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### CRS LAUNCH PATHWAY to MIEMA for Associates of IEMA

Shahara Force India Formula One HQ – Silverstone, the home of the British grand prix, was the venue chosen by Corporate Risk Systems Ltd (CRS) to launch a scheme that guides delegates towards Full status of a leading environmental professional body.



On 18th October CRS held a second seminar to launch a mentoring programme towards achieving Full Membership of IEMA (Institute of Environmental Management Assessment). This new scheme has been launched in response to demand from many industries requiring independent guidance towards gaining Full membership (MIEMA) of IEMA.

With over 9,000 IEMA Associates CRS felt the time was right to develop this new programme of support and guidance. Delegates at the launch came from many major industries to hear more from Jonathan Nobbs – IEMA's Head of Partnership Development – who gave a very interesting talk about IEMA's dedication to creating a sustainable future through the development of environmental skills and knowledge, and why Full Membership of IEMA is important to everyone working in an environmental role. This was followed by Head of Environmental Training (CRS) – Richard Ball who gave a fantastic presentation and insight into the scheme's programme which is offered in two parts and is fully mentored; it is delivered by distance learning so delegates will work at their own pace and own time. The Pathway programme is designed for Associates of IEMA to gain Full Membership (MIEMA)

For more information contact Ros Stacey  
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### The panel

**Martin Baxter** – executive director of policy at the Institute of Environmental Management and Assessment (IEMA) and a board member of the Society for the Environment

Martin is head of the UK delegation to the International Organisation for Standardisation (ISO) on environmental management and represents the UK in this area of work, including the current revision of ISO 14001.

**Richard Walsh** – principal assessor at NQA

Richard Walsh is responsible for ensuring business management systems meet the requirements of ISO 14001 and other international standards.

**Dave Clark** – UK sustainability manager, PepsiCo UK

Dave is responsible for the co-ordination and delivery of sustainability plans & targets for PepsiCo's UK operations.



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# Deal or no deal?

An “unprecedented energy-efficiency programme” that will bring “jobs, growth and opportunities” right across the UK was how the then energy secretary Chris Huhne described the green deal when announcing plans for the scheme at the Liberal Democrat party conference in 2010.

The green deal is now live and the first deals are expected to be signed next January. The scheme allows the cost of installing energy-efficiency measures to be financed through a charge attached to a property's electricity meter. According to the government, the green deal provides a market solution to a market failure: the reluctance of householders and businesses to invest in energy efficiency because of the initial costs.

In the non-domestic sector, DECC expects the green deal to appeal mainly to small and medium-sized companies, as larger firms tend to fund refurbishments from cash reserves. Overall, the energy department estimates the net present value of taking up the green

DECC estimates that the green deal will save the business sector £1.1 billion and cut CO<sub>2</sub> emissions by 910,000 tonnes by 2022.

But these savings are unlikely to materialise

deal at £1.1 billion for the business sector, with carbon equivalent savings of about 910,000 tonnes by 2022.

Will these projected savings materialise? It's unlikely.

Although the green deal removes the financial barrier to installing energy-efficiency measures by removing the up-front cost, green deal loans will attract interest.

And, unlike domestic deals, fixed interest rates will not be available for non-domestic green deals. As the Federation of Small Businesses has warned, commercial rates of interest, coupled with rising energy prices, mean that cost savings will not be seen until the initial capital is paid back – possibly as long as 20 years.

But money isn't the only potential barrier. Small companies are just as likely as householders to resist investing in efficiency measures such as better insulation, improved lighting and heating controls, and new boilers, despite the potential savings, because of the time, effort and disruption involved.

The green deal is great in theory, but the scheme is likely to require substantial improvement if it is to be the game changer the UK desperately needs to reduce energy consumption in buildings.



Paul Suff, editor



## Short cuts

### EU biofuels target

The European Commission is planning to alter the Renewable Energy Directive (2009/28/EC) by placing a cap on the amount of crop-based feedstocks allowed to meet the 10% biofuels target set for 2020. Although the overall target will remain in place, crop-based feedstocks will be limited to 5% of energy consumption in the transport sector by the end of the decade. The move, which must be endorsed by member states, follows mounting concern that growing demand for biofuels is causing indirect land-use change, which is affecting food supply, and pushing up prices. The Renewable Energy Association has reacted angrily to the plans, however, warning that the UK biofuels industry faced devastation. "If implemented, the proposals would shift the goalposts for the industry so dramatically that millions of pounds of investment could be wasted, including in the most advanced UK businesses. All significant investment in the sector would likely cease and dependency on oil will increase," it said.

### Greener construction

A new certification scheme has been launched in Northern Ireland to help construction firms improve their environmental performance. The Construction Employers Federation (CEF) has developed the new "NVIR-O-CERT" programme with the support of IEMA and the Northern Ireland Environment Agency (NIEA). The sector-specific management system requires firms continually to improve their environmental footprint. Performance will then be assessed by auditors trained to IEMA standards. The aim of the scheme is to foster more sustainable practices across the whole sector, and CEF will track industry-wide performance, including the amount of waste being generated by and energy being used on building sites. According to CEF, the NIEA's ongoing support will ensure that the scheme continues to focus on the most pressing environmental issues. NVIR-O-CERT is open to all construction companies in Northern Ireland.

# Air pollution risk in EU

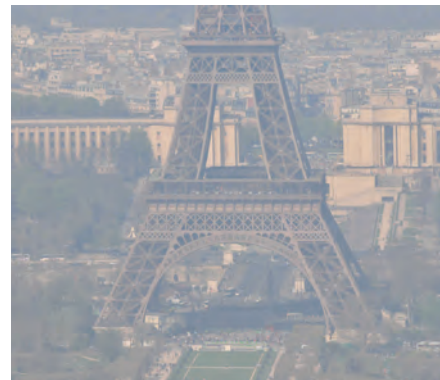
**Pollution** European environment commissioner Janez Potočnik has admitted that the EU is "some way" from meeting its air quality goals, after the European Environment Agency (EEA) revealed that up to 30% of those living in EU cities are exposed to pollution levels that exceed the current legal limits.

In its latest report on air quality, the EEA confirms that concentrations of harmful pollutants, including particulate matter (PM10 and PM2.5), nitrogen dioxide (NO2) and ozone, are above EU designated safe limits in many of the bloc's cities.

Pollution limits set out in the Ambient Air Quality Directive (2008/50/EC) are being "widely exceeded", states the report, with 16%–30% of the EU's urban population breathing air containing too much PM10. The report also reveals that 22 of the bloc's 27 member states exceeded NO2 limits in 2010, leaving 11% of Europe's sensitive ecosystems at risk of acidification and 69% at risk of eutrophication.

Potočnik believes member states have to shoulder much of the blame. "They have insisted on flexibility in applying air quality legislation. This has, unfortunately, not led to better implementation. Too often, the response has been too late," he said.

"Some still argue that in times of severe economic hardship, air pollution measures are too costly. I would argue that air



pollution itself imposes much greater costs on the economy. If you consider all costs, including natural capital accounting, clean air is an investment that makes a lot of economic sense."

The European Commission is undertaking a wholesale review of its air quality policies in a bid to replicate the success it has had in cutting sulphur dioxide emissions – which halved during 2001–2010. The results of the review are to be published next autumn and Potočnik has pledged to work with member states on how to meet pollution limits.

At the same time, Defra has confirmed that it plans to lobby for amendments to the Directive, in particular the NO2 limits, which the UK has failed to meet in 40 areas and which the environment department argues are too costly.

# UN calls for more controls on chemicals

**Hazardous substances** Coordinated action by governments and industry is needed urgently to reduce the growing risks to human health and the environment posed by the unsustainable management of chemicals, according to a new report by the United Nations Environment Programme (UNEP).

Its latest *Global chemicals outlook* warns that risks are being exacerbated by the shift in the creation, use and disposal of chemical products from developed countries to emerging economies, where safeguards and regulations are often weaker ([lexisurl.com/iema13594](http://lexisurl.com/iema13594)).

"The gains that chemicals can provide must not come at the expense of human health and the environment," said UNEP executive director, Achim Steiner. "Pollution and disease related to the unsustainable use, production and disposal of chemicals can, in fact, hinder

progress towards key development targets by affecting water supplies, food security, wellbeing or worker productivity.

"Reducing hazards and improving chemicals management – at all stages of the supply chain – is an essential component of the transition to a low-carbon, resource-efficient and inclusive green economy."

The UNEP predicts that global chemical sales will increase by around 3% a year until 2050, and warns that synthetic chemicals are fast becoming the largest constituents of waste streams and pollution around the world.

The key environmental concerns from the growing use of chemicals include pesticide and fertilizer contamination of rivers and lakes, heavy metal pollution associated with cement and textile production, and dioxin contamination from mining.

# Defra reveals four-year timetable to cut 'red tape'

**Regulation** Defra has published a breakdown of how it plans to improve environmental regulation over the next four years, following its pledge in March to streamline, consolidate or scrap 186 pieces of legislation as part of the red tape challenge.

Defra's implementation plan provides more detail as to how the 132 statutory instruments identified as in need of "improvement" are to be changed, alongside dates for when the alterations should be complete. None of the changes will result in fundamental reordering of the regulatory regime, confirmed IEMA's policy director Martin Baxter. "These regulations are in place to protect health and the environment, so it's not surprising that there wasn't a wholesale repeal of statutes. The key thing is that environmental outcomes are not being changed; organisations will have to meet the same level of environmental performance," he said.

Angus Evers, head of the environment group at SJ Berwin LLP and spokesperson for the UK Environmental Law Association (UKELA), agreed: "Defra is looking at some consolidation and simplification of areas like producer responsibility, but in the main this is about how the law is enforced, rather than any changes to the law itself."

In the plan, Defra confirms that by April next year firms will be able to decide the sequencing of planning and permitting applications, and by April 2014 it will have simplified REACH rules by merging various enforcement regulations. Meanwhile, consultations on the producer responsibility regimes will launch in January, with a full review completed by 2014.

Alongside Defra's work on legislation, the Environment Agency has announced it will be "streamlining" its guidance documents by 25% over the next 18 months. However, Evers questions this approach. "I wonder how much scope there is for simplifying guidance, particularly on environmental permitting which saw a lot of guidance cut when the new regime was introduced in 2007," he said. "And is there



really any justification behind the figure of 25%? Or has the agency plucked a figure out of thin air that will make good headlines?

"As a practitioner, I find it helpful to have more detailed guidance, rather than something that's woolly and can be interpreted in a number of different ways."

Access to up-to-date guidance and legislation was identified as a key problem in the existing regulatory regime by UKELA in a report published in May, and one that Defra is aiming to combat with the launch of a new online library in April 2013.

The Defra-lex website will be a "one-stop shop" for all publications related to Defra legislation. "The concept is a great one, as long as it's given the resources and funding to be kept up to date," said Evers.

Defra's implementation plans also reveal that the Environment Agency will continue to investigate how second- or third-party audits could potentially collect data for assessing regulatory compliance, with reports and further trials due in November 2013. "The question is whether some form of enhanced certification process could generate the information regulators need to decide if further intervention with a company is necessary," explained Baxter. "Also, the agency needs to see if the approach stacks up financially or whether firms will simply end up swapping the cost of one inspection for another."

DECC has also revealed its response to the red tape challenge, including how it plans to scrap 86 "redundant" pieces of legislation and improve a further 48 statutory instruments, such as the legislation related to radioactive contaminated land.

## Short cuts

### Efficiency for RHI

DECC has outlined its plans to amend the Renewable Heat Incentive (RHI) so that industrial and commercial applicants have to prove their building is energy efficient before they can claim any subsidies under the scheme. With a number of different energy performance assessments available, including BREEAM and display energy certificates, the department has consulted on whether it would be best to allow a range of different methods to be used and set minimum standards for each, rather than specifying a single system. In the same consultation, which closed on 18 October, DECC also proposed increasing subsidies for deep geothermal heat under the RHI, from 3p per kWh to 5p/kWh, and enhancing support for large biogas installations, biomass-powered combined heat and power stations and air-to-air heat pumps. A second ongoing consultation ([lexisurl.com/iema13573](http://lexisurl.com/iema13573)) outlines DECC's plans to further expand the RHI to include heat generated by air-to-water heat pumps and a broader range of feedstocks for energy-from-waste plants.

### £25k ecodesign grants

Firms wanting to redesign their goods to improve resource efficiency can now apply for £25,000 of government support. A new £1.25 million fund, managed by the Technology Strategy Board ([lexisurl.com/iema13571](http://lexisurl.com/iema13571)), has been launched in a bid to shift the UK towards a more circular economy. The grants are available to firms completing feasibility studies on how to redesign goods or services in a way that keeps materials in the country over several life cycles. Funds will be awarded in two rounds, the first of which opens on 29 October and runs until 12 December. The board has also launched a £3 million competition for "greenius" (green genius) technologies. Sponsored by DECC, Defra and the business department, the competition is seeking innovative new products from businesses that will improve the sustainability of food production, water use and energy consumption.

## IN PARLIAMENT

### Crunch time for CCS



**Chris Davies** is the Liberal Democrat environment spokesperson in the European parliament

It is more than five years since agreement was reached that up to 12 carbon capture and storage (CCS) demonstration projects should be in operation in the EU by 2015, and almost four years since a limited funding support mechanism was approved. Yet today not a single CCS project has been given the green light.

This is not because an alternative to the technology has been found – there remains no other option but CCS for dealing with carbon emissions from major industrial plants. The International Energy Association claims that CCS must provide 20% of the global CO<sub>2</sub> reductions needed to be achieved by 2050.

Demonstration of CCS technologies on a large scale is needed to reduce costs and raise efficiencies. If the price attached to the release of CO<sub>2</sub> is high, then CCS may offer financial advantages, but current carbon prices are far too low to support its development without large subsidy. What is worse is that the value of the EU financial support is also dependent on the price of CO<sub>2</sub> and it now amounts to just €300 million per project.

CCS schemes have fallen by the wayside across Europe, many delayed indefinitely. In some cases arrangements for underground storage have not been agreed, in other cases the problem is financial or political. It seems that the public can live with an explosive gas like methane beneath their feet, but not an inert one like CO<sub>2</sub>.

All eyes now rest on the UK and the Netherlands. Before the end of October, the European Commission requires the UK government to confirm that it will provide funding for projects at Don Valley, Peterhead or Drax.

Energy secretary Ed Davey is firmly committed to CCS. Whether he can overcome institutional delays and Treasury resistance in time to meet the deadline is quite another matter.

## Firms fear extreme weather

**Strategy** Following the hottest US summer on record, fires in Russia and flooding in the UK, Japan and Thailand, extreme weather events are pushing climate change up the corporate agenda, according to the latest survey of leading companies by the Carbon Disclosure Project (CDP).

Its 2012 *Global 500 climate change* report finds that 81% of companies polled now identify physical risk from climate change, with 37% perceiving these risks as a real and present danger – up from just 10% in 2010. “Extreme weather events are causing significant financial damage to markets,” said Paul Simpson, the CDP’s chief executive.

“Investors therefore expect corporations to think more about climate resilience.”

The report also features emissions data from 379 companies, including BMW, Microsoft, Tesco and Unilever, and rates them according to their climate change transparency. More than three-quarters (78%) of firms confirm that climate change has been integrated into their wider business strategy – 10% more than last year and 30% more than in 2010.

Overall, reported corporate greenhouse-gas emissions are down



13.8%, from 3.6 billion tonnes in 2009 as the financial slowdown began to take hold, to 3.1 billion tonnes in 2012. One-third of companies (31%), however, reported no emissions reductions at all.

Meanwhile, a global survey by Deloitte finds that chief financial officers (CFOs) are increasingly involved in driving the sustainability efforts of their organisations. Of the 250 CFOs polled, two-thirds say they play a role in embedding sustainability strategies, and more than half say their involvement has increased in the past year. Also, the proportion of CFOs and chief operating officers now accountable to their company’s boards for sustainability has nearly doubled over the past 12 months.

## Businesses meeting Aichi targets

**Biodiversity** A new report from the World Business Council for Sustainable Development (WBCSD) reveals that many global businesses are responding positively to the global biodiversity targets set by the UN Convention on Biological Diversity.

The so-called Aichi targets, named after the Japanese province where the 2010 conference took place, recognise the urgent need for action, and WBCSD’s report ([lexisurl.com/iema13565](http://lexisurl.com/iema13565)) shows how companies, including steel maker ArcelorMittal, cosmetics producer L’Oréal, oil and gas company Shell, and Veolia Water are attempting to help solve biodiversity and ecosystems challenges.

Among the case studies showcased is Chevron’s development of a quarantine management system to prevent non-indigenous species causing significant biodiversity loss and degradation of ecosystems services at Barrow Island.

The US oil and gas company introduced the system after receiving approval in

2009 for the development of the Greater Gorgon Area gas fields, which are off the coast of western Australia.

Another example is Holcim’s rehabilitation activities in India through its local subsidiary Ambuja Cement, which attempt to mitigate the impacts of withdrawing limestone and water from the area, both of which are required for cement manufacture.

The company’s Ambujanagar plant in the Kodinar region of Gujarat, for example, restores its mines and surrounding areas in such a way that it has been able to enhance the region’s biodiversity as well as help to address water scarcity and salinity problems, reports the council.

“Many of our leading member companies have been on a steep learning curve about their ecosystems impact and dependence. Many of them have acted upon these and developed solutions. We are moving in the right direction, but there is still more to be done,” commented Peter Bakker, president of WBCSD.





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Kayley, RRC Customer Services Manager

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COMMENT

EU environment policy at 40



**Camilla Adelle  
and Andy Jordan,**  
University of East  
Anglia

On 21 October, EU environment policy officially turns 40. Since the EU first endorsed its role in this area at the 1972 Paris Summit, environmental policy has become one of its high-ranking objectives. Not only is it now enshrined in the founding treaties, but it is also supported by a powerful network of environmental committees, ministries and agencies, as well as pressure groups and political parties. To get to this point, EU environment policy has had to address many significant challenges, but what issues will dominate in the future?

First, the choice of implementing instruments is still restricted. Despite much talk about the merits of new instruments, such as eco-taxes or emissions trading, EU policy is still mainly pursued via regulatory means. The challenge is finding a better mix among a wider range of instruments.

Second, creating environment policy is one thing, but implementation and evaluation is also important. More accurate information is needed to determine when and why policies work or not. At the same time, the EU needs to redouble its efforts to ensure ambitious policies are fully implemented.

The third, and most immediate challenge is to secure these additional efforts in an era of acute economic austerity. Austerity will, however, also generate opportunities for those willing and able to show that their activities have an economic value.

At 40, it seems as though EU environment policy has reached a mature form. Environment protection will always remain a live political issue, not least because of the long-standing tensions between limiting environmental damage and the pursuit of economic growth.

One thing is clear: what emerges in the future will have wide-ranging and long-lasting impacts on those who live in, and well outside, the UK.

# Gas may dash carbon budgets

**Energy** The UK will fail to meet its carbon budgets and its 2050 carbon reduction target if the government pursues a policy of gas-fired electricity generation. This was the warning to the prime minister and energy secretary in a letter from the committee on climate change (CCC).

The letter follows a recent government statement “that it sees gas as continuing to play an important role in the energy mix well into and beyond 2030 ... [not] restricted to providing back-up to renewables”. The committee says the government’s stance is incompatible with meeting legislated carbon budgets.

It also warns that the government’s position could undermine investment in low-carbon generation. “The apparently ambivalent position of the government about whether it is trying to build a low-carbon or a gas-based power system weakens the signal provided by the carbon budgets to investors,” says the CCC. The committee claims investors already regard the climate for low-carbon generation as very poor.

To address the risk that investors will shun low-carbon technologies, the CCC, which recently appointed Lord Deben as its new chair, wants the government to include a carbon-intensity target for the power sector in the planned electricity market reform (EMR). It recommends that carbon intensity is limited to 50gCO<sub>2</sub> per kWh by 2030.

In a separate letter to the government, the Aldersgate Group also demands a carbon intensity target for the sector, claiming it would provide investors with long-term clarity and certainty, and ensure the UK meets its carbon budgets.

“We must put an end to any political uncertainty surrounding the UK’s energy future and start unleashing the billions of pounds of overdue investment which will deliver new growth for our economy,” said the group’s chair, Peter Young.

Energy and climate change secretary Ed Davey responded to the CCC letter by confirming that the government was considering an electricity decarbonisation target, but claimed the EMR would create significant decarbonisation without including such a specific target.

He also said that the government continues to see gas as important in the transition to a low-carbon electricity supply. “We need a diverse mix of all the



technologies to keep the lights on and lower our emissions [and] we have always said this will include gas-fired plant,” he said. “After 2030 we expect that gas will increasingly be used only as back-up, or fitted with carbon capture and storage.”

The disagreement between the government and the CCC came as the energy secretary told the *Guardian* that 20 new gas-fired power stations will be built in the UK by 2030. At the same time, new energy minister John Hayes officially opened one of Europe’s largest gas-fired power stations, a 2,000MW plant in Pembrokeshire, and energy company ESB confirmed it is to build an 880MW gas-powered plant outside Manchester, which will open in 2016.

Meanwhile, a new study has again highlighted the potential risks to the environment from extracting gas from unconventional sources, such as shale gas. The study, for the European Commission ([lexisurl.com/iema13575](http://lexisurl.com/iema13575)), claims there is high risk that shale gas extraction in Europe will contaminate both groundwater and surface water, and pose risks to biodiversity.

The report states that the gas exploration industry faces a challenge to ensure the integrity of wells and other equipment throughout the life cycle of a project and beyond to avoid the risk of water contamination.

The study also warns that spillages of chemicals and wastewater with potential environmental consequences must be avoided during the development and operational lifetime of an exploration site.



# Stop oil drilling in Arctic, say MPs

**Ecosystems** The environmental audit committee (EAC) has called for a halt to oil exploration in the Arctic, warning that the sector is not equipped to deal with a spill in the region and that more must be done to prevent the ice cap melting.

As scientists confirmed that Arctic ice levels had reached an all-time low, the committee published a report concluding that the unique ecosystem is under threat from both climate change and potentially catastrophic oil spills. "The shocking speed at which the Arctic sea ice is melting should be a wake-up call to the world that we need to phase out fossil fuels fast," argued Joan Walley, chair of the committee. "Instead, we are witnessing a reckless gold rush in this pristine wilderness as big companies and governments make a grab for the world's last untapped oil and gas reserves."

The EAC warns that the infrastructure needed to clean up oil spills is not in place and that conventional techniques have not yet been proven to work in the Arctic.



According to the report, with current capabilities, if a spill were to occur at the end of the summer, oil could leak for six months under winter ice, causing devastating, long-term damage to the environment.

"The oil companies should come clean and admit that dealing with an oil spill in the icy extremes of the Arctic would be exceptionally difficult," said Walley.

No drilling should take place until companies' oil spill responses have been independently verified as working in Arctic conditions, the report states.

The committee also wants governments to create a new regulatory regime for the Arctic region that could impose unlimited financial liability on drilling companies for spills.

## Support for solar slashed again

**Energy** Government subsidies for large-scale solar photovoltaic (PV) installations will be cut by 25% from April 2013, under the latest proposed changes to the Renewables Obligation (RO).

Two months after confirming the majority of tariffs available under the RO from next April, DECC launched new consultations outlining its plans to cut support for solar; restrict the use of dedicated biomass; and impose new sustainability requirements on biomass and combined heat and power plants with a capacity to generate 1MW of electricity.

DECC had originally planned to maintain support for PV at 2 ROCs (RO certificates) per MWh until March 2015, but, due to falls in the cost of the technology, the energy department has concluded that the 2013/14 tariff should be 1.5 ROCs/MWh, and that support should continue to be cut to just 0.9 ROCs/MWh by 2016/17.

While agreeing reductions to RO support were to be expected, the Solar Trade Association (STA) argued that the cuts were too big and equated to pulling the rug out from under the sector.

However, the STA welcomed the news that DECC has decided against removing RO support for solar PV installations generating less than 5MW.

Meanwhile, new data confirm that renewable technologies are playing an increasingly important role in the UK's energy mix. The Scottish government reported that it is on target to generate 11% of Scotland's heat from renewable sources by 2020, after beating its interim 3.5% target in 2011. And quarterly statistics from DECC reveal that renewable energy capacity across the UK grew by more than 40% in the 12 months to June 2012. Total renewable energy generation was up 6.5% year-on-year, with electricity generated by solar PV increasing tenfold.

### Short cuts

#### Charging on the move

Car maker Nissan and renewable energy supplier Ecotricity have teamed up to install fast chargers for electric vehicles (EVs) at motorway services on the M25/A1, M40 and M42. The 50kW DC charging points will enable drivers to recharge their EV in approximately 30 minutes – depending on the make of car and how full the battery is on arrival. US EV manufacturer, Tesla has also unveiled plans for a network of fast charge points. It is installing its first six solar-powered "supercharger" stations in California, Nevada and Arizona, and it plans to begin installing them in Europe in 2013. Meanwhile, diesel-powered buses on the number 7 route in Milton Keynes will be replaced next year by eight electric buses that can recharge their batteries wirelessly. It means that, for the first time, electric buses will be capable of the equivalent load of their diesel counterparts, and will remove approximately 500 tonnes of tailpipe carbon dioxide emissions each year as well as 45 tonnes of other noxious emissions.

#### HFC-free cooling

More retailers are switching to refrigeration systems that do not use hydrofluorocarbons (HFCs), according to new research by the Environment Investigation Agency (EIA). The charity's latest study reveals that 344 stores in the UK installed climate-friendly refrigeration systems in 2011, compared with just 14 in 2008. It also claims retailers are reporting significant reductions in energy use when compared to conventional HFC systems. The EIA notes that a significant number of retailers have signed up to the Consumer Goods Forum's resolution to begin phasing out HFC refrigerants from 2015, with some of the pioneers such as Waitrose, the Co-operative and Marks & Spencer committing to phase out HFCs altogether. The EIA says Sainsbury's and Waitrose are doing well in rolling out energy-efficient HFC-free freezers, as are discount retailers Aldi and Lidl.



## Short cuts

### 14001 cuts costs

A survey of 100 firms by certification body NQA has revealed that working towards ISO 14001 certification helps organisations to cut costs by encouraging them to be more resource efficient. More than 80% of those surveyed confirm that they have benefited financially from actions to certify their environment management system (EMS), including introducing recycling regimes, improving energy efficiency and reducing water consumption. More than half the firms polled confirm they would recoup the cost of certification within 12 months. Nonetheless, 12% of those surveyed are not confident their organisation will see a financial benefit from gaining certification. The majority of respondents say enhanced reputation is the main benefit of certifying an EMS.

### CRC costs £657 million

Preliminary data from the Environment Agency reveal that participants in year two of the Carbon Reduction Commitment Energy Efficiency scheme (CRC) spent a total of £657 million on allowances. The second year of the scheme was the first in which participants had to buy sufficient allowances to cover their CRC emissions. The government sold allowances at a fixed price of £12, with each one equivalent to 1 tonne of CO<sub>2</sub>. The agency says that by the end of July, 93% of participants in the scheme had placed orders for allowances, meaning that emissions covered by the CRC in 2011/12 totalled 54.75 million tonnes of CO<sub>2</sub> equivalent. In year one, the more than 2,000 organisations participating fully in the scheme reported carbon emissions totalling almost 62 million tonnes. Although the latest results suggest that total emissions are more than 10% below the levels recorded in year one, the agency is currently taking action to ensure participants still in need of allowances order the amount they require, which is likely to bring total emissions closer to the 2010/11 figure. The second annual CRC performance league table will be published in early December.

# Accolades for Scotland's greenest organisations

**Awards** An Edinburgh bus company, a Stonehaven fish and chip business, a Findhorn-based printer and an NHS trust were among the organisations presented with prizes at the fourth annual Scottish green awards.

Lothian Buses scooped the accolade for best large company after reducing the carbon footprint of its fleet. The introduction of 15 diesel electric hybrid buses in the last year and fitting older vehicles with advanced emission-reduction exhaust systems has helped Lothian Buses reduce annual carbon emissions by 9,000 tonnes. The new buses, which will save an estimated 200,000 litres of diesel each year, have been introduced on routes in areas suffering most from air pollution.

In the small business category, Bay Fish & Chips was honoured for its efforts to minimise its impact on the environment. These include using only fish from sustainable sources, compostable packaging and renewable energy.

The small company award, which is sponsored by the Scottish Environment Protection Agency and is open to firms with a turnover of less than £20 million, is the latest in a long line of honours for the

fish and chip business. Earlier this year, it also won the environmental sustainability prize at the Scotland Food & Drink excellence awards.

The 20:20 carbon reduction award, a new accolade for 2012 recognising a company or organisation that demonstrates a proactive approach to reducing its carbon footprint, went jointly to print group Big Sky and NHS Grampian.

Big Sky operates out of the village of Findhorn in Morayshire and uses only vegetable oil-based inks and Forest Stewardship Council-certified paper, and is powered by renewable energy from a local wind farm. Its environment management system is certified to ISO 14001.

Aberdeen-based NHS Grampian has recently opened a new energy centre at its Foresterhill health campus, which is expected to help cut annual energy costs by 15% and cut CO<sub>2</sub> emissions by 17% a year.

Martin Baxter, a member of the judging panel and policy director at IEMA, which sponsored the awards, praised the quality of applications: "The standard was very good, and although this makes the task of judging difficult, it does ensure that high-level achievers are recognised."

## Smart meters to save SMEs billions

**Energy** The UK-wide roll-out of smart meters will save small and medium-sized enterprises (SMEs) £2.2 billion by 2030 and cut carbon emissions by 16 million tonnes, according to new research from consultants Oxford Economics.

The study, commissioned by British Gas, predicts that the government's plans to ensure that by 2019 every home and business has a smart meter will result in SMEs cutting annual energy consumption by 4%–5% as they become more aware of their energy consumption, saving companies £230 a year, on average.

Firms that use the data to take a proactive approach to energy efficiency by installing more efficient lighting or equipment, for example, will see savings jump to 7%–15%, reducing annual bills by up to £800, according to the report.

"Smart meters will fundamentally change the way businesses manage their energy," said Angela Needle, head

of energy consultancy at British Gas Business. "They will put businesses in control of their energy costs and help them identify steps they can take to reduce energy bills."

However, the Federation of Small Businesses (FSB) has warned that the roll-out of smart meters will help SMEs only if they have free access to the data. Unlike the government's plans for households, which require meters to display energy consumption data, meters in commercial properties do not have to include such a display.

"Under the current proposals, small businesses could face paying to access their energy consumption data," states a new FSB report. "This will seriously undermine the credibility of the programme as well as limit its potential benefits. Smart meters in themselves do not save any energy – it is how the data is used that leads to savings."

# Prosecutions

## Roundup of the latest environmental cases



### CASE LAW

#### Victory for wind industry?

In September 2011, Dumfries and Galloway Council refused a planning application for a wind farm 7km northeast of Glenluce, which would cover 524 hectares of moorland. The proposal was for 11 turbines with a maximum height of 126.5 metres, as well as connecting tracks, a substation and an obstruction compound. The council refused the application on the basis that it would: have adverse landscape and visual impacts; impact negatively on the historic environment, particularly on scheduled monuments; and be detrimental to the safety of aircraft.

The scheme's developers, wind energy company RES UK and Ireland, appealed the decision. Their case turned on whether any adverse impacts would be outweighed by the benefits of the scheme. In July, the directorate for planning and environment appeals in Scotland allowed the appeal and granted planning permission. Janet McNair, the reporter appointed by Scottish ministers, found that: the wind farm would have a substantial, but localised, impact on the landscape character of the area; visibility impacts would be confined to specific areas; no designated landscapes or settlements would be significantly affected; the cumulative impacts were acceptable; and any adverse archaeological impacts did not justify refusing permission.

McNair allowed the appeal on the basis that the scheme's contribution to the generation of renewable energy outweighed its adverse impact, taking into account the Scottish government's commitment to increasing the generation of renewable energy.

Scottish planning policy states the landscape and visual impacts of wind farms should be minimised. However, McNair declared it is unrealistic to expect a wind farm to be developed without significant impacts and that the impacts have to be weighed against the benefits of the scheme in deciding where the balance of advantage lies.

*Hayley Tam and Colleen Theron*

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#### Misreporting renewables data costs energy firm £125,000

Ofgem has imposed a £125,000 fine on business energy supplier Opus Energy for misreporting the amount of electricity it supplied under the Renewables Obligation (RO). The company has also agreed to retire 7,016 RO certificates (ROCs), with an estimated value of £360,000.

The regulator says the misreporting occurred in 2009/10 and was due to shortcomings in the Northampton-based company's method for calculating its electricity supply data and in the firm's internal procedures. Ofgem found that Opus underreported the amount of electricity it supplied to customers by 7.4% and that the company benefited financially by £360,000.

On its website, Opus claims to invest time and manpower into developing innovative IT systems to improve its working processes. However, Ofgem reports that the company's senior management "failed to provide appropriate resources to the calculation and provision of supply data, and failed to arrange for appropriate checking and supervision by senior management and/or external auditors".

Under the Electricity Act 1989, Ofgem is able to impose a financial penalty of up to 10% of the company's annual turnover for such offences – which, for Opus, equates to £2 million. The regulator decided to impose the lower £125,000 fine because Opus had not contested the findings and had taken prompt action (by retiring the ROCs) to address the harm suffered by other market participants.

"Opus Energy's willingness to engage in the settlement process was reflected in the level of penalty. Without this, the penalty would have been much higher," confirmed Sarah Harrison, Ofgem's senior partner in charge of enforcement.

In a statement, Opus said: "We are disappointed at this error in our procedures and apologise wholeheartedly. We have made substantial changes to our procedures to ensure this never happens again." The changes include revising its method for calculating electricity supply data in line with Ofgem's recommended approach.

#### £114,000 for poor water quality

Severn Trent Water has been fined £76,000 and ordered to pay £37,990 in costs after pleading guilty to a string of water supply offences.

The Drinking Water Inspectorate (DWI) brought 16 charges against the company under the Water Industry Act 1991 and the Water Supply (Water Quality) Regulations 2000 over three incidents between December 2010 and September 2011.

Severn Trent was fined a total of £50,000 for 10 offences in the Chesterfield area, including six counts of supplying water unfit for human consumption to almost 470,000 customers, and one count of failing to design and continuously operate an adequate water treatment process. The company also received a £16,000 fine for supplying water unfit for human consumption on four occasions in the Sandiacre area of Nottingham, and £10,000 for its failure to disinfect water and operate an adequate treatment process in Leicestershire and south Derbyshire.

"These charges were brought in relation to three events, two of which highlighted deficiencies in the design and operations of two treatment works, and the third was due to work on the network that resulted in the delivery of water with an unacceptable appearance and odour to

consumers," commented Jeni Colbourne, chief inspector at the DWI.

"These charges reflect a very poor period of operational performance which the company has now recognised and is taking steps to prevent a recurrence."

#### Costly oil leak for council









Oil leaking from a school's heating system has cost East Riding of Yorkshire Council almost £22,000 in fines and costs. The oil polluted a watercourse that feeds a local wildlife haven and the Humber Estuary, in contravention of the Environmental Permitting (England and Wales) Regulations 2010.

York Magistrates' Court was told that the oil was detected in a stream near Withernsea High School after a delivery of heating fuel resulted in oil leaking from a storage tank.

The council, which owns and maintains the school, called in contractors to contain the spill. However, the firm lacked some of the necessary containment equipment and the Environment Agency had to install booms to contain the pollution before it entered the estuary.

The court was also told of an earlier pollution incident at Goole in April 2010, when oil leaked into a waterway following the delivery of oil to another school operated by the council.

## NEW REGULATIONS


In force	Subject	Details
7 August 2012 (1 October 2012; 28 January 2013) 	Energy efficiency	The Green Deal (Energy Efficiency Improvements) Order 2012 came into force on 7 August 2012 and specifies the sources covered by the scheme. The Green Deal (Qualifying Energy Improvements) Order 2012 comes into force on 28 January 2013 and describes the energy-efficiency improvements that will qualify for the scheme. The Green Deal Framework (Disclosure, Acknowledgment, Redress etc) Regulations 2012 establish elements of the governance framework for the scheme. Most of Parts 1–4 (including authorisation of certification and assessor bodies) came into force on 7 August, and Parts 8 (sanctions and enforcement) and 9 (appeals) came into force on 1 October 2012. Parts 5–7 (including estimates of likely savings and payments) will come into force on 28 January 2013. <a href="http://lexisurl.com/iema13499">lexisurl.com/iema13499</a> ; <a href="http://lexisurl.com/iema13500">lexisurl.com/iema13500</a> ; <a href="http://lexisurl.com/iema13497">lexisurl.com/iema13497</a>
7 August 2012 	Environmental protection	The Nitrate Pollution Prevention (Amendment) Regulations 2012 revoke and replace some of the provisions in Part 2 of the 2008 Regulations, relating to the designation of land as nitrate-vulnerable zones. <a href="http://lexisurl.com/iema13079">lexisurl.com/iema13079</a>
7 August 2012 	Flooding	The Ipswich Barrier Order 2012 empowers the Environment Agency to construct a tidal barrier with a moveable gate across the River Orwell and to execute ancillary works, including dredging of the river. <a href="http://lexisurl.com/iema13249">lexisurl.com/iema13249</a>
12 August 2012 	Hazardous substances	Seveso III (Directive 2012/18/EU) on the control of major accident hazards involving dangerous substances, amends and subsequently repeals Seveso II (96/82/EC), which laid down rules for the prevention of major industrial accidents and their consequences for human health and the environment. Seveso II is repealed with effect from 1 June 2015. <a href="http://lexisurl.com/iema13244">lexisurl.com/iema13244</a>
12 August 2012 	Waste	The recast Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU) replaces the original WEEE Directive (2002/96/EC) and seeks to promote the sustainable production and consumption of electrical and electronic equipment, through national targets for the recovery of WEEE. The commission aims to encourage the efficient use of resources and the retrieval of valuable secondary raw materials. Directive 2012/19/EU repeals Directive 2002/96/EC from February 2014. <a href="http://lexisurl.com/iema13243">lexisurl.com/iema13243</a>
15 August 2012 	Ecodesign	European Commission Regulation 547/2012 introduces measures to support the ecodesign of water pumps as part of the requirements in the EU Directive (2009/125/EC) on establishing a framework for the setting of ecodesign requirements for energy-related products. The commission says better design can improve the energy efficiency of pumping systems by up to 30%. <a href="http://lexisurl.com/iema13064">lexisurl.com/iema13064</a>
15 August 2012 	Hazardous substances	European Commission Regulation 649/2012 recasts Regulation 689/2008 on the export and import of dangerous chemicals. The original Regulation, which has been substantially amended, implemented the Rotterdam Convention on the informed consent procedure for certain hazardous chemicals and pesticides in international trade. The recast Regulation applies from 1 March 2014. <a href="http://lexisurl.com/iema13242">lexisurl.com/iema13242</a>
16 August 2012 	Energy	The Hinkley Point Harbour Empowerment Order 2012 enables the firm NNB Generation to carry out works in Bridgwater Bay and on adjacent land to facilitate the construction of a nuclear power station at Hinkley Point. The Hinkley Point (Temporary Jetty) (Land Acquisition) Order 2012 enables NNB Generation to acquire land and rights over land adjacent to Bridgwater Bay to aid the same project. <a href="http://lexisurl.com/iema13251">lexisurl.com/iema13251</a> ; <a href="http://lexisurl.com/iema13252">lexisurl.com/iema13252</a>



## LATEST CONSULTATIONS

2 November 2012

**Procurement**

 The Scottish government is seeking views on proposals to reform public procurement. These aim to establish a national legislative framework for sustainable public procurement that delivers social and environmental benefits; supports innovation; and promotes processes and systems that are business-friendly, transparent, streamlined and standardised.  
[lexisurl.com/iema13504](http://lexisurl.com/iema13504)

9 November 2012

**Noise pollution**

 Northern Ireland's Department of the Environment has issued for consultation its proposed technical guidance for competent authorities to assist them in undertaking their duties under the Environmental Noise Regulations (Northern Ireland) 2006.  
[lexisurl.com/iema12909](http://lexisurl.com/iema12909)

12 November 2012

**Regulatory charges**

 The Northern Ireland Environment Agency (NIEA) is consulting on a new charging scheme following the introduction of the Pollution Prevention and Control (Industrial Emissions) Regulations 2012, which implement the EU Industrial Emissions Directive

(2010/75/EU). The proposed Pollution Prevention and Control (Industrial Emissions – NIEA) charging scheme 2012 covers Part A and Part B installations and mobile plant. Under the proposals the scheme will operate alongside the existing charging scheme, before replacing it in 2014.

[lexisurl.com/iema13518](http://lexisurl.com/iema13518)


16 November 2012

**Procurement**

 The European Commission is developing criteria to assist authorities throughout the EU to raise the level of green public procurement (GPP) across the bloc. As part of the process, the commission is consulting on GPP criteria for wastewater infrastructure projects. This includes “core” criteria, which address the most significant environmental impacts and are designed to be used with minimum additional verification effort, and “comprehensive” criteria which are for use by authorities seeking to purchase the best environmental products available.  
[lexisurl.com/iema13506](http://lexisurl.com/iema13506)

30 November 2012

**Wildlife**


 The Law Commission is consulting on simplifying the existing legal framework that regulates wildlife

offences. The commission says much of the current law, some of which has been in place since 1831, is out of date and that the principal modern Act – the Wildlife and Countryside Act 1981 – has been amended to such a degree that it is difficult for non-specialists to use. It is proposing a new regime that would reduce the dependency on criminal law by allowing an appropriate mix of regulatory measures, such as guidance, advice and a varied, flexible system of civil sanctions, which would include fines and bans.

[lexisurl.com/iema13498](http://lexisurl.com/iema13498)

9 December 2012

**Regulatory charges**

 Although the Environment Agency pledged in 2011 that it would not alter its baseline charges for two years (with the possibility of a small increase in 2014/15) as part of a three-year charging period (2012–15), the regulator stated that it might need to introduce some technical changes in the three-year cycle, particularly to accommodate changes in legislation. It is now consulting on proposed changes to charges that will impact on a small number of permits affected by either the new Industrial Emissions Directive or changes in 2013 to the EU emissions trading scheme.  
[lexisurl.com/iema13507](http://lexisurl.com/iema13507)

## NEW GUIDANCE

**Energy from waste**

WRAP has produced a new series of guides ([lexisurl.com/iema13514](http://lexisurl.com/iema13514)) on energy from waste (EfW). The guidance aims to provide practical information for businesses looking to develop small-scale EfW facilities as a waste treatment option, where waste prevention, re-use or recycling is not possible. The guides focus on the EfW design and planning process, including potential sources of funding; the Environmental Permitting Regulations 2010; feedstock; EfW outputs and residues; and financial incentives.

**Emissions trading**

The Environment Agency has updated its website to provide more details on phase III of the EU emissions trading scheme (ETS), which starts on 1 January 2013. There is a section on the transition to phase III ([lexisurl.com/iema13515](http://lexisurl.com/iema13515)), with information on what existing (phase II) and new entrants need to do now to ensure they have valid permits on 1 January. This also covers operators that have applied to have their installation excluded from the ETS and to participate in the small emitter and hospital opt-out scheme instead. A section entitled “What is EU ETS phase III?” ([lexisurl.com/iema13517](http://lexisurl.com/iema13517)) lists the key changes, while another section focuses on the new entrant reserve in phase III ([lexisurl.com/iema13516](http://lexisurl.com/iema13516)).

**Waste quality protocols**

A new position statement ([lexisurl.com/iema13520](http://lexisurl.com/iema13520)) on the regulation of materials being considered for an end-of-waste quality protocol has been published by the Environment Agency. It sets out the agency's regulatory approach while it considers whether a quality protocol can be developed. It also clarifies the agency position if a quality protocol is developed and it is under consideration by the European Commission. Under the Technical Standards and Regulations Directive (98/34/EC), the agency is obliged to consult the commission on a quality protocol before it is finalised. The new position statement applies only to the final use of waste.

## EVENTS CALENDAR

Date	Course	Location and details
6–7 November 2012	Lux live 2012	Earls Court, London <a href="http://lexisurl.com/iema13521">lexisurl.com/iema13521</a>
7–8 November 2012	Lab Innovations 2012	NEC, Birmingham <a href="http://lexisurl.com/iema13532">lexisurl.com/iema13532</a>
7–8 November 2012	Envirotech and clean energy investor summit 2012	London <a href="http://lexisurl.com/iema13522">lexisurl.com/iema13522</a>
7–8 November 2012	Water, wastewater and environmental monitoring 2012	International conference centre, Telford <a href="http://lexisurl.com/iema12917">lexisurl.com/iema12917</a>
15 November 2012	Water regulation: working through the changes	SOAS, London <a href="http://lexisurl.com/iema13508">lexisurl.com/iema13508</a>
20–21 November 2012	Corporate responsibility reporting and communications summit	Thistle Marble Arch, London <a href="http://lexisurl.com/iema13509">lexisurl.com/iema13509</a>
26–27 November 2012	B4E climate summit 2012	Hurlingham Club, London <a href="http://lexisurl.com/iema13603">lexisurl.com/iema13603</a>
27–28 November 2012	Integrated supply chain	Park Plaza Victoria, London <a href="http://lexisurl.com/iema13523">lexisurl.com/iema13523</a>
28 November 2012	Employee communications in sustainability	The Guardian, Kings Place, London <a href="http://lexisurl.com/iema13612">lexisurl.com/iema13612</a>
5 December 2012	Sustainability leaders forum 2012	CBI conference centre, London <a href="http://lexisurl.com/iema13510">lexisurl.com/iema13510</a>



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Supporting Trade Associations





# WWEM 2012 focuses on the quality of monitoring

**W**ater, Wastewater and Environmental Monitoring, the fifth in a series of environmental monitoring events, returns to Telford on 7–8 November (WWEM 2012). Organised in conjunction with the Environment Agency and the Water Monitoring Association, the event will provide the latest information on regulations, standards, methods and technologies employed in laboratory, field and process monitoring applications.



Alongside two major conferences, more than 70 workshops will run at WWEM 2012 and an exhibition will feature 120 of the world's leading organisations in environmental monitoring.

## WWEM conferences

The first conference (7 November) will focus on process monitoring and will feature speakers from the Environment Agency, WRc and SIRA. Entitled "2012 update on regulation and certification", the presentations will be of interest to any municipal or industrial organisation with a discharge consent, as well as consultants, contractors, instrument manufacturers, regulators, academia and researchers.

The second conference (8 November) is being organised by the British Measurement and Testing Association which represents the interests of more than 400 UKAS accredited laboratories. The "Advances in measurements in environmental laboratories" conference incorporates an impressive list of speakers from the UK accreditation body, the Food and Environment Research Agency, water companies and commercial laboratories.

## Workshops and exhibition

More than 70 workshops will run across the event covering a broad range of topics from real-time water quality monitoring in remote locations to ways of cutting costs through using innovative instrument applications. Visitors do not have to reserve places at the workshops, but are urged to plan their timetable carefully.

The Council of Gas Detection and Environmental Monitoring (CoGDEM) is helping to organise the gas detection zone, in which a programme of workshops will cover new technologies, sampling and calibration techniques, and the benefits to be gained from monitoring toxic, combustible or explosive gases.

The 2012 exhibition will be larger than its predecessors with around 120 organisations displaying the latest products and services

in environmental testing and monitoring, including a strong presence from the laboratory sector.

## New for 2012

This year's event will see more products launched than ever before, with many firms unveiling new monitoring technologies and YSI Hydrodata launching a new company: Xylem Analytics UK.

Alongside showcasing new instruments to measure water quality and flow, exhibitors will also be revealing innovative technologies in datalogging, wireless communications, process automation sensors, rugged PCs and pump controllers, to name but a few. Furthermore, there will be live demonstrations of products and the latest water management software.

The gas monitoring zone has expanded and will feature the market's leading players, which offer everything from air samplers and calibration gases, to training courses and odour monitors. New portable and personal gas detectors will be unveiled as well as monitors for dust, noise and biogas flow.

## Innovation exchange

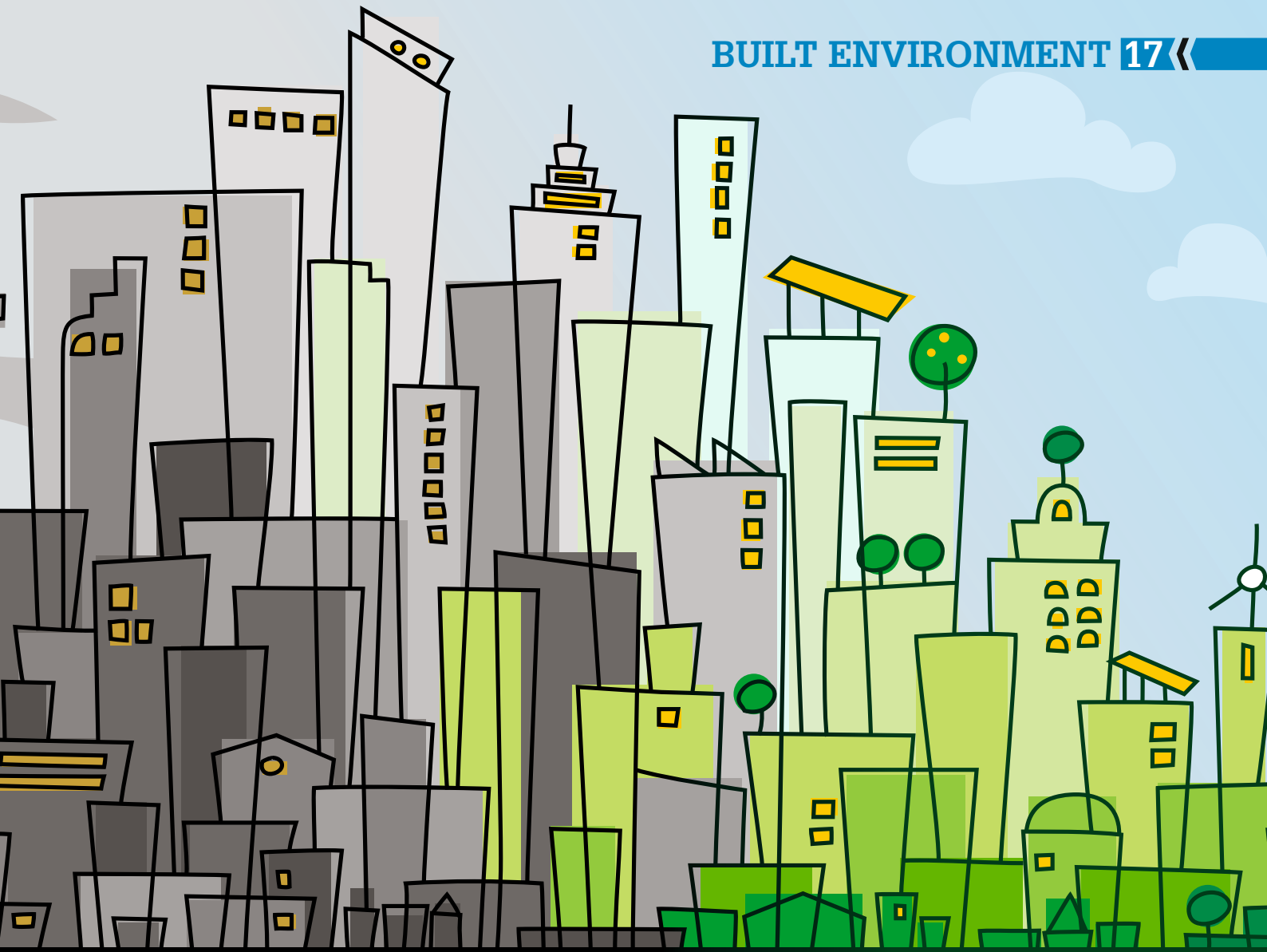
British Water and WWEM have organised an innovation exchange on 7 November. The event will bring together representatives from across the industry including Severn Trent Water, Dwr Cymru Welsh Water and the Environment Agency, to identify technology needs and explore available and potential solutions.

## Meet the buyer

Key individuals from Romania, Bulgaria, Russia, Poland, Hungary, Spain, Portugal, the Netherlands and Turkey have been invited to WWEM 2012 on 8 November by UKTI. These delegates are involved in purchasing goods and services, and a registration website ([www.meetbuyersatwwem.ukti.gov.uk](http://www.meetbuyersatwwem.ukti.gov.uk)) has been created to enable UK company representatives to book meetings with them.

Visitors that pre-register for WWEM 2012 at [www.wwem.uk.com](http://www.wwem.uk.com), receive free entry to the exhibition and workshops, including complimentary parking, food and refreshments. Entrance to the WWEM 2012 conferences costs £55 per day or £100 for both days.





# Makeover SOS

With 60% of existing commercial buildings still likely to be in use in 2050, retrofitting is crucial to meeting UK carbon targets. **Paul Suff** reports

**A**ccording to the Intergovernmental Panel on Climate Change, retrofitting buildings has the largest potential of all measures to reduce greenhouse-gas (GHG) emissions by 2030. In the UK, successful retrofitting of the built environment is key to meeting its target of reducing GHGs to 80% of 1990 levels by 2050. Emissions from buildings contributed 35% of the UK's total in 2011, says the committee on climate change (CCC). Its latest progress report on meeting the UK's carbon budgets reveals that 66% of emissions from buildings are from residential ones, while commercial and public sector emissions account for 25% and 9% respectively.

The UK tends to have a higher proportion of older buildings than many countries, with about half of existing commercial buildings predating the 1940s. Of

the existing stock of non-domestic buildings, 60% will still be in use by 2050, and many are energy intensive. The Carbon Trust found in 2009 that the UK's 1.8 million offices, shops, factories and hospitals use as much energy as Switzerland produces each year (330TWh).

Retrofitting such buildings so they are more energy efficient is therefore a priority in the transition to a low-carbon economy. Under the new Energy Efficiency Directive, member states will have to renovate public buildings and prepare road maps for the refurbishment of all buildings.

But the scale of the challenge in the UK is huge. The Energy Saving Trust reported last year that one building would have to be given a "green" makeover each minute from now until 2050 for the UK to meet its GHG emissions targets.

## THE GREEN DEAL

The government's green deal scheme – which should see the first agreements signed in January 2013 – will enable consumers to install energy efficiency improvements in their homes and businesses at no up-front cost. Instead, customers will pay back the cost of the improvements through resulting savings in their energy bills.

DECC believes non-domestic customers will be attracted not only by the prospect of not having to pay up-front for measures, but also by reduced fuel costs and the opportunity to demonstrate meeting the obligations of the Carbon Reduction Commitment Energy Efficiency scheme. The department says the green deal is likely to appeal to organisations that consume significant amounts of energy from air conditioning and computers, for example, rather than energy-intensive businesses.

The green deal process begins with an assessment. It will make recommendations for energy-efficiency improvements at a property and predict the likely energy savings were the improvements to be installed. The assessment method for commercial buildings will build on the existing SBEM (simplified building energy model) methodology for producing energy performance certificates for non-dwellings; however, it will also allow the actual use of the building to be captured as part of the process, enabling the assessment to produce more accurate predictions of the likely energy savings.

DECC says that it expects green deals in the non-domestic sector to be shorter, to reflect payback in line with lease length. Under the plans, tenants will not be able to attach a green deal to a rental property without the consent of their landlord, while a landlord will need to gain the consent of a sitting tenant in order to attach the green deal charge to their electricity bill.

Although there is theoretically no limit on the amount that can be borrowed to fund a green deal, any improvements must comply with the so-called "golden rule", which states that the cost of the improvements must be paid for with the savings the improvements make. So, if the estimated annual saving is expected to be equal to or greater than the expected annual repayment costs, the deal will meet the golden rule and can go ahead.

And, in addition to renovating buildings to consume less energy and help bring down emissions, many also need to be altered to cope with the impacts of climate change, including higher temperatures and greater risk of flooding. Any low-carbon refurbishment strategy delivered now needs to include sufficient flexibility to ensure immediate energy gains are not wiped out by the demands for future cooling as temperatures rise.

### Opportunity knocks

Fortunately, given the poor energy performance of most buildings in the UK, the scope for energy savings is enormous. Data from energy performance certificates (EPCs) and display energy certificates (DECs) – first introduced under the original Energy Performance of Buildings Directive (2002/91/EC, and recast as 2010/31/EC) – show that, despite the introduction of the Carbon Reduction Commitment Energy Efficiency scheme, which aims to encourage the introduction of energy-efficiency measures, many non-residential buildings in the UK remain inefficient.

The CCC says that of the 336,630 EPCs issued by mid-June 2012, 18% recorded the lowest energy

efficiency ratings, either an F or G, while just 8% achieved a rating of B or higher.

Similarly, of the more than 118,000 DEC's issued to public buildings by the middle of the year, 12% were for the lowest, G, rating. By contrast, under one-quarter achieved a rating of C or higher, with just 748 buildings achieving an A rating.

The CCC notes that raising the rating of the 18% of buildings receiving an F or G EPC to at least an E could be achieved through the take-up of cost-effective measures such as installing better heating controls and energy-efficient boilers.

Likewise, the Carbon Trust says the non-domestic building sector can save at least £4 billion in energy costs by 2020 through low-cost measures, including lighting and heating controls, or better energy management and changing user behaviour. It also reported that the carbon footprint of offices can be reduced by 70–75% by 2050 at no net cost, using options that exist today.

Doug King, a consultant in sustainable buildings and visiting professor of building physics at the University of Bath, agrees. "You can make some very cheap interventions in how you run and use an existing building," he says.

King believes that the energy performance of a building is influenced by many diverse factors, including its location, construction and use of information technology. "The form, frame, aesthetics and choice of materials will all influence the final energy performance of the building as much as the building services installations," he says.

King advocates a retrofit hierarchy that starts with energy conservation, followed by recuperation (such as heat recovery), and finishing with generation (through renewable technologies).

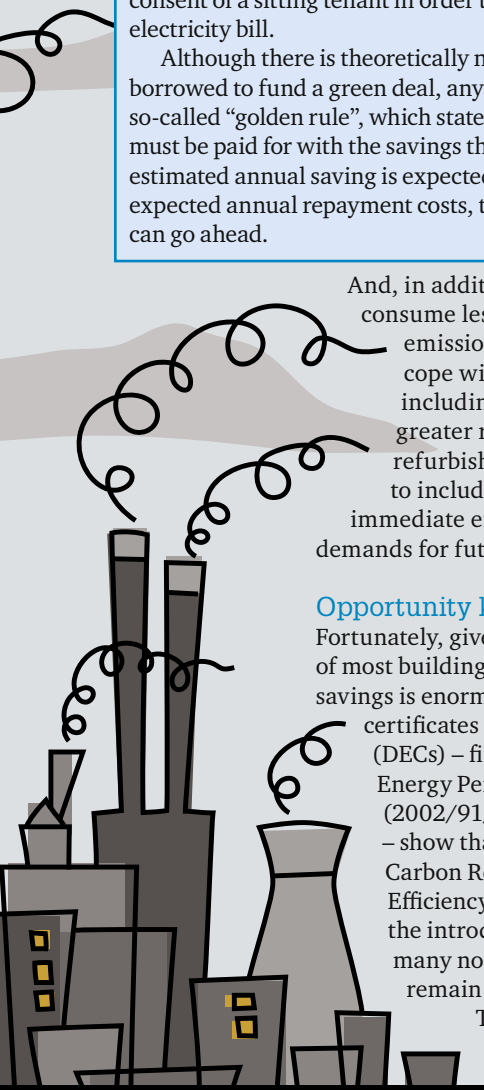
He warns against bolting on "eco-bling", such as photovoltaic panels, to energy-hungry buildings as there is little to be gained in terms of energy efficiency. Much more, however, can be achieved through simple, low-cost measures. "Good housekeeping, energy data and low-intervention controls can cut energy use by up to 40%," claims King.

"After the 'quick wins' then you look at the insulation and more expensive measures. But dealing with the poor state of the fabric of many buildings must be a priority in refurbishment."

### Low-hanging fruit

The first step to conserving energy is to understand where it is used. "Install metering, including sub-metering, to identify where the energy is going. It's often surprising how much is consumed when a building is empty," King warns.

Reducing consumption by getting staff to turn off computers and other equipment when they leave the building can produce considerable savings. The US motor company Ford reported in 2010 that its roll-out of a PC power management system would save the company \$1.2 million annually in energy costs and reduce its annual carbon footprint by an estimated 16,000 to 25,000 tonnes.





## NG BAILEY

Simple retrofit measures, such as replacing 10- to 15-year-old, inefficient light systems with new T5 fluorescent tubes, for example, can pay back in two to three years at most.

Lancashire foundry business Lupton & Place recently reported that its electricity bill would fall by almost £8,000 a year as a result of installing energy-efficient lighting. It means that the payback time for the £20,000 project is just two and a half years.

Controlling heating, lighting and cooling also produces enormous savings. Commercial lighting, for example, consumes 42TWh of electricity in the UK each year, resulting in 22 million tonnes of carbon emissions, and installing lighting controls can reduce energy consumption by 30–40%.

The Carbon Trust estimates that, with heating accounting for more than 75% of a typical service-sector company's energy bill, a 15% saving can be achieved by resetting timers and replacing old controls.

Installing variable speed drives on motors and pumps is another relatively cheap measure to consider. "Pumps are designed to deliver maximum flow during peak demand. But that only happens a few days a year, so they can run slower at other times," explains King. "Variable speed drives have the potential to reduce energy consumption by up to 60%."

DECC's head office demonstrates what is possible through retrofitting. When the newly created energy and climate change department moved into 3 Whitehall Place in early 2009, the 1950s building, which had been refurbished in 2004–05, had a G DEC rating. This July, it received a C rating, even though it is now home to a larger workforce.

"The department has cut its HQ building's energy consumption by 60% and slashed carbon emissions by half," reported DECC minister Greg Barker.

Equipment changes recently made to the building include introducing more occupancy controls on lighting, installing intelligent load-optimisation control units on two gas-fired boilers and equipping fans with variable speed drives, which respond to demand rather than running at full speed all the time. DECC claims the measures have saved it around £156,000 in 2011/12 on energy bills.

"Many of the early changes we made in the building relate to more intelligent use of the building management system – to optimise the controls of our lighting, heating and cooling. These no- or low-cost measures have had – and will continue to have – a significant impact on our carbon emissions, with a short payback period," reports DECC.

Similarly, the mayor of London's Re:Fit initiative for public sector buildings focuses on energy conservation in retrofitting existing buildings.

Examples of conservation measures installed include variable speed pumps and fans, PC shutdown software, voltage optimisation, and lighting upgrades and controls. Transport for London, the London Metropolitan Police and the London Fire Brigade are among the organisations participating in the first phase of Re:Fit, which implemented energy saving measures in 42 buildings across the capital.

Denton Hall in Yorkshire is the head office and training academy of building services company NG Bailey. The firm acquired the grade II listed building in 1979, and in 2006 it started work on improving its environmental performance.

"The first step was to understand fully how much electricity and heating oil the building was using," says sustainability manager Colin Robertson. "Then we focused on the low-hanging fruit, such as the lighting and getting people to turn off computers."

The company also installed wireless sensors and monitoring units to measure energy consumption, and an intranet-connected building management system (BMS) to control heating and lighting. The BMS is programmed in conjunction with the room-booking system, so rooms are only heated when they are (or will be) occupied, and a screen in the reception now displays real-time energy-performance information.

Lighting accounted for up to 60% of the electricity consumption at Denton. The hall has 17 chandeliers containing 344 light bulbs, for example, and NG Bailey had to work with specialist suppliers to replace these with energy-saving alternatives that also met the strict visual controls imposed on the listed building.

The next phase of the retrofit was the installation of 22 solar thermal panels to heat the water. Previously, heating oil accounted for more than 75% of the hall's energy consumption. Siting the panels – on the ground at the front of the building – had to be carefully planned. The units are naturally camouflaged to comply with listed buildings regulations.

NG Bailey has also installed a biomass boiler at Denton Hall. It is fuelled by woodchips certified as sustainable by the Forest Stewardship Council, and provides heat and hot water.

## It's in the fabric

More expensive retrofit solutions focus on keeping the energy inside the fabric of the building – its ceilings, doors, floors, walls and windows. Improving a building's fabric involves taking measures to reduce the thermal exchanges to and from the environment, such as heat loss, from inside to outside, and heat gain, from outside to inside. Improving insulation and replacing old glazing systems, for example, can prevent heat loss or gain.

A poorly sealed building fabric – its airtightness – is a major source of energy loss. Basically, escaping warm air will be replaced by cold air, which will need heating, compromising the efficiency of the heating system and wasting energy.

Windows, for example, can be a major source of heat loss from both conduction and air leakage. Upgrading existing windows by replacing them with units that have a higher U value (thermal performance) will improve the energy performance of a building.

Complete replacement is often impossible, however, particularly if a building is listed. DECC encountered this problem at 3 Whitehall Place, as the windows are listed and could not be replaced with double-glazed units. Instead, the department opted for secondary glazing inside.

Improving the insulation of a building, by retrofitting outside, between or inside existing walls, floor and roof elements is the next stage in improving the energy performance of existing non-domestic buildings. A US study published last year ([lexisurl.com/iema13492](http://lexisurl.com/iema13492)) found that insulation had the highest average year one savings, and at a cost per square metre that was significantly lower than that of HVAC (heating, ventilation and air conditioning) retrofits.



## EMPIRE STATE BUILDING

One of the world's iconic buildings, the Empire State Building in New York, is undergoing a \$20 million energy retrofit. When it is completed in 2013, the refurbishment will help reduce total annual energy use from the 443-metre-tall building by 38.4%, and cut energy bills by \$4.4 million a year – meaning the investment will pay for itself in just three years. And, by 2025, it will have saved an estimated 105,000 tonnes of CO<sub>2</sub>.

"The success of the Empire State Building is not just millions in annual savings and short-term payback, but that any building owner can now follow this process and reduce its energy costs with advance knowledge about costs and economic return," comments Anthony Malkin from the Empire State Building Company.

Each of the building's 6,514 double-paned windows is being refurbished, reusing more than 96% of the existing window glass. The "new" windows, which include the installation of a heat-reflective film and an insulating mixture of gases, are up to four times more efficient at retaining heat and cooling. Beneath each window is a radiator. Each one will have an insulating barrier behind it that reflects 24% more heat back into the building. The radiators are connected to a digital control system to ensure energy consumption is minimal and controllable.

The Empire State Building was completed in 1931 and has four massive chiller units that cool the water providing the building's air conditioning. Water is piped through the building to fan units, which force air past the chilled water to cool the building. The retrofit involves installing variable speed drives to the fans and improved controls, resulting in a 5% reduction in overall energy consumption. Air-handling units on each of the 102 floors cycle air in and out, cooling and ventilating the building. The introduction of variable air volume technology enables the output of the units to match the cooling and ventilating demands of different building spaces.

Every steam valve, pump, louvre, fan and other elements of the building's HVAC system is linked to one of the world's largest digitally controlled wireless networks, enabling 24/7 monitoring and control.

More than 20,000 people work in the Empire State Building in addition to the 3.5 million people who visit each year and tenants now have access to a web-based control system that enables them to monitor energy use. Also, every office suite larger than 232 square metres is individually metered, so tenants can manage their own consumption.



"Overall," the researchers concluded, "insulation appears to be a profitable retrofit. While the total cost of insulation projects is much higher than the other types of retrofits, the savings in comparison are still remarkably high – enough that this type of retrofit would seem tempting."

King warns, however, that improving the insulation and airtightness of existing buildings risks damaging internal air quality and heightening condensation problems. Colin Robertson, sustainability manager at building services company NG Bailey, acknowledges that this could pose a problem. He explains that, although the firm improved the roof insulation of its head office, a grade II listed building (panel, p.19), it decided against other measures to improve the building's thermal efficiency. "We had to consider what problems it would cause if we increased the insulation in a building that was designed for frequent air change," says Robertson.

King says that any improvements in insulation therefore need also to protect against condensation and control ventilation through heat-recovery measures.

Nonetheless, retrofits that aim to enhance the insulation of a building may trigger wider beneficial changes. "Depending on the age of the building, efforts to reduce heat loss may involve recladding the façade. That provides an opportunity to increase the specification for insulation and glazing," explains King.

Recladding may also make it possible to create a façade that maximises daylight while minimising solar heat gain. Heat gain can increase the demand for air cooling if not properly controlled. Windows are the main source of such gain. A relatively simple solution is the installation of solar film on the windows, which admits daylight and beneficial solar gains but reflects a lot of heat away, helping to reduce the need for air conditioning in summer.

However, the refurbishment of Elizabeth II Court, the head office of Hampshire County Council in Winchester (see also p.24) – which included the façade being reclad in timber/aluminium composite cladding with brick on the outer façades to balance daylight, solar gain and airtightness – is an example of a more comprehensive solution. When the 1960s office block was refurbished a natural ventilation system was also installed. Such systems lessen the need for mechanical air conditioning. The building now relies, in the main, on a natural wind-driven ventilation system, which incorporates ducts to draw air out and wind troughs at the top to create suction. At night during the summer the building is also ventilated using automated opening windows.

Overall, the retrofit, which was completed in 2009, has delivered a 70% reduction in energy use compared with the former building.

Overhauling HVAC systems is the most expensive type of retrofit to perform, but updating such systems can result in large energy savings.

### Ideal world

A report last year from the Centre for Low-Carbon Futures, which examined the retrofit challenge facing the UK, concluded that the diversity of the country's building stock in terms of age, use, materials, build type and quality, thermal mass, location, orientation and occupancy means that there is no "one size fits all" solution to effective retrofit. It also noted that retrofitting for energy performance is "always a balance between benefits and costs".

Indeed, refurbishing existing buildings to a level of performance comparable with that of new low-carbon buildings might be prohibitively expensive. And, as only around one-third of the commercial property market is owner-occupied, tenants are unlikely to want to invest if landlords are unwilling to fund even low-cost measures when the benefits may be long term.

That is why the green deal scheme (panel, p.18) and the government's plans to require all privately rented properties, including commercial buildings, to be brought up to a minimum energy efficiency standard – likely to be set at EPC rating E – by 2018 could hold the key to the wider adoption of low-carbon retrofit.

# CEEQUAL provides a helping hand

**C**lean drinking water. Reading at night. Talking to a friend in Australia. Getting from Manchester to London in two hours. These are all “luxuries” created by civil engineers that we now take for granted.

But civil engineers also give us traffic cones, single lane motorways and rail replacement buses. So civil engineering enhances our lives long term but can disrupt many of our lives every day. Can we honestly say that we would give up the benefits for the sake of a little more patience at roadworks?

## Sustainability is the target

If carried out responsibly, civil engineering can create wonderful additions to everyday life. Carried out incorrectly, it can do more harm than good. So project teams need to adhere to industry best practice and not just the legal minimum. Using CEEQUAL is a route to achieving this goal.

With a track record of almost 10 years’ operation, and developed with the support of the Institution of Civil Engineers, CEEQUAL has established a sustainability assessment and rating system that is applicable to all civil engineering projects and contracts. CEEQUAL encourages clients, designers and contractors to go beyond legal and environmental minima to achieve distinctive environmental and social performance in their work.

Over 400 projects (>£20 billion of construction value) have used, or are currently using, CEEQUAL to help them achieve industry best practice and to assess how well they have performed their work.

Many project teams have reported how CEEQUAL has heavily influenced the sustainability of their project’s – and even their company’s – practice.

## In practice

Castleford Footbridge project in West Yorkshire is part of an urban renewal scheme and was assessed using CEEQUAL. This £4.8 million landmark helped to spark regeneration in this former coal-mining town. Construction activities always trigger a risk to the surrounding environment, in this case river pollution and disruption.

As suggested in the CEEQUAL assessment manual, early consultation with the Environment Agency

allowed concerns about potential pollution, risk of flooding and ecological protection to be fully understood. Environmental plans were identified and considered from site specific environmental aspects, and the concerns of the Environment Agency influenced detailed control measures that mitigated these risks. Sustainability was also a major driver in the project specification, enhanced by CEEQUAL’s rigorous questions.

Another project that excelled using CEEQUAL is the A58 diversion scheme. St Helens in Merseyside was

once victim to more than 20,000 vehicles a day congesting its streets, until the scheme relieved residents of this intense nuisance. Although the solution benefited residents, the bypass had to be built through a Stanley Bank, a site of special scientific interest, and a semi-natural ancient woodland.

A proactive approach to project sustainability ensured environmental issues were a “must have” rather than a statutory bolt-on. CEEQUAL helped the team achieve this.

Many processes were introduced to ensure environmental issues remained at the forefront of the project. Central were the construction environmental management plans and site waste management plans (SWMP). Using

industry guidance, the SWMP was developed and implemented on a voluntary basis by the project team to deliver best practice with 76% of total waste recycled, habitat area created and retained, and an overall resident satisfaction of 95%.

## The verdict

By using independent sustainability assessment tools like CEEQUAL, project teams can improve their ethos and, ultimately, their decision making when planning projects. Such tools can open their eyes to the wider repercussions that may be caused, which ultimately can have economic benefits in the long and short term. Managed effectively, civil engineering has every opportunity to provide a sustainable legacy.



Thameslink programme, Farringdon Station redevelopment achieved an ‘Excellent (90%)’ rated CEEQUAL award.



Talk to us at CEEQUAL | 020 3137 2379  
support@ceequal.com or visit  
www.ceequal.com for more information.



# Buildings on the best laid plans

Many well-designed buildings fail to live up to their environmental credentials when the tenants move in. **Richenda Wilson** reports on reducing the gap

**F**ew buildings perform as efficiently and effectively as they are designed to. And not just by an inconsequential margin; often by a factor of two or three when it comes to energy use.

In fact, the “greenest” buildings on paper tend to be the biggest disappointments in practice, according to Roderic Bunn, building performance analyst at BSRIA – the Building Services Research and Information Association. “In theory you can design a low-energy building, but in reality they are anything but,” he says.

## Added complications

Bunn worked with Adrian Leaman and Bill Bordass in the 1990s on the PROBE studies, which examined occupied buildings to see how well they were functioning. The research found there had been too little improvement over the years – despite the increasing urgency brought about by greater awareness of climate change and resource depletion.

Technological fixes have proliferated since the PROBE studies, but many of these have served to make buildings more complicated and more challenging to run efficiently. “Unmanageable complication is the enemy of good performance,” says Bordass. “Many of the cures are worse than the disease and have just created new problems.”

Bordass and Leaman later helped to set up the Usable Buildings Trust ([usablebuildings.co.uk](http://usablebuildings.co.uk)), which aims to bring “honest information about building performance into the public domain”, says Leaman. They find that many new buildings disappoint, not only in energy terms but also have higher than expected running costs and disappointing levels of occupant satisfaction.

One reason why energy use often differs so widely from predicted figures is that compliance calculations look only at fixed building services, assessing energy used by regulated sources, including heating, cooling, ventilation and lighting. However, they need not

account for likely consumption from appliances plugged into sockets or from any IT – although admittedly this is harder to predict. If a building contains a data centre, for example, electricity bills can be high.

Consider VillageGreen, furniture maker Herman Miller's new open plan, naturally ventilated head office in Chippenham, the design of which was rated excellent by the BREEAM building assessment scheme. But when a BSRIA energy assessor visited two years after the building opened, he found it was using twice as much electricity as recommended in the ECON19 good practice benchmark for that type of office building. The discrepancy is largely due to VillageGreen's data centre and permanently lit showroom.

### On display

Display energy certificates (DECs), which have been compulsory for large public buildings in the UK since 2008, are designed to promote the improvement of the energy performance of buildings, and increase transparency about efficiency.

"The DEC is a good tool because it takes into account real energy consumption rather than theoretical performance," says Katharine Deas, managing director of Low Carbon Workplace. "However, it is limited in that the occupancy of the building is only partly considered in the calculations, meaning that sparsely occupied buildings often perform better."

More realistic predictions will help to reduce the gap between anticipated and actual performance, giving a truer picture of whether the building is functioning as it should. This clearly offers advantages to design professionals and building users, but other factors can militate against this. For example, when planning authorities stipulate a requirement to produce a certain proportion of energy from renewables, it can disincentivise project teams from producing higher forecasts of energy consumption.

Architecture practice Aedas is working with RIBA and CIBSE on Carbon Buzz ([carbonbuzz.org](http://carbonbuzz.org)), an initiative that aims to provide a reliable platform to exchange information about predicted versus real energy use. It encourages building professionals to take more account of unregulated loads to make more accurate predictions and then to report back on how buildings are doing to share best practice.

### Evaluating performance

Building performance evaluation (BPE), also known as post-occupancy evaluation (POE), is the key to establishing whether buildings are working as they should. BSRIA suggests evaluations should contain the following three elements:

- **a forensic walkthrough** – an inspection to check the building's operation and identify whether there are any emerging problems or wasteful operational practices;
- **an energy survey** – a breakdown of the energy used in a building by type of consumption, such as heating, air conditioning, lighting; and
- **an assessment of occupant satisfaction** – surveys and interviews of building users and occupiers.

BPE can be very illuminating. Bordass says they often find building controls are poor and tuned incorrectly; design intent is seldom communicated well to users and managers, implicitly or explicitly; and the interfaces to control systems are poor. "Operators and occupiers are not properly informed to take advantage of the design of the base build," agrees Deas. "Also, skills gaps in the technical building management community mean that complex, low-carbon buildings are often without sufficiently skilled operatives."

Bordass believes a large part of the problem is that everybody – designers, builders, clients and the government – tend to see handover as the end of the process, rather than the beginning of the building's life.

"Handover and walk-away is systemically embedded in standard procedures and contracts, so follow-through and feedback are not part of the standard offering. We need to close the feedback loop between construction, property owners and users," he explains.

He says good intentions can fall by the wayside during design development, construction and commissioning for a myriad of reasons. There may be changes in client requirements, fabric or services, for example, or substitutions, problems with build quality or delays.

After completion, there may be fit-out changes and clashes, no fine-tuning or training, unintended outcomes, undetected waste, control problems, poor user interfaces and unexpected night loads, all causing a lot of avoidable waste.

Most problems stem from the fact that there are gaps between responsibilities, and there is not enough communication between developers, engineers, landlords and tenants. "It's not an architectural problem, an engineering problem, a management problem or a client problem," says Leaman. "It's all of these things."

"Evaluation has been resisted by the architectural profession rather than embraced," he adds. "They say they are interested, but it's rare for them to go back into a building and study it."

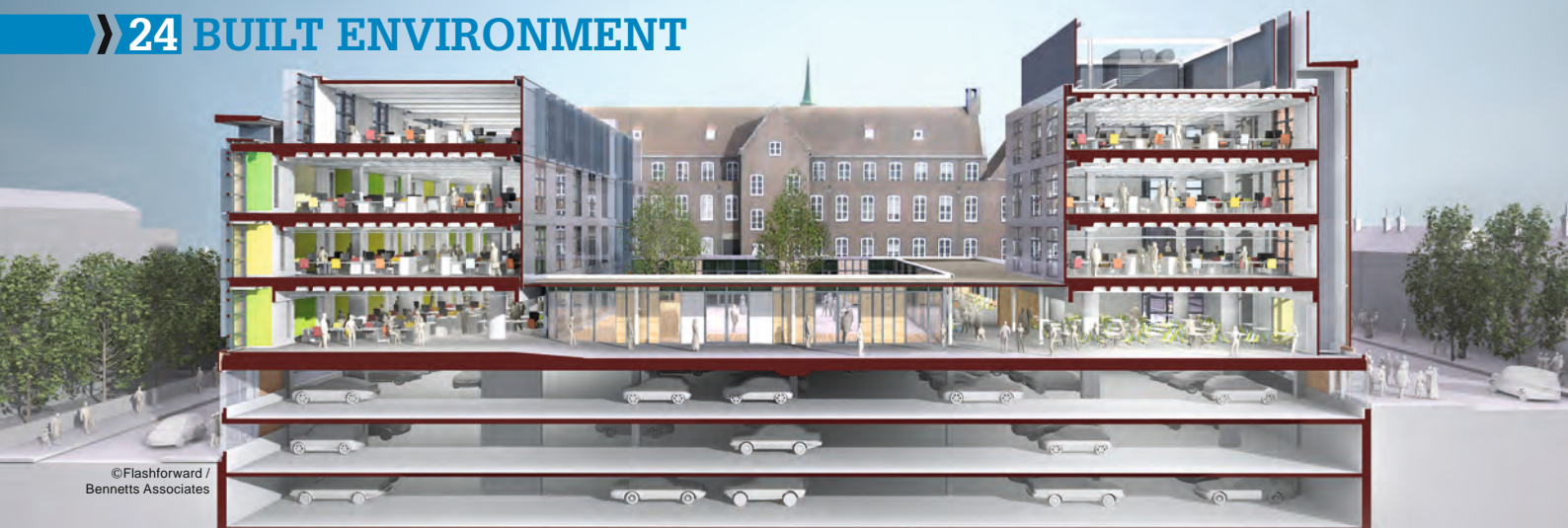
"People often don't want to talk about this and they don't want inconvenient problems," says Jon Ackroyd at architectural practice Architype, which implements BPE on numerous projects. "But if we're really serious about driving down energy consumption then we need to be going back in and understanding those buildings. There are a lot of really interesting lessons to be learned, no matter how uncomfortable they might be."

"Historically people have been reluctant to share, but organisations are getting much better at partnering."

However, it is often difficult to determine exactly whose liability it is when problems arise, says Ackroyd. "Project professional indemnity is already a reality on larger projects. It covers a project rather than individual companies having their own insurance, so you don't sue each other and are more likely to share responsibility. I do think that at least a basic level of BPE should become mandatory – it's an important tool to ensure we achieve the goals we're setting."

The Usable Buildings Trust is less enthusiastic about making such initiatives compulsory, believing that legislation often encourages people to do the minimum they need to in order to comply with regulations.





### A new professionalism

Bordass suggests the industry as a whole needs a new professionalism. Many construction-related institutions already require their members to understand and practise sustainable development. As part of this, the building professional's role needs to be redefined to engage with outcomes. "We need to make much more immediate and effective links between research, practice and policymaking," he says. "And we need a learning curve, not a blaming curve."

The trust is a prime mover behind "soft landings", an initiative now championed by BSRIA. It aims to help designers and builders to engage with outcomes and to follow through for three years beyond practical completion, ensuring that occupiers understand how to best use their building to improve operational performance and to provide valuable feedback to project teams. It dovetails with energy performance certification, building logbooks, green leases and corporate social responsibility.

The five-stage programme starts with encouraging constructive dialogue between the designer, constructor and client at the inception stage. Stage two brings together the project team to review comparable projects and detail how the building will work for managers and users. As buildings often evolve during design, the soft landings team can anticipate this and consider how to respond to the client's calls for adaptations.

During stage three (pre-handover), the initiative enables operators to spend more time understanding interfaces and systems before occupation. In stage four (initial aftercare), there is continuing involvement by the client, design and building team to explore lessons learned and occupant satisfaction in the critical early months of occupation. The fifth stage involves extended after-care and POE for three years after occupation.

The costs for the early stages are relatively insignificant and extra work during the three-year aftercare period should pay for itself by adding value to the building, reducing rework and lowering energy bills.

Soft landings needs high-level support from all partners associated with the project and works best if there is a champion assigned to the project throughout. Its aim is not to apportion blame for defects, but neither does it advocate offering financial incentives for success.

As BSRIA explains: "Soft landings is about identifying things that cannot be classified as defects and which may, in any case, lurk just below the radar of defects and snagging teams – such as shortfalls in performance, in controllability, in manageability and in dealing with unintended consequences of system

operation. Quite often, all that's needed are clear explanations and better user guidance."

### In practice

Hampshire County Council has been using the principles enshrined in soft landings for many years. When the council refurbished Elizabeth II Court in Winchester (see also p.20), it stripped back the 1960s concrete office block to its core and created a building that uses half the energy of its predecessor, while housing almost double the number of staff.

"We were involved with the design team and the Carbon Trust from early feasibility studies through design and execution on site," explains Steve Hall, senior engineering manager at the council, adding that energy use is on target after a bit of fine-tuning.

User satisfaction is a major part of the project for him: "It was very important to keep everyone involved. It is not the occupiers' day job to run and manage the building, but they need to know who to go to discuss issues about the building and the new flexible working arrangements. There's no point having a building that's energy efficient if everyone inside is grumbling. It's important to keep on top of the trivial issues that can become major irritants."

Phase one of the project was seen as a learning phase to inform decisions about phase two – and other refurbishment and building projects in Hampshire.

Architects Archetype used the principles of soft landings at the Willows campus, an educational facility in Wolverhampton, working closely with the users, including primary headteacher Sue Vaughan.

She says that BPE has helped to identify technical issues, such as freezers overheating through inadequate ventilation, as well as informative user-focused activities, including a set of posters to encourage staff and pupils to reduce energy use. Two years after occupation, Vaughan says: "We are still having termly meetings and still picking up issues."

Ackroyd at Archetype adds: "The way procurement works doesn't always lend itself to using BPE or soft landings. With the economic downturn, there is a lot of pressure to reduce costs. It all depends on how enlightened the procurer is and whether they appreciate that, ultimately, it will save them money.

"Such approaches help architects to learn from our projects and we are finding it gives us a competitive edge when bidding for new work."

**Richenda Wilson** is a freelance journalist writing about the built environment.





# Force of nature

Seven years after New Orleans was devastated by Hurricane Katrina, **Suzy Hodgson** reports on the environmental impact and legacy

**S**tranded people stood on rooftops surrounded by torrents of filthy floodwater, debris and bodies, helpless after the terrifying consequences of Hurricane Katrina. These are the horrific images of a flooded New Orleans wrecked by storm surges that will forever be embedded in many people's memories. With 1,836 lives lost, 275,000 homes destroyed, and a record \$90 billion of property damage, the human, social and economic costs were catastrophic and unprecedented.

The hurricane, with wind speeds of up to 175 miles per hour, produced a storm surge that reached 6.7 metres in New Orleans. At least 80% of the city was under floodwater on 31 August 2005, largely as a result of levee failures from the adjacent Lake Pontchartrain. The combination of strong winds, heavy rainfall and storm surges led to breaks in the earthen levee after the storm passed, leaving parts of the city under 6 metres of water.

## Water quality

As flood water and storm water covered the majority of the city, setting up multiple sampling and collection sites, as well as actively pumping the storm water into the lake to prevent health risks, was imperative for authorities. In the event, an estimated 100–200 billion litres of floodwater effluent was pumped into Pontchartrain, which acted as the primary dumping

ground for the floodwater, amounting to about 2–3% of the volume of the lake.

During the months after the hurricane, the US Geological Survey (USGS), in partnership with the US department of the interior and the Environmental Protection Agency (EPA), undertook continuous monitoring and surveyed samples of water and sediment at regular intervals to compare conditions before and after the hurricane.

For the first year following the storm, water quality remained a significant environmental issue. Now, seven years later, what have become the significant environmental issues?

Surprisingly, the majority of the surveys show that Katrina did not have an "appreciable negative effect on the ecological health of Lake Pontchartrain".

The main reason given for the relatively benign impact was the existence of natural continuous flushing and high saline levels, which slowed down the growth of faecal coliform bacteria. Faecal indicators, such as *E. coli*, measured both in the concentration and the distribution of potential pathogens, did not change the overall water quality.

However, it is important to note that the term "didn't change" is a relative term for New Orleans. Lake Pontchartrain has long been a dumping ground or sink for New Orleans, receiving all the city's urban and

»»  
**80%**

of New Orleans was under water on 31 August 2005



industrial drainage. After the hurricane, the lake also became the dumping ground for the floodwaters that engulfed the city.

Initial recovery efforts focused on plugging leaks in levees, clearing debris and repairing water and sewer systems. The US Army Corps of Engineers – the federal agency responsible for canal construction – removed tonnes of turbid water, thick with contaminated sediment left behind by receding floodwaters, much of which was dumped into the lake.

Concentration in sediments did not change significantly, remaining at poor levels both before and after the hurricane. Although 10 out of 20 sediment samples contained lead and arsenic that exceeded the drinking-water standard of the EPA, the contamination was generally reported by the USGS as localised and temporal. Water quality was found to have higher salinity, but within “tolerance levels” of recreational and commercially valued fishing. “Urban” is the operative word. The environmental and ecological problems associated with New Orleans started long before Katrina. The history of development in and around New Orleans had already set the stage for potential disasters.

## Industrial heritage

The state of Louisiana is a leading producer of oil and the second most prolific producer of natural gas in the US. Its offshore waters, which include the outer continental shelf, hold the largest reserves of oil and gas in the country. This oil extraction and production comes at a high cost: between 1932 and 2000, Louisiana lost 4,900km<sup>2</sup> of coastal land, and a further 56km<sup>2</sup> was lost in 2005. The Port of Louisiana handles one-third of all US natural gas and crude oil production. In the 1960s and 1970s, gas production and extraction accelerated, with associated land subsidence and the destruction of New Orleans wetlands.

New Orleans and its surrounding area are 1.3–3.7 metres below sea level, so a network of seawalls and levees have been built to protect city.

Over the years, heavy metals and volatile organic compounds from industrial agriculture and the petrochemical industries have accumulated in lake sediments. These toxics include arsenic, lead, mercury, chromium and xylene. At the time of the hurricane, New Orleans was already the location of several “superfund” sites – industrial sites so heavily polluted



they were designated as requiring federal clean-up. Five of these sites were flooded along the industrial corridor between New Orleans and Baton Rouge.

Long before Katrina, the Mississippi, once a meandering great river, with natural tributaries and wide floodplains, was converted in the New Orleans area to an intracoastal waterway system. Over 10 years, the lower Mississippi was canalised with the main spine of the water highway system called the Mississippi River–Gulf Outlet (MRGO) canal, which was completed in the 1960s and provided a shorter route to the port. In the decade before the MRGO, the central wetlands contained about 32.4km<sup>2</sup> of swamp, 30.7km<sup>2</sup> of freshwater marsh, 16.2km<sup>2</sup> of brackish and salt marsh, and more than 4km<sup>2</sup> of forest. The MRGO cut through several natural ridges, funneling salt water into the freshwater ecosystems, where it killed cypress and freshwater marshes. By 1978, only 0.1km<sup>2</sup> of forest remained.

## Back to nature

These conditions in New Orleans set in motion a larger disaster, not only because of the pollutants associated with oil and gas exploration and production, but also the huge loss of wetlands.

Moreover, local economic conditions did not help. New Orleans is a relatively poor city, with 28% of people below the federal poverty level compared with 12% in the US nationally. Hurricane Katrina shone a







spotlight on these economic conditions as well as the environmental regulations that had been skirted. The EPA found that environmental legislation preventing discharges were not enforced, making what would have been a bad situation much worse.

Four years after Katrina, it was widely recognised that restoring wetlands and coastal forests was imperative to prevent worse storm damage in the future. A seismic shift in thinking had taken place in the academic community over the 40 years since the canalisation of the Mississippi, with scientists understanding more fully the significant role wetlands play for urban development in mitigating the impacts of hurricane storm surges.

The past practice of canalising rivers, which had been seen as expedient for economic growth had the opposite effect, undermining any hope for sustainable coastal development. In July 2009, the Army Corps of Engineers closed and blocked off the main navigation channel, the MRGO. The once-admired shipping channel was widely blamed for the destruction caused by Katrina and, by 2010, the Corps had embarked on a “comprehensive” MRGO ecosystem restoration scheme. The main goal was the “restoration and conservation of estuarine habitat areas”. This plan was made possible because of enabling legislation created after Katrina, the Water Resources Development Act of 2007. The plan includes the construction of a freshwater diversion to

restore historic salinity conditions in the ecosystem, which would help to re-establish historic habitat types, such as cypress swamp. Tens of thousands of square kilometres of wetlands were identified to serve as part of the line of defence against future hurricanes.

#### What lies ahead

The federal government asked an independent panel of experts in 2009 to review the Corps’ investigation of levee failures during Katrina and its plan to avoid such a catastrophe happening again.

Although there is consensus on the role of wetlands in helping to mitigate the impact of hurricanes, there continues to be discussion and differences in opinions as to what level of risk should be accepted. For example, should New Orleans be prepared to withstand a 100-year storm or a 500-year storm? The standards for this preparedness require more resources.

“For heavily-populated urban areas, where the failure of protective structures would be catastrophic, such as New Orleans, the [100-year] standard is inadequate,” the independent panel of experts concluded. Instead, the city should be protected by a “500-year or maybe 1,000-year protection”, the type of engineering standards used in earthquake zones or along major rivers, said Richard Luettich, from the Institute of Marine Sciences at the University of North Carolina and a member of the panel.

The US suffered an above-average summer for major hurricanes in 2011, and over the past 10 years the country has experienced seven out of 10 of the most deadly and costly hurricanes since records began. Last year, the US experienced three 500-year events, including Hurricane Irene, which hit New England and devastated much of Vermont.

Looking back to Katrina, the most deadly and costly of hurricanes to hit the US, the most enduring message would appear to be that extreme weather events are likely to happen sooner rather than later.

As a footnote, when Hurricane Isaac battered New Orleans in August this year, exactly seven years after Katrina, the rebuilt levees and defences largely withstood the onslaught.

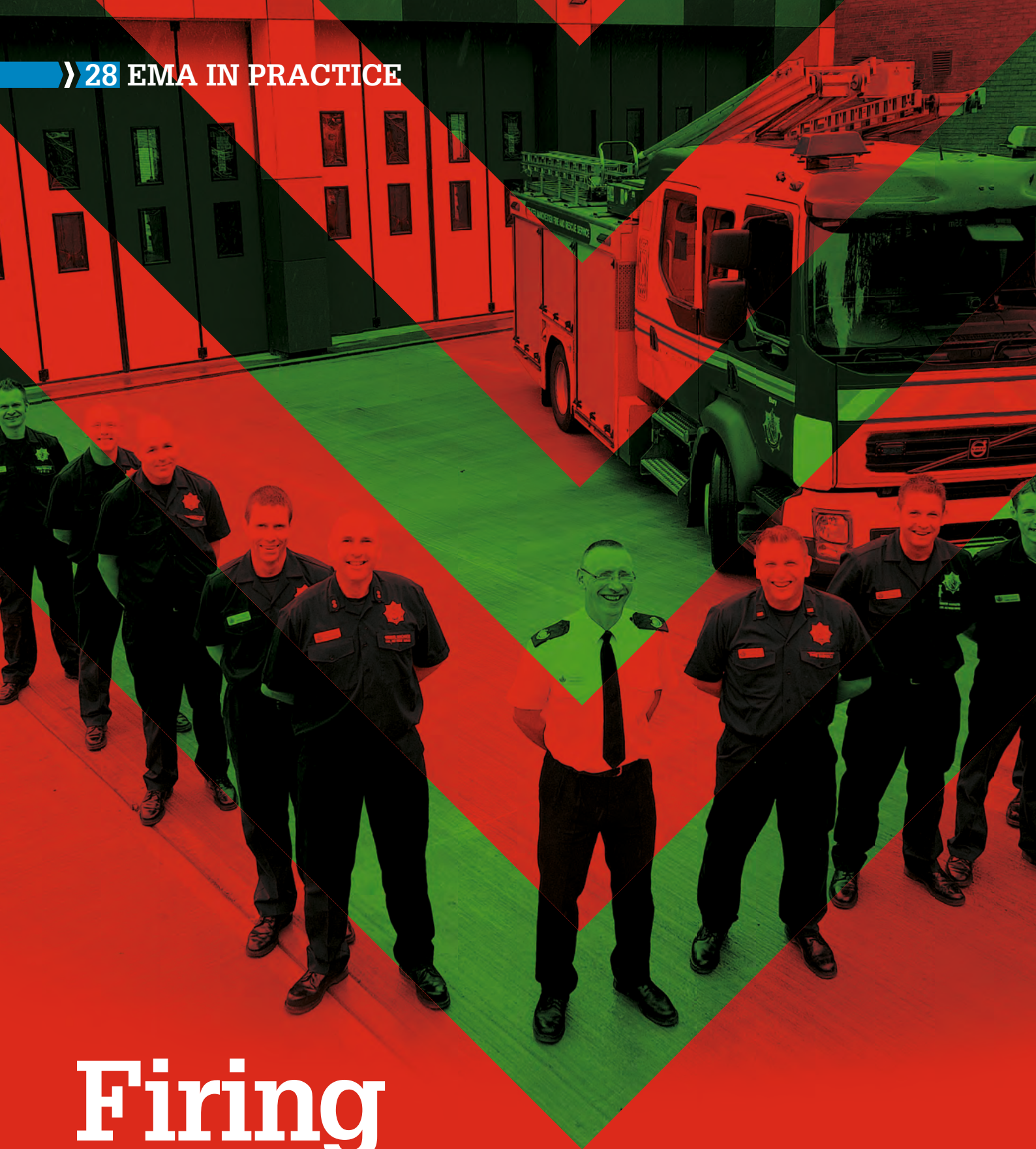
**Suzy Hodgson** is a consultant with Carbon Clear, a provider of carbon management services.

1.3–3.7  
metres

How far  
New Orleans  
is below sea  
level







# Firing imaginations

*the environmentalist* finds out how Greater Manchester Fire and Rescue Service is engaging its staff with protecting the environment as well as saving lives



**M**anchester has the largest fire and rescue service outside London, covering 10 local authorities and 500 square miles. Greater Manchester Fire and Rescue Service (GMFRS) runs 41 fire stations and employs around 2,500 people, most of whom are firefighters. Fire and rescue services face some unique environmental challenges as well as those faced by other, more typical large organisations. For example, a fire service has to operate around the clock, which has implications for energy use. And the bedrock of its service is the operation of an extensive fleet of fuel-hungry fire engines that constantly carry a big tank of water – GMFRS has 66 of these vehicles in its fleet.

As GMFRS's environment manager Sam Pickles explains, the organisation's first priority is saving lives and some unavoidable environmental impacts flow from this imperative, such as the use of water and the potentially contaminated "run off" that is produced from the site of a fire or other incident after firefighters have dealt with the emergency.

Sustainability has, however, been high on GMFRS's corporate agenda for years. "The effects of climate change – such as more wildfires – have a direct impact on our service and so there is strong corporate recognition and leadership on sustainability issues in the organisation," explains Pickles. "Our key challenge is balancing operational performance and saving human life with our desire to improve our environmental performance."

GMFRS is making significant progress in reducing its environmental impact and places innovation at the heart of its efforts to realise its sustainability goals. The steps taken by the organisation to achieve its goal of a 25% smaller carbon footprint by 2014 combine a range of operational changes, partnership working and creativity on the part of firefighters and staff.

### Operational changes

Over the past 10 years, the service has operated an active programme of upgrading and improving the energy efficiency of its buildings to reduce its use of natural resources. It has installed building insulation, double glazing and draught proofing to all sites and some have received energy-efficient technologies. Many have passive infrared occupancy controls to switch off lighting in communal areas when unoccupied and, in 2009, the organisation began introducing smart meters to remotely read electricity and gas use on all of its sites.

Although most of these changes are typical of many organisations' sustainability programmes, other innovations by GMFRS are unique to its existence as a fire and rescue service. For example, historically, emergency services respond to all incidents under blue light or "two tone" conditions – combined flashing lights and sirens. But now the service has introduced a policy of "drive to arrive", which allows its response teams to judge whether an incident requires a full emergency response or can be attended at a slower pace.

To support this policy, all of GMFRS's new engines have been fitted with automatic speed restriction

unless under emergency blue light conditions. This not only helps to increase the safety of its vehicles on the road, but also improves overall fuel efficiency and the associated carbon footprint.

Other operational changes have arisen through the implementation of an environment management system (EMS) across GMFRS – the organisation was the first fire service to reach level three of the Acorn scheme and is on target to achieve ISO 14001 certification by the end of 2012. An example of how the EMS has fostered change is in the storage of large quantities of the foam used to extinguish fires. The foam is an extremely hazardous substance when stored undiluted. Implementing an EMS alerted GMFRS to the need to store the foam in one central, controlled location rather than in several across the county.

The service's building infrastructure is another area GMFRS is proud of when it comes to its environmental performance. The organisation has just completed the second of three new fire stations that have been designed to achieve the BREEAM "excellent" rating.

Bury Community Fire Station (pictured on p.30), for instance, has impressive environmental features incorporated into its design and operation, such as rainwater collection, which meets a significant proportion of demand for vehicle washing and toilet flushing. The building also boasts 30 square metres of solar photovoltaic panels which, combined with solar thermal provision, meets one-third of the station's demand for hot water and more than half of its energy needs.

Also, about one-fifth of the station is built from recycled materials. When the third new fire station is built, the three buildings will collectively reduce GMFRS's carbon emissions by at least 3%.

### Sustainable travel

Reducing the carbon footprint of GMFRS's extensive fleet and staff travel arrangements is a major focus of the organisation's sustainability efforts. In the last financial year (2011/12), GMFRS reduced its fuel consumption by 35,000 litres and associated carbon emissions by 7% compared with the previous year. Total fuel use has decreased by 23% compared with a 2008/09 baseline.

GMFRS has taken a holistic approach to fleet management, reducing direct and embedded CO<sub>2</sub> emissions at all stages of the vehicle life cycle, from construction to day-to-day use and final disposal. For example, the organisation is pioneering the use of 100% recyclable polymer bodywork on new fire engines. One-third of the existing fleet and all new vehicles are now built from this non-corrosive and recyclable plastic, which is more durable than steel; it also reduces the weight of the heavy vehicles by three-quarters of a tonne and fuel use by 6–7%.

All of the service's fleet cars and vehicles are designed to run on biodiesel blends of up to 5%, with newer vehicles capable of receiving blends of 30% or more. However, in recognition that biodiesel crops tie up land that could be used for food production, the organisation does not rely solely on this fuel source and is actively promoting alternative power options, such as





converting the fleet's five vans into hybrid form. Also, all fleet drivers receive fuel-efficiency training and, to back it up, vehicles are being fitted with what Pickles describes as a "very good innovation" – a technical gadget that talks to the drivers, telling them how efficiently they are driving.

On top of these sustainable travel initiatives, GMFRS runs a highly successful cycle-to-work scheme that has had more than 30% staff take-up. In 2008/09, employees cycled 780,565 miles, saving more than £100,000 in individuals' fuel costs and easing their impact on the environment to the tune of 170 tonnes of CO<sub>2</sub>.

## Dampening down water use

Water is, of course, crucial for fire and rescue services to carry out their core role of putting out fires and saving lives, but this doesn't mean that cutting water use is off the agenda. Pickles says that, although optimising water use cannot become a distraction from GMFRS's central task, the service fully recognises that water needs to be used responsibly.

In 2008, GMFRS introduced a remote fire-engine pump telemetry system, which contributes greatly to its goal of monitoring and, where appropriate, reducing water use. As well as accurately identifying the available water pressures and volumes at an incident, it tracks the source of the water. Although fire engines carry a huge tank of water that is initially used to help put out the fire, they also plug into local water hydrants. "This means the service can now gauge whether we need to call a second appliance to an incident," explains Pickles.

Meanwhile at fire stations, vehicle washing is by far the most significant use of metered water. Traditionally, vehicles have been washed at the end of every watch, resulting in large volumes of unnecessary water use.

After trialling pressure washers to reduce water and detergent use, cleaning staff came up with a simpler solution – to clean fire engines and ancillary equipment on a "needs only" basis. The roll-out of this practice across the service has reduced water consumption and detergent use by about 75%, resulting in an annual cost saving of more than £500 per fire station.

## Championing the cause

Promoting more positive sustainable practices across GMFRS is seen as the key to achieving the organisation's environmental aims. To this end, the organisation operates a network of about 120 environmental champions who are viewed as the "eyes and ears" of the sustainability team. The

champions, all volunteers, are engaged in monitoring environmental performance and encouraging resource-efficient behaviour. They carry out weekly checks at their station or site, and take part in quarterly reviews to help ensure compliance with environment legislation.

To support these local environment activists, GMFRS partnered with other fire and rescue services in the North West to develop an "environmental champion's handbook". It provides guidance, tips, case studies, checklists and tools to help champions fulfil their role. The organisation also operates a sustainability working group to implement actions and respond to suggestions and feedback from staff.

Although a key part of their role is to respond to emergencies, including transport accidents and chemical spills, firefighters also spend a great deal of their time promoting fire safety in the community. One of the simplest but most effective ways of doing this is carrying out home safety checks, usually targeting some of the most vulnerable groups in society.

Through fire prevention and partnership with the police, local authorities and other agencies, GMFRS has achieved a 39% reduction in the number of building fires in the past five years. This, of course, has a positive effect on carbon emissions. In the past year alone, there has been a 9% reduction in the carbon footprint from fires in Greater Manchester – from 11,301 tonnes of CO<sub>2</sub> in 2010/11 to 10,297 tonnes in 2011/12.

## Award winners

There is a healthy level of competition between the service's many sites, a dynamic that the sustainability team turns to its advantage through its "green hose" awards. Each station is given a green list of tasks to carry out over a six-month period on which they are graded. Bronze, silver and gold medals are awarded to the best-performing stations. "It is considered a big accolade by staff to be ranked the greenest fire station in Manchester," says Pickles.

Staff are also encouraged to come up with innovative projects themselves to help reduce the organisation's environmental impact and a new scheme offers resources to support ideas with a clear business case. So far this has delivered nine new sustainability projects or technology trials including micro wind turbines mounted on one station's 15-metre drill tower, beehives, LED lighting and rainwater harvesting.

The sustainability team plans to capitalise further on the competition between fire stations. "Our next step is to use the automated metering we have installed at sites to publish and compare the levels of energy used by each shift or watch, to see which uses the least," says Pickles. "Firefighters would definitely rise to that challenge, especially if we offered prizes like a meal for everyone at the site prepared by a celebrity chef using locally-sourced ingredients."

This latest employee-engagement initiative is typical of the innovative nature of much of the sustainability work at GMFRS. It is the many different innovations, both big and small, that will help the organisation to realise its long-term environmental goals.



## Practitioners and policymakers must learn to differentiate between ecosystems services and biodiversity, argues **Jonathan Baker**

**T**he concept of ecosystems services has, in a short space of time, come from being the topic of a few academic papers to dominating discussion about the natural environment, as well as UK, EU and international environment policy.

Ecosystems services are the benefits that individuals and society receive from the natural environment. Such services are the product of ecological and natural processes and include the provision of food (so-called provisioning services); natural areas to enjoy (cultural services); flood abatement (regulating services); and soil formation (supporting services).

To date, much of the ecosystems services debate has centred on attempts to assign a financial value to the environment based on the services it provides. Initially, this idea was perceived by some as reductionist and money-driven, but it is now seen as useful in making the case for protecting or enhancing the environment. This has been clearly demonstrated by the UK's natural environment white paper, which mentions ecosystems services 58 times, and in the European biodiversity strategy, which refers to the concept 23 times.

Throughout these documents biodiversity and ecosystems services are generally synonymous and

there appears to be an assumption that measures to protect or enhance biodiversity will lead to the increased provision of ecosystems services and vice versa. In reality, the relationship between the two is much more complex and there is a risk that by not making this explicit, the positive potential of the ecosystems services concept may be undermined. More importantly, the interpretation of this relationship has real implications for policymakers and practitioners.

### The nature of the relationship

Our understanding of how biodiversity relates to ecosystems services is still in its infancy. The most established way to consider this relationship is that biodiversity is a central part of the machinery that provides ecosystems services. If this machinery is damaged or removed, then the services we receive decrease and can stop, irreversibly.

There is, however, a huge amount of uncertainty in this description. The extent to which biodiversity can be reduced and service provision remain stable is unknown in almost all cases, because thresholds are context specific. As such, the condition of ecosystems services is generally unclear. This signals



# Seeing the wood for the trees



a core difference between the two. Essentially, while ecosystems services have a provable monetary value, it is hard to measure the condition of those services, and while biodiversity can be measured, it is difficult to assign a value to species or habitats.

The UK's woodlands, for example, provide a range of goods and services in the form of timber products, carbon storage and a venue for recreation. They are also one of the UK's most biodiverse habitats. Managing woodlands to balance these various, and often competing, aspects is a challenge: more trees do not equal more wildlife, and more wildlife does not equal more timber products.

This conflict between service provision and biodiversity has led to significant revision of the UN's reducing emissions from deforestation and forest degradation (REDD) programme. REDD provides payments to forest managers to maintain trees to act as a carbon store. Initially the system did not recognise the need to manage biodiversity separately, the assumption being that protecting trees would protect biodiversity. It was feared also that projects would focus on carbon storage alone. As a result, the UN has since launched REDD+, which differentiates between payments for ecosystems services and biodiversity management.

Cultural services are harder to quantify and value. For example, how much is a walk in a park worth? Valuation is possible by assessing individuals' decisions and opinions regarding the natural environment. One of the clearest aspects of valuing cultural services is that experiencing the environment is core to assessing its worth. There is value in knowing there are woods nearby, but visiting the woods exceeds this "existence value". Aside from the difficulties in placing a value on cultural services, there are also conflicts between maximising such services, by increasing visitor numbers, and delivering biodiversity objectives. Conservation activities, such as setting land aside for animal grazing, may be considered as detrimental to recreational use.

When looking more broadly at ecosystems services another consideration is the need for inputs. For example, the value of a fish in the sea is not realised without a fishing net. Effectively, many ecosystems services do not exist without human or capital input. Unlike biodiversity, ecosystems services often require additional infrastructure that in itself may impact biodiversity.

### Separate elements

Considering biodiversity and ecosystems services separately, and their management and enhancement activities as potentially different, has important implications for policymakers and practitioners.

In the first instance, it requires us to understand that biodiversity and, to some extent, ecosystems services are area specific and cannot be replicated as and when they are required. There is, therefore, a need to consider local context and priorities. This can mean focusing on a specific element of biodiversity, such as a target species, in some areas while prioritising ecosystems services, such as flood regulation, in others.

This is not a binary choice; in many circumstances, management and enhancement activities will deliver both improved biodiversity and ecosystems services, but it is not enough to assume this. Rather, it is vital to understand ecosystems services and biodiversity as separate, but related, aspects of the natural environment. Policymakers and professionals then need to consider local priorities within the national context, as well as the potential of the area. For example, is there a local need to improve flood defences or protect a particular species?

Realising ecosystems services through potential tradeoffs with biodiversity is something proposed in the UK national ecosystem assessment. Its lead author, Ian Bateman, suggested there could be significant increases in ecosystems services if low-quality grassland currently used for low-intensity agriculture were to be enhanced through afforestation. In particular, he suggested areas nearest to cities be prioritised as this is where cultural services could be enhanced most efficiently.

Bateman's suggestion signals one of the potential benefits of considering ecosystems services and biodiversity separately. It reveals our ability to pull apart individual services and consider priorities and potential trade-offs. The prioritisation of ecosystems services is not new. We do it when we prioritise growing food, for example, over other services, such as water purification. It's also true that particular aspects of biodiversity provide different ecosystems services, so when we prioritise biodiversity we also prioritise certain ecosystems services. We might as well make this trade-off explicit and consider the potential benefits.

Arguing that the environment is an asset that should be optimised is not particularly appealing, but what it lacks in poetry it makes up for in power and, arguably, represents the logical evolution of ecosystems services thinking. When considering the relationship between biodiversity and ecosystems services it is worth remembering that the primary driver of natural environment policy has been to deliver biological outcomes. With this background there is potentially an argument that we should have a hierarchical relationship, with biodiversity taking priority over ecosystems services. If so, such prioritisation should be explicit, considered and transparent.

By conflating biodiversity and ecosystems services, existing UK policy has potentially missed an opportunity, but thankfully the flexibility of the framework allows for decision-makers to separate and prioritise biodiversity and ecosystems services on local needs. Considering biodiversity and ecosystems services as individual aspects of the same complex system gives us the potential to create a more honest and effective discussion about how we are managing and enhancing the natural environment.

**Jonathan Baker** is a visiting lecturer at Bath Spa University and a consultant for Collingwood Environmental Planning.

# Poll results reveal what professionals want from IEMA membership

**Membership** IEMA's recent survey to establish what members need from their membership has revealed that members at all levels want three things in particular: regular updates; details on new and forthcoming legislation; and *the environmentalist* magazine.

The survey – entitled “IEMA membership: what’s important to you?” – was carried out during August and early September and we received 1,960 responses from members, ranging from students to Fellows.

Initial analysis of the results reveal the terms members used most often when answering the question: “What is your absolute must-have in terms of keeping you up to date?” Across all six levels of IEMA membership, the most frequently cited needs are for updates and information, details of relevant legislation and access to *the environmentalist*.

The findings also highlight the issues and areas that are most important to members in their current jobs. In descending order they are: management, audit, regulation and compliance; pollution to air, water and land; resources, including water; leadership, assurance,

and in what format, as well as other clear requirements outlined by members.

*the environmentalist* will continue to deliver everything you have come to expect from the UK’s leading environmental publication (including special supplements and themed issues) as

“The service is beyond question, the website and online help is fantastic, the updates and magazine are informative and up to date, and the IEMA workshops are great networking opportunities”

accountability and disclosure; impact assessment; and climate change.

Members will be pleased to know that IEMA will be using the survey findings to inform how often we provide regular updates and legislative developments,

it is evident the magazine is an essential feature of IEMA membership.

Other survey findings and further details on how the results will shape future provision and will be published in the November issue of the magazine.

## 83.7%

The proportion of survey respondents accessing IEMA information sources to keep their environmental knowledge up to date

## 51.4%

The proportion of survey respondents accessing IEMA information sources to aid their continuing professional development

## 43.8%

The proportion of survey respondents accessing IEMA information sources to assist them in doing their day-to-day job

## BEST DIPLOMA STUDENT AWARD

On 4 October, IEMA's chief executive Jan Chmiel presented the first Best Diploma Student Award. The recipient of the award, which is presented jointly by the Institute and the manufacturers' body EEF, was Jason Posner, a senior environmental adviser at the Export Credits Guarantee Department, who was recognised for the quality of his work during study for the IEMA Diploma in Sustainable Business Practice, which he completed in 2011. Posner has taken a clear IEMA route through his professional development, having achieved both the IEMA foundation and Associate certificates before commencing study on the Diploma course with the EEF. Posner, pictured centre with Jan Chmiel (left) and Steve Jackson (right) from the EEF's Woodland Grange training centre, received his award during the South East region's October social event. The IEMA Diploma in Sustainable Business Practice was launched in March 2011 and is aimed at members who are working in a business environment. Assignments, for example, are often based on work-related practices. For information on upgrading your membership, visit [lexisurl.com/iema13639](http://lexisurl.com/iema13639).



## IEMA moves head office

**Headquarters** During November, IEMA will be relocating to its new head office in Lincoln. Most of the physical move will happen over a weekend, so any disruption will be minimal and phone lines will be staffed during normal office opening hours. However, there will be some temporary interruption to the website between 2 and 5 November while servers are being relocated. The relocation has been prompted by the end of the lease on St Nicholas House, and the Institute's need for more suitable office space. So, from 5 November, IEMA's new contact address will be: Saracen House, Crusader Road, City Office Park, Tritton Road, Lincoln LN6 7AS.



# Graduate award 2012 now open

IEMA is once again looking for the most inspiring early career environment professional to name as the winner of the IEMA graduate award 2012

Each year IEMA, in partnership with sponsor Land Securities, casts a net among its membership and the wider environment profession to find recent environment studies' graduates who have achieved their first green role and made a real difference to their business.

These individuals may have achieved significant financial savings by applying their recently acquired knowledge to a particular project – notably, reduced carbon emissions through an innovative approach; or effectively engaged stakeholders in their organisation's environmental strategy. Whoever they are, IEMA wants to hear about their achievements and how they have transformed their organisation.

The IEMA graduate award aims to find, nurture and promote emerging talent and to help business and the media understand the vital role that environment professionals – of all levels of experience – play in the green economy. Environmental publications and the *Guardian* newspaper have profiled previous winners and their achievements. The recipients have often gone on to work with IEMA on other projects, so getting involved can lead to great things beyond the initial prize (see panel, below).

Past winners of the graduate award have come from a wide range of organisations and industries and have included not only graduates starting out in their first job, but also career-changers who came to

## How to nominate a colleague or client

To be eligible for the IEMA graduate award 2012, practitioners must have completed a degree course in an environment-related topic in the past two academic years – they must have graduated since 1 September 2010 – and be nominated by a colleague, manager or client using the forms on IEMA's website at [lexisurl.com/iema13636](http://lexisurl.com/iema13636). Detailed evidence must also be submitted to support the nomination, as this is what the judges will use to make their decisions.

Nominees must be available to travel to London on 5 December to attend the award ceremony. Provision towards overnight stay in London will be available if required. The award entry period closes at 5pm on Friday 16 November.



Heather Poore (left) was the 2011 award winner. Runners-up were Laura Duggan and Charlie Symonds

which were of very high quality. The 2011 winner, Heather Poore (pictured above with her award), a youth volunteering project manager at Global Action Plan who graduated with BSc (Hons) in physical geography at the University of Sheffield, was singled out for her exceptional work in helping to turn environmental messages into practical action.

In explaining why she had put Poore forward for the award, her nominator said: "Heather had shown outstanding commitment to inspiring young people to turn environmental messages into action."

Last year's judging panel also praised Poore's "outstanding commitment to inspiring young people" through her work at the behaviour-change charity, saying: "Heather is an outstanding example of how environment graduates are bringing the skills that will embed environmental thinking into business practice."

Receiving her accolade, Poore said: "The award has been a great experience, especially because it has enabled me to meet other graduates and learn about what they are doing."



the environment profession from another sector, and are using the skills developed in other roles to make a difference.

The one thing the winners all have in common is that they have demonstrated exceptional environmental dedication and ability, using their knowledge and talent to create sustainable solutions to their organisations' unique challenges.

Winning, or even being shortlisted, provides a CV boost for individuals early on in their environment career, and demonstrates that their organisation employs forward-thinking graduates and invests resources in innovative projects.

Last year, IEMA received a record 20 nominations for the award – all of

## Graduate award prize package

A shortlist of five nominees will be invited to the Sustainability Leaders Awards ceremony, which is organised by edie.net and *Sustainable Business*, on Wednesday 5 December. One will be named as winner and two will be revealed as runners up. The winner of the IEMA graduate award 2012 will receive a £1,000 cash prize, a trophy and one year's free IEMA graduate membership. The two runners up will each be awarded a £500 cash prize, together with one year's free graduate membership of the Institute.

## The 2012 graduate award judging panel



**Jan Chmiel** is IEMA's chief executive. He has a strong background in building, managing and leading businesses throughout the world in the energy and sustainability sectors. He has held a number of senior roles in several large international organisations, including Shell, BG Group and the Energy Saving Trust.



**Neil Pennell** is the head of sustainability and engineering at Land Securities, the UK's largest quoted property company. He leads a team of specialist engineers and environmental professionals, and his responsibilities include project management of the design, procurement and delivery of building services for the group's major new development projects.



**Will Parsons** is a business journalist and managing editor of the water and environment division for Faversham House. He is responsible for a publication portfolio across print, online and live events in the sustainability, water, waste and energy sectors. Titles include the environmental website edie.net and *Sustainable Business* magazine.

Last year's runners-up (also pictured) were Charlie Symonds, sustainable development engineer at Stannah Stairlifts, who graduated from Oxford Brookes University, and Laura Duggan, environment executive at George Best Belfast City Airport and a graduate of both Trinity College, Dublin and Queen's University, Belfast.

The judging panel (see above) for the 2012 award – IEMA's chief executive Jan Chmiel; Neil Pennell, head of sustainability and engineering at Land Securities; and Will Parsons, managing editor at publishing and events company Faversham House, organisers of the Sustainability Leaders Awards ceremony at which the 2012 graduate winner will be announced – is seeking entries from managers, mentors and clients of graduate environment

## SUSTAINABILITY LEADERS 2012 AWARDS

practitioners who have made cost savings, added value and achieved change in their current role. Specifically, the judges will be looking for individuals who have a mixture of the following:

- they are doing more than just their day-to-day job;
- they have devised something out of the ordinary;
- they can demonstrate passion for what they do;
- they can show measurable results; and

- they have evidence of providing leadership in their organisation.

Entrants for the awards cannot apply themselves; each entry must come via a nomination from a colleague or client. So if you work with a graduate environmentalist who has made a real difference to your organisation and you think they deserve some recognition for their achievements, then why not nominate them? And don't worry if they are not already an IEMA member, as they will receive a year's graduate membership if they win!

The deadline for nominations is 16 November 2012.

To find out more about the IEMA graduate award and how to enter your nomination, visit [lexisurl.com/iema13636](http://lexisurl.com/iema13636). If you have any questions about the award email [graduateaward@iema.net](mailto:graduateaward@iema.net).

## SUSTAINABLE BUSINESS SHORTS

*A new series of half day courses on sustainability communications, collaboration and engagement from the Guardian.*

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20 March

**Building sustainable partnerships**  
15 May

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**Sustainable business**

# Member discount on entry to B4E climate summit

**Conference** IEMA members are being offered a 33% discount on entry to a major conference on addressing climate change. The B4E climate summit 2012, themed “Net zero, climate positive”, will showcase the growth strategies of leading global businesses that are committed to net zero-carbon emissions and the most cutting-edge innovations for climate-positive impact.

Taking place on 26–27 November 2012 at The Hurlingham Club in London, business leaders will share their plans to sequester more carbon than they emit and generate more renewable energy than they consume, as well as describing new business models and services that deliver customer carbon savings. Speakers include Christiana Figueres, executive

secretary at the UNFCCC, and energy secretary Ed Davey.

High-level working groups will bring together leaders from business, governments and non-governmental organisations to discuss sector-wide action on climate change and define the policy changes needed to enable industry-wide transformation. Outcomes from the discussions will be delivered to climate negotiators at the UNFCCC COP18 in Doha, Qatar in November.

IEMA is a skills partner for the event and *the environmentalist* is a media partner, enabling members to claim a £200 booking discount – £390 instead of £590). To find out more about the event or to book, go to [lexisurl.com/iema13603](http://lexisurl.com/iema13603) and quote code b4eL12pen.

# Updating your IEMA details

**Contact** Since September, IEMA has been working with a number of new systems, including a new database to manage our membership records and an updated website. These will help the Institute to deliver an improved and more efficient service to all of our members as we continue to grow. To make sure we are sending you the most relevant news, updates, publications and event invites, we need to ensure the contact details and information we hold in your membership record is up to date. If you have previously logged on to [iema.net](http://iema.net), the most convenient way for you to make sure your details are correct, and update any blank or out-of-date fields, is to log on again and check through your record. Details of how to do this can be found at [lexisurl.com/iema13604](http://lexisurl.com/iema13604).

## More successful IEMA members

IEMA would like to congratulate the following individuals on moving onwards and upwards by successfully achieving Associate, Full, Dual (Full and CEnv) membership and principal environmental auditor (PEA) status.

### Associate – via the Associate entry exam

**Nicola Bannigan**, Xodus Group  
**Christopher Hall**, Environment Agency (NEAS)  
**David Woolford**, Ministry of Defence

### Full

**Adam Clarke**, Glasgow City Council  
**Robert Jones**, ATR Group  
**Alexis Massey**, Environment Agency (NEAS)  
**Alfredo Ramos-Lopez**, J Murphy & Sons  
**Peter Watts**, Workplace Law

### Dual Full/CEnv

**Adrian Barnes**, WSP Environmental  
**Barry Jarvis**, Shell UK

If the success of these members has inspired you to tackle your professional development and upgrade your own IEMA membership, then go to [lexisurl.com/iema13639](http://lexisurl.com/iema13639) to find out how.

## IEMA EVENTS

Date	Region/Time	Topic
<b>Regional events</b>		
31 October	South West	Green drinks (Bristol)
1 November	North West	The green deal – the real deal
1 November	South East	Social (London)
3 December	North West	Visit to Davyhulme wastewater treatment works and anaerobic digestion plant
12 December	East of England	Christmas social
<b>Membership workshops</b>		
7 December	Scotland West	Full and CEnv membership workshop (Glasgow)
14 December	South East	Full & CEnv membership workshop (London)
16 December	North West	Full & CEnv membership workshop (Liverpool)
<b>Webinars</b>		
23 October	12.30–1.30pm	The environmental skills map: are you keeping up to date?
25 October	12.30–1.30pm	Presenting and communicating EIA findings
29 November	12.30–1.30pm	Building environmental mitigation into design
20 December	12.30–1.30pm	EIA leadership: the role of the EIA coordinator





# Economies of scale

James Dixon reveals how consolidating waste contracts at his NHS trust has saved more than £300,000 in 12 months and helped to treble recycling rates

**W**hen I joined Newcastle Hospitals NHS Foundation Trust in April 2010, the sheer size of its waste operation was daunting. As the trust's waste manager, I am solely responsible for the waste produced by six large hospital sites and 20 community sites, which employ 13,000 staff and treat 1.3 million patients each year. Currently, the trust generates more than 4,000 tonnes of clinical and non-clinical waste annually, and it is my job to ensure we are disposing of it in accordance with legislation, as well as to identify opportunities to reduce waste and cut costs.

Soon after starting the job, it was apparent that the first thing I needed to tackle was our contracts for waste disposal. There were a lot of long-standing contracts across the different sites with a variety of contractors, each operating in their own way. I was having to spend most of my time managing invoices and queries.

So we decided to bring together all the contracts, and put out a tender for the whole trust with new environmental requirements, including: increased recycling rates; zero waste to landfill; and accurate monthly data on the weight of waste collected and the amount of carbon created by the different waste disposal routes. This last requirement produced a number of blank looks from contractors, but I persisted and SITA, which won the contract, provides me with this information each month. It means I know that we are saving more than 1,000 tonnes of carbon each year by sending our refuse to energy-from-waste plants rather than to landfill.

## The next steps

The new contract started in January 2011 and it freed me up to start managing our waste better. Now armed with accurate weight data, I was able to focus my attention on increasing recycling in poor-performing sites. It became obvious, for example, that some people were putting all of their paper into confidential waste sacks because there was no other route for recycling. This is, of course, considerably more expensive than simply recycling the paper, so after the dust settled with the new waste contract, and it was clear that we were saving money, I was able to secure £30,000 of funding on a spend-to-save business case to install 200 mixed recycling bins in our biggest hospital, the Royal Victoria Infirmary (RVI).

There is at least one recycling bin for each of the RVI's wards and departments and I began rolling them

out across the hospital last March. They have been a real success in engaging everyone with segregating their waste and I am now installing them in our next biggest site. One of the things I most enjoy about my job is meeting the different teams and raising awareness of the benefits of recycling. When I visit a ward, I log its waste and hold a session with the team, explaining the differences in cost between, for example, the orange clinical waste bags (around £1 to dispose of) and the black bags (which are only 20p). If staff do not understand the costs they will throw everything into the orange bin if it happens to be the one closest to them, but when they are aware of that extra 80p per bag, they start to segregate correctly. With the NHS having to find savings across every department, when I say that a team could save £5,000 by better segregating its waste, ears prick up!

## Boosting baling

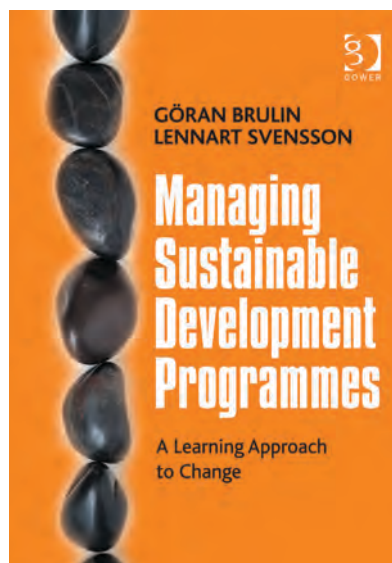
I'm proud to say that we have been able to more than treble our recycling rates from 9% to over 30% in just 12 months, and we are now sending at least 700 tonnes of waste to be recycled each year. The new bins at the RVI contributed to this, but the biggest boost has been in the amount of cardboard we recycle, which has increased 270%. This has been thanks to a combination of new equipment, additional training and more detailed information from SITA.

When I first joined the trust I discovered that some cardboard at RVI was being thrown away with the general waste, this was in part because the porters didn't like to use the cardboard baler. With the change of contracts we got new equipment that the porters prefer, and I also asked SITA to send me photographs of our waste compactors being emptied to ensure that no cardboard was being thrown away. These photos are a great way to keep an eye on things and also give me the opportunity to praise our teams when I know they are recycling all our cardboard. The results are that we now recycle 190 tonnes of cardboard a year, which is worth around £19,000 to the trust in rebates and savings.

Overall, since the introduction of the new waste contract, the trust has been able to save more than £300,000 though diverting waste from landfill and improving our recycling rates. Furthermore, it has helped provide me with the data I need to demonstrate to my senior managers the value of recycling, as well as really get staff onside with segregating their waste.



James Dixon,  
AIEMA

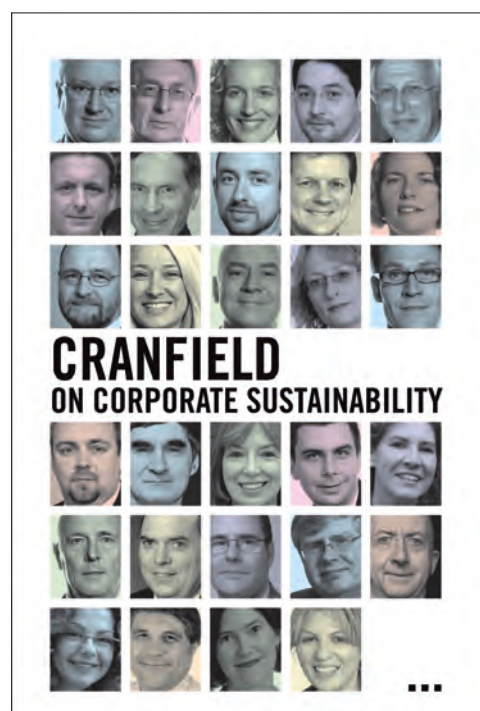


**Managing sustainable development programmes**

Göran Brulin and Lennart Svensson / Gower / Hardback £65 / ISBN: 978-1-4094-3719-2

**BOOK** European structural funds were developed to assist EU member states to improve infrastructure, strengthen competitiveness and increase employment. However, these projects have not always succeeded in achieving their intended aims or maintained their benefits after funding ended. It is important, therefore, to ask how such programmes can be designed to deliver more effectively, achieve long-lasting results and incorporate continuous improvement into their methodology. In this book, Brulin and Svensson have developed a strong critique of traditional programme implementation, reviewing the role of the project manager and the suitability of linear programme logic. Instead, they advocate active-ownership management, with a focus on stakeholder collaboration and dynamic learning to provide a multiplier effect for projects. They also highlight aspects of programme design that will allow activities in projects to continue after funding ceases. The book offers an alternative to traditional project management where the “planning- and method-steered project thinking is supplemented, and to some extent replaced, by an alternative view of knowledge formation where processes, learning, innovation and coordination are central elements”. This book provides useful insights for all those involved in managing complex projects.

*Review by Darren Chadwick, director at Brite Green and sustainability tutor at Oxford University*

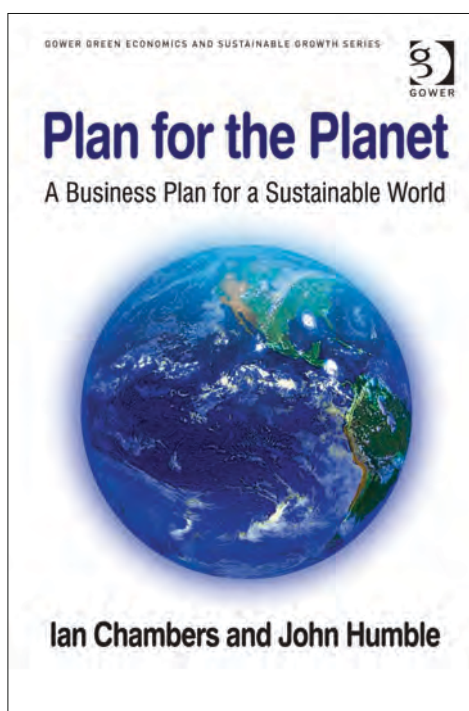


**Cranfield on corporate sustainability**

David Grayson and Nadine Exter / Greenleaf / Paperback £21.95 / ISBN: 978-1-906093-82-2

**BOOK** This academic study explores how to develop responsible and ethical business leaders, and consists of essays from Cranfield faculty members that aim to encourage debate on how to embed and improve management of corporate sustainability. The result is thought-provoking, particularly for those who face the challenge of integrating sustainability into their organisations. However, it isn't clear who this book is aimed at; be that business schools, sustainability professionals or business leaders. Bite-sized chapters cover themes from board-level governance to how to achieve sustainable product development. Common difficulties in engaging employees with sustainable practices are highlighted and solutions are suggested for how to gain support. The book also provides useful insights into the sustainability practices of high-profile organisations from research undertaken at Cranfield and touches on key initiatives and collaborations. The book admits there is no silver bullet to create a sustainable organisation and that it's a big task that can't be achieved overnight; however, Cranfield has delivered a credible study that provides a valuable contribution to developing responsible business.

*Review by Alex Butcher, environmental adviser at Cable and Wireless*



**Plan for the planet**

Ian Chambers and John Humble / Gower / Paperback £19.99 / ISBN: 978-1-4094-4589-0

**BOOK** This book examines the various potential threats to global civilisation, including climate change, energy, water, poverty, and finance, and advocates an interconnected plan to address them. The authors describe their plan and how governments, businesses and individuals can take part, which is certainly an interesting approach. Case studies detail how different countries and organisations have approached countering some of the threats and provide insightful examples of where the advocated methodology has been used successfully in the past. Meanwhile, the illustrations included are particularly useful in elucidating the barrage of statistics. I recommend this book to anyone who wishes to understand the global threats we face and it should certainly be read by those who operate at the macro level. The statistics included in the book will potentially be most useful for those operating within organisations in engaging stakeholders with sustainability issues. If we, as a planet and a species, do become truly interconnected this book will show, from a sustainable perspective, the way to deal with global threats.

*Review by Andrew Fletcher, director at consultancy ESP*



## Environmental Planners (EIA) Glasgow or Edinburgh



### About us:

LUC is dedicated to conserving and enhancing the environment and promoting sustainable development on behalf of our clients. With more than 45 years' experience, our specialist team of over 100 staff is located across four UK offices. Our work is underpinned by core values of respect, integrity, drive and excellence.

Our clients include central, devolved and local government, public sector agencies, regulatory bodies, private sector companies and the third sector, both UK and overseas.

### About the role:

We are seeking to expand our team of EIA project management specialists in Scotland (we have offices in Glasgow and Edinburgh) and invite applications from Environmental Planners at all levels of EIA experience. We are also willing to consider applications to work on a part time basis.

Working as part of the Company-wide team, you will be responsible for contributing to our EIA projects, which currently include, but are not limited to, wind energy developments and associated energy infrastructure. The role will include:

- Supporting, co-ordinating or project managing EIA projects including liaising with project team members, clients and external organisations
- Managing survey programmes and organising access to sites
- Producing Environmental Statement (ES) chapters

We are registrants of IEMA's EIA Quality Mark Scheme

### About you:

You will have a good degree in a relevant discipline, i.e. planning, geography, or the environmental field and preferably will have completed a post-graduate qualification in, or covering, Environmental Impact Assessment.

Membership at an appropriate level of the Institute of Environmental Assessment and Management (IEMA) is desirable but not essential as the candidate can work towards membership with LUC.

We are looking for candidates at all levels of experience of EIAs which will ideally include wind energy projects.

Candidates must have good organisational skills with the ability to manage tasks and time, using initiative. Also important for this role are excellent communication skills, report writing and the ability to build effective relationships with colleagues and clients.

For further details about LUC please visit our website [www.landuse.co.uk](http://www.landuse.co.uk)

To apply please email your CV and a covering letter, quoting reference: 2012-27 to Helen Ash, HR Manager at [HR@landuse.co.uk](mailto:HR@landuse.co.uk)

LUC is an equal opportunities employer.



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## Environmental & Safety Information Manager

Are you looking for a challenging and rewarding role in a dynamic industry? FTPE is a train operating company which carries over twenty six million people across the North of England every year and employees over 1000 staff across its network. We are part of FirstGroup Plc which is the UK's largest transport organisation.

Here at First TransPennine Express (FTPE) we have an excellent opportunity within our Safety department for an Environment and Safety Information Manager based at our head office in the centre of Manchester.

The purpose of this role is to provide a comprehensive environmental and safety information management service to the business, responsible for maintaining and developing our existing environmental and safety information management systems.

The main responsibilities include: the management, facilitation and the continuous improvement of the company's Environmental Management System; provide environmental expertise and standard setting and to ensure full compliance with applicable legislation and ensure that the ISO14001:2004 and 50001:2011 standards are maintained and developed. You will also be responsible for the management of the companies' accident and incident reporting system using the rail industries Safety Management Information System (SMIS).

Applicants will preferably hold or be able to demonstrate the following:

- Possess a diploma or equivalent qualification in an Environment based subject preferably coupled with a relevant Health and Safety qualification (e.g. NEBOSH or IOSH) and experience within an EHS role
- Have extensive knowledge of ISO14001:2004
- Have extensive knowledge of ISO 50001:2011
- Have a working knowledge of OHSAS 18001:2007
- Excellent computer skills
- Excellent communication and influencing skills
- A good analytical mind and strong attention to detail with the ability to set and follow processes
- Knowledge of the rail industries Safety Management Information System would be advantageous

As well as receiving an attractive salary, you'll also benefit from a final salary pension scheme, generous holiday allowance and free travel for you and your family on First TransPennine Express services.

To apply for this role please visit [www.firstgroup.com/careers](http://www.firstgroup.com/careers)

The closing date for this role is: Monday 5th November 2012.



## Environmental Health Services

### Environmental Protection Officer (Contaminated Land)

Reigate, Surrey

£28,197 - £36,996 (dependent on qualifications and experience)

This is a specialist role within a busy and changing Environmental Health Service, responsible for the investigation of potentially contaminated sites, the preparation and submission of applications for grant funding and the commissioning and supervision of remediation works. You will also be required to provide advice to the public and to property developers based upon the interpretation of records and scientific data.

You will have experience of working with contaminated land issues and hold a degree or equivalent in the Environmental Sciences area. Ideally, you will have worked in local government or some other public service organisation and have experience in an enforcement role.

For an informal discussion, please contact Peter Long, Housing and Pollution Team Leader on 01737 276131, or email [peter.long@reigate-banstead.gov.uk](mailto:peter.long@reigate-banstead.gov.uk)

For more information about the role and to apply online, please visit [www.surreyjobs.info/employers/646-reigate-banstead-borough-council](http://www.surreyjobs.info/employers/646-reigate-banstead-borough-council)

Closing date: Noon on Friday, 9 November 2012.

The Council is committed to equality and opportunity for all. We welcome applications from people of all ethnicities but are only able to consider applications from persons already eligible to work in the UK.

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RPS

# Exciting new job opportunities

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Due to continued growth we are seeking highly motivated and dynamic individuals to grow our Hydrology and Flood Risk team in both office locations.

## **Principal Flood Risk Assessor/ Hydrologist**

**Manchester**

An experienced individual is required who has previously worked within a consultancy, has flood risk assessment and project management skills. Also has knowledge of Mike 21, Infoworks RS, HEC-RAS and Map-info

## **Drainage Technician/ Engineer**

**Bristol**

Previously to have worked within the flood risk assessment environment, carrying out storm and foul water drainage design to 'Sewer for Adoption' standards, to have had experience of SuDS, 3D Auto CAD and WinDes MicroDrainage.

## **Senior Flood Risk Assessor/ Hydrologist**

**Bristol or Manchester**

Previous experience of modelling packages (including linked 1D/2D flood modelling preferably MIKE FLOOD), project management and SuDS.

For more information on the team or to apply please contact the recruitment team on

01483 746 500 or

[energyrecruitment@rpsgroup.com](mailto:energyrecruitment@rpsgroup.com)

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\*IEMA courses are delivered in association with CAMBIO