptation Reporting Power.

Further information on the consultation can be found here: <http://www.defra.gov.uk/corporate/consult/climate-change-adapting/index.htm>

Hertfordshire Climate Change Partnership

The Hertfordshire Climate Change Partnership (HCCP) was set up in 2008 to collectively reduce emissions on a county wide basis, involving a number of key organisations. Current membership consists of all local authorities in Hertfordshire, the NHS, Hertfordshire Constabulary, Hertfordshire Prosperity, local utility providers and local voluntary organisations.

HCCP has been working on a Climate Change Strategy for the county, 'Meeting Tomorrow's Challenge Today: A Climate Change Strategic Framework for Hertfordshire'.

The final draft document can be found here:

<http://www.hertslink.org/hertfordshireforward/15communitystrategy/14039426/14130525/>

Understanding Climate Risk and Resilience

Our current climate has impacts on our economy, health and environment and we know that the changing climate of the UK will pose increased risk in the future. We all need to look at our vulnerability to the changing climate in the face of the rising human and financial costs of heatwaves, floods and extreme weather. Ensuring we have the capacity to reduce these risks and deal with the remaining consequences can be described as building resilience.

Responding to climate risk

The impacts of the changing climate will depend on how well Government, the public, private and third sector, communities and individuals plan for, and adapt to, those changes. When responding to the risks of climate change in many cases there will be a number of different options available:-

- Make no change to behaviour or operations, and accept the possible risks;
- Undertake a major change to avoid the impact;
- Reduce vulnerability to the impact by changing behaviour.

Ensuring climate resilience in Hertfordshire

Local authorities are at the front line in dealing with the impacts from climate change - not only for their own services, but also (along with local partners) as leaders in their local communities.

Hertfordshire County Council is currently developing a Corporate Climate Change Risk Register to support a broader Climate Change Adaptation Strategy. The aim is to ensure that the council is resilient and able to ensure business continuity in the medium to long-term, and that its assets, infrastructure and services are fit for purpose under future climate change. Plans include:

- No-regrets measures, delivering benefits that exceed their costs, whatever the extent of climate change;
- Low-regrets measures, low cost with potentially large benefits under climate change;
- Win-win measures, contributing to climate change adaptation whilst also delivering other benefits;
- Flexible measures, useful for dealing with uncertainties in the extent of longer-term climate change.

All of Hertfordshire's local authorities are now undertaking similar work, and it is likely that this will be extended to partners over the coming year through the Hertfordshire Climate Change Partnership.

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Local Government Climate Change National Indicators

There are four national indicators on climate change on which Hertfordshire County Council and the ten districts councils all report:

NI 185: CO₂ reduction from local authority operations

This measures the percentage reduction in CO₂ emissions from local authority use of property and transport to deliver its services. The first year of reporting was 2008/09, which set the baseline emissions. Subsequent years will measure the percentage change from this baseline.

NI 194: Air quality – reduction in NO_x and primary PM₁₀ emissions through local authority estates and operations

This measures the percentage reduction in nitrogen oxides (NO_x) and particulates (PM₁₀) from local authority operations. It is directly linked to NI 185; emissions are derived from the same energy use.

NI 186: Per capita CO₂ emissions in the local authority area

Information for this indicator is collected by Government, on behalf of local authorities and published on an annual basis. It measures CO₂ emissions from different sectors within a local authority's boundary.

NI 188: Adapting to Climate Change

This measures the progress of how prepared local authorities are in assessing and addressing the risks and opportunities of climate change.

Hertfordshire's Performance on Climate Change

The table opposite shows the NI 185 emissions for 2008/09 for Hertfordshire's councils. It is important to note that comparisons cannot be made between authorities as they vary considerably in size and responsibility. However, in future years we will be able to compare percentage reductions between authorities.

NI 186 relates to emissions largely outside of local authority control, so is therefore more difficult to influence. However, based on the latest figures, Hertfordshire is on track to meet its 9.1% reduction target by 2011. This target was agreed in the county's Local Area Agreement (LAA) for 2008-2011.

The latest NI 186 data available is for 2007 and is presented under Indicators CC2a and CC2b.

NI 185: CO ₂ emissions 2008/09	
Local Authority	CO ₂ emissions (tonnes)
Broxbourne	4,089
Dacorum	6,072
East Hertfordshire	4,519
Hertfordshire (County)	170,002
Hertsmere	7,874
North Hertfordshire	5,723
St Albans	7,404
Stevenage	6,159
Three Rivers	1,824
Watford	3,783
Welwyn Hatfield	3,647
Hertfordshire LA Total	221,096

NI 188 aims to set in place the management of climate risks and opportunities across all local authority services, plans and estates. Local authorities report annually on the level of preparedness they have reached against 5 levels of performance, graded 0 to 4.

For 2008/09 Hertfordshire County Council reported Level 1. To achieve this, the council has made a public commitment to identify and manage climate risk, as well as assessing the significant vulnerabilities and opportunities of its services to weather and climate change. Work is ongoing with a target to reach Level 2 by 2011.

Two of the ten districts also reported Level 1 for NI 188; Hertsmere and Welwyn Hatfield. The remaining districts reported Level 0. This level indicates that councils have begun the process of assessing climate risks to its services and have agreed next steps for moving forward.

1 Sustainability East, 'Water Efficiency in Development' report: <http://www.sustainabilityeast.org.uk/pdf/WaterEfficiencyInDevelopment.pdf>

2 Climatic Research Unit, University of East Anglia, <http://www.cru.uea.ac.uk/cru/info/ukrainfall/>

3 UK Climate Projections website: <http://ukclimateprojections.defra.gov.uk/>