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## Counting the carbon cost of tighter environmental regulation

**Atkins led research uses carbon footprinting to bridge the gap between water quality standards and climate change.\***

Environmental legislation is becoming increasingly more complex. The Water Framework Directive (WFD), which will come into force in 2009/10, requires a fully integrated approach to deliver its objectives for river basin management. It will impact across the majority of Atkins' business areas in one way or another.

Programmes of measures defined by the river basin plans will need to address the potential implications of climate change and the carbon footprint that each potential improvement may impose.

It is essential to recognise the integrated nature of the environment and that the best solution for water quality may not necessarily be the best in terms of climate change.

Tighter Environmental Quality Standards (EQS) for some chemicals will lead to tighter discharge controls at sewage treatment works. Working for the water industry, Atkins has demonstrated how these tighter controls will lead to the need for infrastructure upgrade, including tertiary technology.

The Atkins approach included the creation of a UK model of sewage treatment works effluents and their potential impact at their discharge points to assess the treatment processes required to meet the tighter discharge controls. These additional processes could be in the form of oxidation techniques, adsorption or filtration. They tend to be high energy and have the potential of generating additional waste streams as well as greenhouse gas emissions.

Taking the example of a sand filter, carbon emissions could be expected to be in the region of tens of kilogrammes per megalitre treated. Scaling this up to a national level, this could mean carbon emissions in the hundreds of kilotonnes per year, increasing the Water Industry's annual greenhouse gas emissions by about 25%.

During the research it became evident that some of the EQS have been set at a precautionary tight level as there was considered to be uncertainty in the data on which the EQS was being based. Whilst the precautionary approach does not necessarily provide any benefit to the flora and fauna found in the receiving water, the tighter standards lead to the need for potentially more treatment and, therefore, an increase in carbon emissions.

Assessing a broad range of measures, Atkins has been able to highlight the need to balance the costs, treatment performance and the environmental impact of the treatment options across all facets of the environment compared these impacts to those of other control measures such as control at source.

In order to meet the UK targets for reducing carbon emissions, all sectors will need to examine their sustainable development policies and adopt targets to reduce their greenhouse gas releases. The water industry economic regulator OFWAT is soon to publish its sustainable development policy which may further drive reductions in greenhouse gas emissions.

The challenge is to find effective, low carbon technology to meet the demands of the WFD and to ensure that the standards which drive the need for new technology are set appropriately.

*\*Research performed by Atkins on behalf of the water industry: sponsored by UKWIR Ltd, Environment Agency, Defra and OFWAT.*

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**NOTES TO EDITORS:**

Atkins was voted as having the 'Best Reputation in Consultancy' by clients in the Environment Business Consultancy Survey for the last 3 years.

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Atkins was named among the '20 Best Big Companies to Work For 2006' by *The Sunday Times*; 'Construction Consultant of the Year 2005' by *Building*; and 'Consultant of the Year Major Firm 2005' by *New Civil Engineer*.

Atkins supports the water and water-related environmental sector with advice and engineering consultancy, managing assets, operating services, delivering schemes, programming investment, benchmarking services, balancing risks, and developing effective technologies for flood management, water supply or wastewater.

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