

Water industry carbon reduction

In 2007/2008, the UK water industry emitted five million tonnes of greenhouse gases through treating and supplying clean water and dealing with wastewater and sewage.

This means that the 23 companies making up the water industry were responsible for 0.8 per cent of the annual UK greenhouse gas emissions. Around 56 per cent of emissions from water companies come from wastewater, 39 per cent from water supply and five per cent come from administration and transport.

The use of water in homes contributes a further 35 million tonnes of greenhouse gases each year. These emissions result largely from heating water for activities such as washing, cooking and cleaning, but the figure excludes water used to heat the home. Emissions related to household water use are seven times those of the water industry and amount to 5.5 per cent of total UK emissions. By using water more efficiently, home owners could reduce this significantly, and save money on water and energy bills.

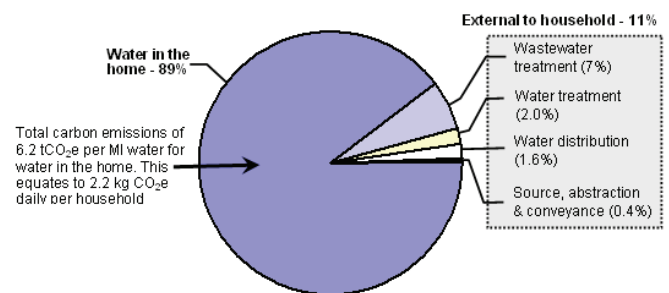


Figure 1: Breakdown of carbon emissions from the water system in the UK

Consideration of the greenhouse gas implications of water is a relatively new area of work which is attracting a high degree of interest both nationally and internationally. Reasons for this include:

The Climate Change Act 2008, which sets out an 80 per cent reduction in emissions for the UK by 2050. All sectors of society must play their part to achieve these challenging reductions.

Water companies in England and Wales have been required for the first time to include the cost of carbon and total greenhouse gas emissions in their evaluation of future investment options (2010-2015), and to give details of annual emissions associated with their activities.

From April 2010, UK water companies will also be included in a new carbon trading scheme, the Carbon Reduction Commitment.

Housing and population growth – is likely to lead to an increase in demand for water unless this is well managed. Wider ranging and ambitious environmental quality standards may require additional treatment and higher energy use.

Energy efficient homes - the Government wants all homes built from 2016 to be zero-carbon. The Government plans a massive UK-wide programme of retrofitting to improve energy efficiency of existing households. Hot water, which contributes around 23 per cent of an average home's carbon footprint, should be considered under this programme.

Water and carbon projects

During 2008-2009 we have completed a series of projects to better understand the links between greenhouse gas emissions and the provision, use and treatment of water. These studies have identified the potential of the following measures to reduce carbon emissions related to water use and treatment:

- widespread roll out of water efficiency measures

- lower carbon design and treatment, such as optimising high energy activated sludge processes, alternative lagoon treatment making use of wind energy to aerate the water and using a technique that produces no sewage sludge for disposal.
- increased use of renewable energy, such as maximising sewage sludge combustion and digestion, wind and hydropower.
- use of sustainable drainage to reduce energy use in pumping and treatment.

Our research also makes clear that compliance with Water Framework Directive (WFD) need not significantly increase the carbon footprint of the industry overall. Results indicate that without intervention, achieving higher water quality standards required by WFD could increase carbon dioxide emissions by 110,000 tonnes per year. This is a small increase of 2.2 per cent compared to the water companies current footprint, but increase will more than double emissions from some individual treatment plants that will need to carry out additional processes. However, options to reduce the carbon emissions from wider water company activities outweigh the potential increases associated with improving environmental standards.

During 2009 we also worked with the Energy Saving Trust (EST) to explore the benefits of household water efficiency in terms of energy savings and carbon emissions. This report showed we could save 30 per cent of the carbon emissions associated with heating water at home by following simple advice such as lagging pipes and using low-flow taps. We estimate that installing just a few water-saving measures could save a typical household £225 a year on combined water and energy bills.

In April 2009 we signed a partnership agreement with the EST to work together to influence government policies, develop opportunities for integrating water and energy advice on a large scale, lobby for inclusion of water in the planned large scale energy retrofits and join forces on a regional scale for projects.

The reports and summaries related to this project are available to download from the Environment Agency website.

We have major responsibilities for helping to limit greenhouse gas emissions and adapt to climate change in England and Wales. We also administer schemes that cover a large proportion of the UK's greenhouse gas emissions, and play a leading role in reducing the risks from climate change, such as increased flooding, drought, and sea level rise.

For more information, visit our website <http://www.environment-agency.gov.uk/> or contact the Climate Change Team on 08708 506 506 or enquiries@environment-agency.gov.uk

