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In the eye of the storm

Last year was an exceptional one for extreme weather events, from heatwaves and droughts to wildfires and floods. In the US alone, 2012 brought the most expansive drought since the “dust bowl” era of the 1930s, Hurricane Sandy devastated parts of the Atlantic coast, and severe and long-lasting thunderstorms – known as “derechos” – caused widespread power failures across several states. It was also the wettest year on record in the UK and extreme flooding affected Australia, Brazil, China, the Philippines, and several African countries, including Nigeria and Rwanda. The first six months of 2013 have followed a similar pattern, most recently with swathes of central Europe and parts of Canada and India submerged by floodwater.

The financial cost of these events is escalating; the human cost is often beyond imagination. According to the National Oceanic and Atmospheric Administration (NOAA), there were 11 extreme weather events in the US last year that each cost at least \$1 billion. The \$110 billion price tag the NOAA has attached to the 11 disasters makes 2012 the second costliest after 2005 – a year that included the costs associated with Hurricane Katrina. Preparations to limit the damage of future potential disasters also need a lot of money. New York City, which was hit badly by Hurricane Sandy, is planning to spend \$20 billion over the next 10 years building an extensive network of flood walls, levees and bulkheads along its 520 miles of coast to better protect it from future storms.

The Intergovernmental Panel on Climate Change has warned consistently that more frequent and intensive weather events were likely. Its 2011 SREX report forecast that the frequency and magnitude of extreme high temperatures would increase, resulting in longer and more frequent heatwaves, while the number of heavy precipitation events would rise, implying more floods. A report last year from the UN concluded that climate change had contributed to extreme events in many regions over the past 50 years. Meanwhile, a separate study, from researchers at the Potsdam Institute for Climate Impact Research, discovered strong evidence linking heatwaves and extreme precipitation events to human influence on the climate.

Hurricane Sandy and other recent extreme weather events may have spurred the US into action on tackling climate change. Speaking recently at Georgetown University, Barack Obama listed recent droughts and flooding across America when arguing for the introduction of measures to reduce US greenhouse-gas emissions.

“We know that no single weather event is caused solely by climate change. Droughts and fires and floods go back to ancient times. But we also know that in a world that’s warmer than it used to be, all weather events are affected by a warming planet,” he said, using the example of the flooding caused by Hurricane Sandy to illustrate his point.

Among the initiatives unveiled by the president was an agreement with his Chinese counterpart to curb the production and consumption of dangerous hydrofluorocarbons (p.6), which have significantly greater warming potential than carbon dioxide. This could help pave the way for a new international agreement on climate change by 2015 – some 19 years after the last Democrat in the White House, Bill Clinton, signed the Kyoto protocol. However, it’s worth remembering that one of the first actions of Clinton’s successor, George W Bush, was to withdraw the US completely from the accord.

Extreme weather events may have spurred the US into action on tackling climate change. Obama referred to recent droughts and floods when arguing for measures to cut GHGs



Paul Suff, editor

Short cuts

Separate powers stay

The Environment Agency and Natural England (NE) will remain separate entities after Defra completed its triennial review of the two bodies. However, both have been told to continue to reform how they deliver their services and drive further efficiencies. The environment department says the review identified significant opportunities to reform the delivery of the functions and services undertaken by the agency and NE, including better integration of land management activities and consolidation of the bodies' planning processes. Defra also wants the organisations to develop effective partnership working, further reduce regulatory burdens and secure more reforms to back-office procedures.

Backloading back on?

The European parliament has voted in favour of new proposals to delay the sale of allowances under the emissions trading scheme (ETS) less than three months after rejecting the measure. Plans to "backload" allowances in the current phase of the ETS (2013–20) are designed to counteract the surplus of credits that is pushing the price of carbon to record lows. In April, MEPs refused to back the European Commission's plan to withhold the sale of 900 million allowances until 2019. However, on 3 July, MEPs voted in favour of amended proposals from the EU parliament's environment committee. The new plans would limit EU authorities' power to amend the arrangements for selling allowances to a single change during the current phase of the scheme and require that credits be reintroduced in a "predictable and linear manner" the year after being withheld. The proposals must get the backing of member states before they can be adopted. Meanwhile, the city of Shenzhen launched the first pilot ETS in China. The scheme covers 635 companies in the industrial sector, which generated 31.7 million tonnes of carbon emissions in 2010. Under the Shenzhen ETS, firms must reduce their carbon intensity by more than 30% on 2010 figures by 2015.

MPs favour mandatory sustainability reporting

As new regulations introducing mandatory greenhouse-gas (GHG) reporting were laid before parliament, the environmental audit committee (EAC) urged the government to consider forcing companies to report on more of their environmental impacts.

In its report on the outcomes of the Rio+20 summit last year, the committee welcomed the inclusion of GHG emissions in company reports for UK-listed firms, but suggested that the government should go further and potentially mandate sustainability reporting. "The government should examine the scope for introducing mandatory sustainability reporting for the private sector, going beyond the emissions reporting requirement," conclude the MPs.

They want the government to mandate firms to report in line with the requirements imposed on Whitehall in 2012. Central government departments now have to provide details of their GHG emissions, waste management performance and resource use



(including water) in their annual reports. Departments are also required to describe how they are making procurement more sustainable and their progress against biodiversity strategies.

According to the National Audit Office, most departments met the main obligations in their first reports, which covered 2011/12, although only three of the 15 met all the requirements. The EAC urged Defra to take a lead in helping other departments to comply with their sustainability reporting commitments.

GHG factors to cause 'pain'

Organisations using Defra's greenhouse-gas (GHG) conversion factors to calculate their carbon footprints are being warned they may have to adjust their baseline data after significant changes to the guidance on emissions from electricity.

After a review in late 2012 to simplify the GHG conversion factors, the environment department has made a number of revisions, including scrapping the five-year rolling grid average to calculate emissions from electricity generation, confirming that a one-year grid average must be used in future. It also says emissions created through energy losses in the grid should be included in scope three calculations rather than scope two, as some organisations have done in the past.

The changes mean that many firms will have to recalculate their baseline emissions and Carbon Smart, the consultancy that revised the factors on behalf of Defra, acknowledged that "there will undoubtedly be some short-term pain" for some companies. However, it maintained that the simplifications would benefit users in the long term.

John Buckley, managing director of consultancy Carbon Footprint, agreed that some changes to the guidance were beneficial, but warned that others could result in considerable work for companies.

"The explanations about which factors to use are much simpler and easier to understand, but for firms that have been assessing their carbon footprint for a few years there are some quite nasty surprises, which mean they will have to do some work to recalculate past emissions," he said.

In particular, Buckley believes the clarification that emissions from grid losses and distribution are scope three rather than scope two will generate additional work. "If you've got a system that automatically calculates your scope one, two and three emissions, you will now have to rejig how it works to make sure that you've got the right numbers going into scopes two and three."

However, he acknowledges that the changes could make the process simpler for firms "if Defra sticks with them". The new GHG factors are available from: ukconversionfactorscarbonsmart.co.uk.

Spending plans cut Decc and Defra

Defra's budget will be cut by a further 9.6% in 2015/16 under spending plans announced by the chancellor. Decc, meanwhile, will have another 8% shaved from its budget.

The cut to the administrative budget of the environment department is one Whitehall's largest and leaves Defra with £100 million less to spend in 2015/16 than in 2014/15. The Treasury says it expects Defra to save £54 million through "better joint working" between the department's bodies, which include the Environment Agency and Natural England. Although Defra's overall capital expenditure budget will remain the same between 2014/15 and 2015/16, it will fall 7.7% in real terms.

The latest financial settlement for central government departments means that between 2010, when the coalition came to power, and 2016, Defra's administrative budget will have declined by more than 30% – from £2.3 billion in 2010/11 to £1.6 billion in 2015/16.

The energy and climate change department, meanwhile, is expected to save £83 million in 2015/16 through

administration "efficiencies", such as replacing IT systems and by cutting costs associated with external bodies, such as the Nuclear Decommissioning Authority. According to the Treasury, the completion by 2015/16 of major programmes, such as the electricity market reform and the green deal, will enable Decc to reduce its resources.

George Osborne told parliament that regulators, had agreed a £78 million cut in costs in 2015/16.

This means most bodies, including the Environment Agency, are facing a 5% real-term reduction.

The lower settlement for Defra will also affect other bodies, including Wrap, which is partly funded by the environment department. Wrap has announced that the amount of money it receives from Defra will fall by 40% over the next 18 months – taking it to £15.5 million in 2015/16.



Chief executive Liz Goodwin said less money from Defra would mean that Wrap has to focus on fewer priorities and stop doing some lower impact work. She also said the environment department currently provides less than half of Wrap's income. "We will still be receiving significant funding, which will allow Wrap to continue to achieving improved use of resources," she said.

Spending review short cuts

Funds for flood defences

The government is planning to boost spending on flood defences in England. In 2015/16, £370 million of capital expenditure will be dedicated to protecting a further 300,000 properties from flooding. This will be followed by annual rises in line with inflation until 2020/21. Under the previous spending review – covering 2011/12 to 2014/15 – annual capital expenditure on flood defences was set at £259 million, although an additional £120 million was made available in November 2012, which will be split over the final two years of the settlement. The announcement of the 2015/16 funding for flood defences assisted the government and the insurance industry to agree a new settlement on flood insurance. Defra is now consulting on its preferred approach to the future of flood insurance (lexisurl.com/iema15801). About 5.2 million properties in England are at risk of flooding and annual flood damage costs about £1.1 billion.

GIB gets more money

The Green Investment Bank (GIB) will receive an extra £800 million as a result of the 2015/16 spending review. The cash is in addition to the seed funding provided by the government at its launch in November 2012. Business secretary Vince Cable said the extra finance would enable the bank to allocate £3.8 billion until 2016 in its priority sectors, which include non-domestic energy efficiency, offshore wind, the green deal and waste. The government has also given the bank the option of borrowing up to a further £500 million from its national loans fund (NLF). The business department describes giving the GIB access to finance through the NLF as an important step, enabling the bank to demonstrate a record of making healthy profits from its investments in green infrastructure while borrowing at a commercial rate. According to its first annual report, the bank has already directly committed £635 million to 11 projects which have a total value of £2.3 billion.

Energy infrastructure

The 2015/16 spending review was accompanied by further details on plans to develop the UK's energy infrastructure, including the so-called "strike-price" to support renewable generation, which aims to help renewables contribute at least 30% of total power by 2020. Strike prices, which are part of the government's electricity market reform, guarantee what payment renewable energy providers will receive for producing electricity. The first strike prices to be unveiled by Decc cover wind, tidal, wave, biomass conversion and large solar projects, and are available between 2014 and 2019. The government has also published the findings of research to estimate the potential shale gas resources in 11 counties in the north of England. It found that, on a central scenario, there is likely to be around 40 trillion cubic metres of shale gas in the ground in these areas. Government plans to support shale gas extraction include a new streamlined planning and permitting regime.

In Parliament



Floored by the carbon price

The Finance Bill is what gives substance to the Budget each year, fleshing out the details of the chancellor's announcements. It is in the small print of this Bill that you sometimes discover the true meaning of what was outlined in the Budget. Such is the case with one largely forgotten item in this year's mass of measures: the chancellor's complete rewrite of the carbon price support.

The carbon floor price (CFP) will come into effect this year and will be charged to high-carbon-intensity energy generators at a cost of £4.94 per tonne of carbon emitted. In the small print of the Bill is the price the CFP will be over the next few years, almost doubling next year to £9.55 per tonne and rising, by 2016, to almost £15. This wasn't how it was supposed to be. When the CFP was first announced in 2010, it was proposed that the price of carbon should rise to £30 per tonne by 2020 – though this was mainly through the EU emissions trading scheme (ETS). It was planned that the ETS would add a small top-up on to the likely CFP. Of course, the price of carbon has collapsed in Europe. It has fallen so far that the “target” of about £16 per tonne of carbon will now almost wholly be borne by the CFP.

The result of all this is that there is a wide gap in the energy cost between those EU countries sticking to the ETS and the UK with its CFP. It is almost certainly a policy that cannot be maintained long term unless something gives. It could be that the ETS price recovers or that the UK changes the policy to ensure we get some actual carbon savings from the CFP, perhaps through the investment of the income from the tax in energy-saving measures. Or perhaps, we should simply be given our money back. This will have to be debated in parliament. What will MPs do? Will they take the money and bury it or will they redistribute it to support low-carbon measures?

Alan Whitehead, Labour MP for Southampton Test and energy and climate change committee member

MEPs support ban on f-gas

The European parliament's environment committee has voted in favour of banning hydrofluorocarbons (HFCs) from new fridges and air-conditioning units, just days after the US and Chinese presidents agreed to work together to cut the use of the powerful greenhouse gases.

Fluorinated gases (f-gases), which include HFCs, have a warming effect on the atmosphere that can be thousands of times stronger than carbon dioxide. However, f-gas emissions have increased 60% since 1990 as they have replaced ozone-damaging chlorofluorocarbons in cooling equipment and aerosols.

The committee voted in favour of an amended version of the European Commission's proposed new F-Gas Regulation to replace existing Regulation 842/2006. MEPs want tighter targets on cutting HFCs and an export ban on appliances using f-gases to prevent them being dumped outside the EU. Under the committee's proposals, HFC consumption across the bloc will by 2030 fall to just 16% of current levels, and the use of f-gases in some products, such as fridges, freezers and air conditioners, will be phased out entirely between 2015 and 2020.



Possible 2020 ban on HFCs in new air-conditioning units

The developments in Europe followed confirmation that US president Barack Obama and his Chinese counterpart, Xi Jinping, had agreed that joint international action was needed to curb HFC emissions. A statement from the White House revealed that the US and China are to work together, alongside other countries, using the UN's Montreal protocol to “phase down the consumption and production” of HFCs.

Achim Steiner, the executive director of the UN Environment Programme, welcomed the move, describing it as important in potentially paving the way to a multilateral agreement.

Record carbon from energy

The amount of carbon dioxide produced meeting the world's energy needs reached unprecedented levels in 2012, despite growing deployment of renewable technologies, confirms the International Energy Agency (IEA).

According to the IEA's latest analysis, global energy-related carbon emissions increased by 1.4% on 2011 levels to a record 31.6 billion tonnes. Falls in emissions, as a result of the shift from coal to gas-fired electricity generation in the US, deployment of renewables and continued economic turmoil in the EU, were offset by rises from developing economies.

The agency warns that, unless governments take action before 2020 to improve energy efficiency and support the shift to low-carbon energy sources, emissions from the sector will be too high to halt global warming at 2°C by 2050.


“Climate change has slipped to the back burner of policy priorities. But the problem is not going away. If we continue with business as usual, [global temperature]

rise could be 5.3°C,” warned Maria van der Hoeven, IEA executive director.

The report concludes that the equivalent of 10% of the world's annual energy-related emissions could be abated by 2020 if policymakers act now. Greater energy efficiency, particularly in buildings, through the deployment of energy performance standards and more efficient heating systems, for example, could save 1.5 billion tonnes of CO₂. A further 1.6 billion tonnes could be abated if fossil fuel subsidies were cut, inefficient coal-fired plants closed and methane emissions from oil and gas production prevented.

Separate research from the IEA estimates that renewable technologies will be generating almost 25% of the world's electricity by 2018, up from 20% in 2011.

“As their costs continue to fall, renewable power sources are increasingly standing on their own merits versus new fossil-fuel generation,” commented van der Hoeven. She warned, however, that policy uncertainty could stymie growth.



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Climate change threatens firms' overseas supply chains

The impact of climate change around the world poses a much greater threat to the UK economy than its effects nationally, says business services company PwC in a report for the environment department.

The study considered the threats and opportunities under an emissions scenario consistent with a 2°C rise in global temperatures and found that threats significantly outweigh opportunities.

Short-term risks include damage to the overseas assets of UK companies and rising price volatility for food, energy and other traded resources – and these risks are likely to be amplified by protectionist reactions to extreme weather events. Longer term, a changing climate will undermine the resilience of global supply chains for many key resources, says PwC.

The report highlights the relatively large amount of UK investment abroad (£9.9 trillion in 2010), and says this

exposes domestic investors and the insurance industry to damages to physical and financial assets from climate-related events. It points out the floods in Thailand in 2011 cost Lloyd's of London £1.4 billion.

PwC's analysis also draws attention to the UK's reliance on food imports, which account for nearly half of its food consumption, and the risks to these supplies from climate change, reporting that the 2008 and 2011 rises in global food prices were triggered by drought overseas.

Opportunities identified by the research include the increased potential for UK companies to export its climate adaptation goods and services.

Meanwhile, the United Nations says 2013 should be a "turning point" in how governments view and respond to extreme weather, particularly floods, such as those recently in Canada and central Europe. "Many countries have experienced huge



Climate change impacts overseas will result in volatile food prices

losses over the last two months due to intense precipitation events, which have triggered extreme flooding," said UN special representative for disaster risk reduction, Margareta Wahlström.

"When we look at the worldwide escalation in economic losses from disasters over the last five years, it is clear that our exposure to extreme events is growing and this trend needs to be addressed through better land use and more resilient infrastructure."

From environmentalisonline.com...

Plan A pays

The sixth annual progress report from Marks & Spencer on its pioneering sustainability programme, Plan A, confirms that resource efficiencies and new business created as a result of the initiative resulted in a net benefit of £135 million during 2012/13 – £30 million more than the previous year. The retailer also continued to cut emissions and reduce the amount of waste it produces. During 2012/13 M&S's carbon footprint was 23% smaller than in 2006/7. Annual carbon emissions have fallen by 160,000 tonnes and the energy efficiency of its operations have increased to 31% per square foot, reports M&S. After failing to meet its 2012 target to cut water use, the retailer now says that it has surpassed its original goal. M&S had aimed to reduce water consumption by 20% per square foot against a 2006/7 baseline and in 2012/13 it had cut water use by 27%. environmentalisonline.com/M&S

Online WTNs

More than two-thirds of large and medium-sized waste companies support the new online system to replace paper waste transfer notes, according to a survey for the Environment Agency. The "edoc" system, which the agency has been developing with its counterparts in the devolved administrations over the past four years, is due to go live in January 2014. It will provide firms with a free online portal to complete and submit waste transfer notes (WTNs). Under UK law, businesses must complete a WTN for every load of waste transported from one party to another. Currently, 23 million paper WTNs are created each year and 50 million are stored for reference. The edoc system will, according to the regulators, not only cut the cost of storing the forms, but also help to reduce the time spent completing, filing and searching for them, as well as improve the quality of data held by them. environmentalisonline.com/eWTN

Ashden prize

The UK firm behind a ventilation system that cuts energy use by up to 90% and a school that has reduced its carbon footprint by 60 tonnes a year were among the winners at the 2013 Ashden awards. Fourteen awards were presented to organisations in recognition of their efforts to boost uptake of renewables or improve energy efficiency either in the UK or overseas. Buckinghamshire-based Monodraught was named a UK winner by the judges for its "ground-breaking" COOL-PHASE system, which uses natural ventilation to provide low-energy cooling. Other UK winners included: Hollybush Primary School in Derry, Northern Ireland, which cut CO₂ by engaging staff and pupils with saving energy; and a partnership between the Sustainable Energy Academy and social-housing developer, United House, which came up with more efficient ways to install insulation and cut costs by 20%. environmentalisonline.com/Ashden

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More chemicals registered under REACH

A further 2,923 chemicals were registered with the European Chemicals Agency by the end of May as firms raced to meet the second deadline under the EU REACH Regulation (1907/2007) for substances manufactured or imported in quantities of 100–1,000 tonnes a year.

The preliminary figures from the agency reveal that it received 9,084 registration dossiers from 3,215 companies by the 31 May deadline. The data covers so-called “phase-in” substances, meaning that they have been available in Europe since before 1 June 2008.

Since REACH was launched in 2008, a total of 6,598 substances have been registered. However, a report earlier this year from the European Commission found that many dossiers containing technical and safety information did not comply with the rules and that registrants often failed to effectively assess the bioaccumulative and toxic properties of chemicals. The Helsinki-based body says it will now check the latest



registration dossiers and produce a final list of substances by early September.

The agency has also added six substances – cadmium; cadmium oxide; ammonium pentadecafluorooctanoate (APFO); pentadecafluorooctanoic acid (PFOA); dipentyl phthalate (DPP); and 4-nonylphenol, branched and linear, ethoxylated – to the REACH candidate list, bringing the total to 144. The move follows agreement by the agency’s member state committee that all six chemicals are substances of very high concern.

Inclusion of a substance in the candidate list imposes wide-ranging legal obligations on those companies manufacturing, importing or using them.

Transparency cuts energy

Companies that publicly state energy reduction goals are more likely to invest in measures to improve efficiency and access renewable sources than less transparent organisations, according to the latest global energy efficiency indicator study by Johnson Controls.

The survey of more than 3,000 energy managers reveals that firms with public targets implement 50% more efficiency and renewable energy measures than those without goals. Of the companies polled that have published energy targets, 64% have a dedicated capital budget for energy improvements and 59% have established an energy management team. The equivalent figures for firms with no set targets are 31% and 18%.

Cost reduction is not the main driver for greater energy efficiency, according to the study, with those companies most active on energy management also citing reputation and raising property values as important benefits.

Meanwhile, researchers from the universities of Harvard, Reading and Imperial College London claim increased

use of cloud computing services will cut energy consumption and help reduce global environmental damage.

The study says 11.2 TWh less energy will be consumed annually if 80% of public and private organisations in Europe, Brazil, China, Canada and Indonesia switch to cloud-based email, customer relationship management (CRM) and groupware solutions for their staff. This is equivalent to 25% of the energy consumed each year by London.

“Contrary to the perception of power-hungry data centres, the energy efficiency of cloud infrastructure and its ‘embedded carbon’ outperform onsite services by an order of magnitude,” said Dr Peter Thomond, who led the study.

Luis Neves, chair of the Global e-Sustainability Initiative (GeSI), which sponsored the research, commented: “Cloud-based email, CRM and groupware are only the tip of the iceberg. In 2012, GeSI found that large-scale, systems-enabled broadband and information and communication technologies could deliver a 16.5% reduction in global emissions.”

Short cuts

Scottish biodiversity plan

The Scottish government has unveiled a revised biodiversity plan, which supplements the 2004 strategy and outlines desired outcomes for the end of the decade. Entitled the *2020 challenge* (lexisurl.com/iema15822), the plan differs from the 2004 document by providing greater detail in some areas and setting out measures to achieve international goals, such as the so-called Aichi targets, and those outlined in the EU biodiversity strategy for 2020. The Scottish plan contains three main aims: protect and restore biodiversity on land and in seas; connect people with the natural world; and maximise the benefits for Scotland of a diverse natural environment.

Cooking up carbon

The UK’s catering sector could save more than one million tonnes of carbon and £250 million each year by being more energy efficient, according to research by the Carbon Trust. Organisations can reduce their kitchens’ energy consumption by around 30% through optimising equipment use, better kitchen designs, tailoring menus and behaviour change programmes, says the trust. To assist catering firms in improving their sustainability credentials and to cut costs, the trust has worked with Defra and catering industry bodies, including the Catering Equipment Suppliers Association (CESA), to develop a new carbon measurement tool for the sector (carbontrust.com/cateringcalculator). Nick Oryino, chair of CESA, said the calculator had the potential to radically change the way in which capital and operating expenditure costs are judged in the sector and ensure that more efficient equipment is manufactured.

Correction

The June issue of *the environmentalist* (p.36) mistakenly said practitioners had to be a Full member of IEMA for seven years to be eligible for Fellow status. It should have said candidates must be a Full member with seven years’ environmental experience.

UK's carbon goals at risk

The UK will not meet its third or fourth carbon budgets unless urgent action is taken to boost emissions reductions, government advisers have warned.

In its latest report on the UK's efforts to meet the long-term, legally-binding CO₂ targets, the independent committee on climate change (CCC) concludes that the UK is not achieving the 3% annual emissions reductions necessary to meet the budgets, which span the years 2018 to 2027. This is despite improvements to the energy efficiency of the housing stock and record levels of energy generated by wind turbines during 2012. The report highlights as major causes of concern the low-uptake of energy-efficiency measures in commercial properties and limited implementation of energy-saving activities by industry.

New approaches are required to ensure increased uptake of such measures, says the CCC. It argues for stronger government incentives for firms to save energy and suggests introducing minimum standards for energy efficiency in non-residential buildings.

Designing goods for circular economy worth £1.4 billion

Adopting a life-cycle approach to product design could prevent more than 140 million tonnes of recoverable waste being sent to landfill by 2020. The change would generate £1.4 billion for the UK economy, says the Environmental Services Association (ESA) in a new report.

The ESA estimates that 395 million tonnes of potentially recyclable waste will be processed in England by the end of the decade, but says that on current trends only 255 million tonnes will have been recovered and reused.

It wants the waste sector to work more closely with product designers to ensure resource recovery at the end of a product's life is considered at the outset, and that more recycled materials are used in goods.

"If we work together to change the way products are designed, we can avoid the current trend of one-third of potentially recyclable material being lost to the economy," said ESA chair David Palmer-Jones. "This is vital for resource efficiency and security and to reduce environmental impacts, including greenhouse gas

emissions. The future of our industry is to turn all waste into a productive resource."

In its report, the ESA champions the "great recovery" programme from the Royal Society of Arts, which aims to engage product designers with the circular economy. It argues that, if best practice approaches to waste recovery were adopted by all large retailers, an extra 2.5 million tonnes of recyclate would be collected by 2020, with a value of £250 million.

The waste body also wants EU policymakers to do more to support the circular economy, recommending that recyclability requirements are set for some products using powers in the Ecodesign Directive (2005/32/EC) and that VAT rates are reduced for goods that contain a high proportion of recycled materials.

Meanwhile, research carried out for IT company Hewlett Packard suggests that government plans to simplify the producer responsibility regulations for electrical and electronic waste would save businesses and local authorities up to £64 million each year.

EIA Update

iema

EIA Directive battle lines

The revision of the Environmental Impact Assessment (EIA) Directive (2011/92/EU) is taking shape, with greater clarity on the respective positions of the European Council and the EU parliament's lead committee on the European Commission's proposed changes. The council's proposals (lexisurl.com/iema15815), which are still in development, will be taken forward by the Lithuanian government, which is beginning its six-month presidency of the EU. Thusfar, the proposals show good alignment with IEMA's position (lexisurl.com/iema15816) for a more practical evolution of the Directive. The EU parliamentary committee met to confirm its proposed amendments as *the environmentalist* went to press. Meanwhile, the outcomes of seminars on the EIA Directive run by the Scottish government, to increase understanding of the likely impacts of the proposed changes on Scotland, are now available from lexisurl.com/iema15817.

Transboundary EIA

In May, the European Commission launched guidance on the application of EIA to large-scale transboundary projects. The guide provides a useful overview of the key terminology, procedural steps and details of when other countries should be informed. The document is free to download from lexisurl.com/iema15818.

UK planning systems

The library at the House of Commons has launched a research paper (lexisurl.com/iema15819) describing and comparing the current land use planning systems operating in the four UK countries. It sets out the extent to which similar changes to those in England have been made in other administrations, and usefully describes the changes planned for each country. Also, the Scottish government has published research (lexisurl.com/iema15820) reviewing the transposition of the EIA Directive in Scotland. It sets

out recommendations for improving the effectiveness of the EIA regulatory regime in north of the border.

Forthcoming guidance

New guidance from the Scottish government on EIA practice, which will replace PAN58 and include a major revision to the 2006 toolkit for strategic environmental assessment (SEA), will be published before October. Meanwhile, at the end of July, RenewableUK will launch its guiding principles on undertaking cumulative impact assessment for offshore renewable projects.

SEA and the 'green' economy

The International Institute for Environment and Development has published *Turning green the strategic way* (lexisurl.com/iema15821). The report explores links between SEA and the green economy, particularly how such assessments can support policies, planning and decision-making for green growth in international initiatives.



Recent Prosecutions

Cambridge University pays out £35,000 for slurry spills

Polluting tributaries of the River Great Ouse twice in the same year has resulted in the University of Cambridge being fined a total of £28,000. Cambridge magistrates' court also ordered the university to pay costs of £7,363.

The penalties were imposed after slurry from Park Farm in Madingley, Cambridge, which is owned and operated by the university, entered the tributaries in May and June 2012. Investigation by Environment Agency officers on the first occasion revealed that slurry had entered the Beck Brook tributary via an unknown drainage pipe, affecting a 1.9km stretch of the stream and damaging water quality. One month later, slurry from a second field escaped in multiple directions, again through unidentified drainage pipes, entering field ditches leading to Beck Brook and Callow Brook. The second incident followed heavy overnight rain, which waterlogged the field.

Claire Corfield, prosecuting for the agency, told the court that the causes of both incidents were the same and that the university had failed to take appropriate preventive measures after the first incident. Tankering the slurry, for example, could have prevented a second episode of pollution.

The university pleaded guilty to two offences under the Environmental Permitting (England and Wales) Regulations 2010. A spokesperson said the incidents followed misjudgments on expected rainfall and soil moisture levels. The university also admitted that the amount of slurry applied both times was estimated to have been in excess of the recommended rates provided in the code of good agricultural practice guidance.

In a statement, the university said it deeply regretted the incidents, adding that it had investigated the circumstances and that measures have been put in place to ensure there would be no repeat. The university has spent in more than £4,500 on a new flow meter and on a remote emergency engine stop for its spreading system.

Silt costs three construction firms

Failing to prevent silt entering a watercourse during construction work has cost three companies a total of £18,000 in fines and £8,229 in costs.

Redditch magistrates' court was told that a large quantity of silt had entered Battlefield Brook, Bromsgrove, in January 2012, polluting the watercourse for at least a mile, with levels of solid matter suspended in the water more than 250 times higher than normal. Environment Agency officers traced the source to a nearby building site, where earthmoving equipment had been tracking through the brook and bulldozing the banks.

Investigations found that three companies – Cala Homes (Midlands) and RM Contractors and Complete Tree Services – had failed to take simple measures to prevent silt entering the brook during the clearance works. Poor judgment, failure to assess the risk and inadequate monitoring of the work were highlighted as contributing factors to the pollution. Cala Homes and R M Contractors were each fined £8,000,

while Matthew Lea (trading as Complete Tree Services) was fined £2,000. All three firms were also ordered to each pay £2,743.72 in costs.

Sellafield fined £700,000

Mislabelling four bags of low-level radioactive waste and sending it to landfill has cost Sellafield Limited, the operator of the UK's largest nuclear facility, £772,000 in fines and costs.

The company had pleaded guilty at Workington magistrates' court in February to seven environment and safety offences, including multiple breaches of the Radioactive Substances Act 1993 and the Environmental Permitting Regulations 2010, and one offence under the Health and Safety at Work Act 1974.

Magistrates sent the case to Carlisle crown court for sentencing. It fined the firm £700,000 despite the waste being retrieved and disposed of correctly, and confirmation by the Environment Agency and the Office for Nuclear Regulation that no contamination had resulted from the waste being sent to landfill.

Case Law

Planning condition rules out habitats assessment

Under the Conservation of Habitats and Species Regulations 2010, which transpose the Habitats Directive (92/43/EEC) in England and Wales, a project that could have an adverse effect on a special area of conservation (SAC) must carry out an appropriate assessment of the implications for the site's conservation objectives.

In *Feeney v Secretary of state for transport* [2013] All ER (D), the secretary of state made an order under the Transport and Works Act 1992, permitting works to be carried out on an existing railway and for a new length of track to be constructed. The railway ran close to an SAC, which included a hay meadow habitat considered a site of special scientific interest (SSSI).

At inquiry, Natural England argued that further survey work was required to satisfy the requirements of the 2010 Regulations and the Habitats Directive. A condition was included in the planning consent stating that, before a particular part of the development could start, further assessment of air quality on the relevant parts of the SAC had to be approved. As a result, any deposition of nitrogen oxide on the SAC would be monitored, and, if necessary, mitigation measures implemented. The purpose of this condition was to assess, and then eliminate, any lingering uncertainty over whether the development would harm the conservation area, though that outcome was considered unlikely.












The uncertainty in the predictive data could not have been eliminated by an assessment before the railway came into operation, said the court, dismissing the application to overturn the granting of consent.

Jen Hawkins and George Hobson

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New Regulations

In force	Subject	Details
1 Apr 2013 	Regulation	The Natural Resources Body for Wales (Tax Consequences) Order 2013 deals with the financial implications of transferring property, rights and liabilities from the Countryside Council for Wales to the recently formed Natural Resources Body for Wales. lexisurl.com/iema14930
1 Apr 2013  	Regulation	The Public Bodies (Abolition of the Commission for Rural Communities) Order 2012 abolishes the Commission for Rural Communities, which was established by the Natural Environment and Rural Communities Act 2006. lexisurl.com/iema13912
1 Apr 2013 	Waste	The Landfill Tax (Amendment) Regulations 2013 amend the 1996 Regulations, including increasing from 5.6% to 6.8% the maximum credit a landfill site operator may claim against annual landfill tax liability. lexisurl.com/iema15186
1 Apr 2013 	Water	The Water Fluoridation (Proposals and Consultation) (England) Regulations 2013 supplement the provision for the fluoridation of water supplies made under part 3 of the Water Industry Act 1991. Specifically, they impose procedural requirements on local authorities when proposing new, or changes to, fluoridation schemes. lexisurl.com/iema14622
3 Apr 2013 	Air quality	The Smoke Control Areas (Authorised Fuels) (Wales) (Amendment) Regulations 2013 adds eight new fuels to the list of authorised fuels in the schedule to the 2008 Regulations. The Smoke Control Areas (Exempted Fireplaces) (Wales) Order 2013 revokes and replaces with amendments the 2012 Order. lexisurl.com/iema15195 ; lexisurl.com/iema15203
6 Apr 2013  	Energy	The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 amend the 2012 Regulations by setting new fees for entering documents on the register. lexisurl.com/iema14939
6 April 2013 	Energy	The Marine Licensing (Exempted Activities) (Amendment) Order 2013 amends the 2011 Order and applies to any area, and any licensable marine activity in that area, where the secretary of state is the appropriate licensing authority by virtue of s.113 of the Marine and Coastal Access Act 2009. lexisurl.com/iema14933
6 Apr 2013 	Planning	The Infrastructure Planning (Prescribed Consultees and Interested Parties etc.) (Amendment) Regulations 2013 amend the following five statutory instruments: The Infrastructure Planning (National Policy Statement Consultation) Regulations 2009 (reg.2); The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (reg.3); The Infrastructure Planning (Interested Parties) Regulations 2010 (reg.4); The Infrastructure Planning (Compulsory Acquisition) Regulations 2010 (reg.5); and The Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 (reg.6). The Infrastructure Planning (Miscellaneous Prescribed Provisions) (Amendment) Regulations 2013 amend the schedule to the 2010 Regulations, which contains lists of consents and authorisations prescribed for the purposes of s.150(1) of the Planning Act 2008. The Infrastructure Planning (Fees) (Amendment) Regulations 2013 amend the 2010 Regulations and are intended to provide clarity about the days that can be counted in calculating the final payment for the handling of an application for development consent. lexisurl.com/iema14934 ; lexisurl.com/iema14935 ; lexisurl.com/iema14936
6 Apr 2013 	Planning	The Town and Country Planning (Fees for Applications and Deemed Applications) (Scotland) Amendment Regulations 2013 amend the 2005 Regulations by increasing all fees by around 20%. lexisurl.com/iema15188


To find new regulations by jurisdiction visit environmentalisonline.com/search and enter your search criteria

Latest Consultations




1 Aug 2013

Community energy

 A call for evidence on how best to support community energy projects or initiatives aimed at reducing, managing, generating or purchasing energy has been issued by Decc. The research forms part of the energy and climate change department's plans to promote such projects. Examples of existing schemes include a community-run advice service in Hampshire promoting energy efficiency and a community-owned wind farm near Swansea.
lexisurl.com/iema15688

30 Aug 2013

Carbon leakage

 The European Commission is consulting on its methodology for determining which industry sectors and subsectors will be deemed as being exposed to a "significant risk" of carbon leakage throughout 2015–19. The EU Directive 2009/29/EC on the emissions trading scheme (ETS) introduced a harmonised approach to the free allocation of ETS allowances to industry from the start of 2013, with organisations from sectors most exposed to carbon leakage receiving a greater proportion of free allowances than non-exposed sectors. In 2009, the commission determined a carbon leakage list that was valid until the end of 2014. The commission needs to

update the list up to 2019 and, because the Directive does not define the criteria for identifying industries at risk of leakage, the authorities rely on "assumptions" to decide which sectors to include. This consultation provides stakeholders with an opportunity to give their opinions on these assumptions.
lexisurl.com/iema15685


2 Sep 2013

Recycling and waste

 A consultation paper seeking views on policy options for a Recycling Bill that will contain powers to introduce a statutory recycling target for local authority collected municipal waste has been issued by the department of the environment in Northern Ireland. Proposals for the Bill have been developed following a consultation in 2011 on a new recycling policy for Northern Ireland.
lexisurl.com/iema15690

5 Sep 2013


Planning guidance

 The Welsh government is consulting on a draft technical advice note (TAN) on economic development. TAN23 focuses on national planning policy and advice, ensuring it supports sustainable economic growth and renewal. The note also provides guidance for planning authorities considering site allocation or planning

permissions that could cause harm to social and environmental objectives. It proposes that in such circumstances the authority poses three questions: Are there alternative sites for the proposal? How many direct jobs will result from the proposal? And would such a development make a special contribution to policy objectives? The consultation asks whether stakeholders agree that these are the correct questions for local planning authorities to ask when assessing the benefits of applications.
lexisurl.com/iema15689

10 Sep 2013

Waste targets

 The European Commission is reviewing the waste management targets in the Waste Framework Directive (2008/98/EC), the Landfill Directive (1999/31/EC) and the Packaging and Packaging Waste Directive (94/62/EC). The three directives require regular assessment of targets. The review also aims to bring the targets in line with the commission's ambitions for resource efficiency, which were included in its roadmap on resource efficiency. The commission's aspirations for a resource efficient Europe are also set out in its proposal for a seventh environmental action programme, *Living well, within the limits of our planet*.
lexisurl.com/iema15687

New Guidance

CRC

UK environment regulators have updated the following guidance documents on the carbon reduction commitment (CRC) energy efficiency scheme: *Assessing qualification and registering for phase II* (lexisurl.com/iema15693); *Allowance payment etiquette* (lexisurl.com/iema15694); and *Annual report calculator guide* (lexisurl.com/iema15695). Updated screenshot guidance is also available at lexisurl.com/iema15696 on ordering allowances, trading allowances and annual reporting (phase I).

GHG reporting

Environmental reporting guidance from Defra has been updated to include mandatory greenhouse-gas (GHG) emissions reporting (lexisurl.com/iema15697). The environment department says the revised guidance is designed for companies complying with the reporting regulations, as well as organisations that report voluntarily on a range of environmental matters, including GHG reporting and the use of key performance indicators. New emissions conversion factors are also available (ukconversionfactorscarbonsmart.co.uk).

Planning

The Environment Agency, Forestry Commission and Natural England have jointly published *Building a better environment* (lexisurl.com/iema15698), which explains, for the first time in one place, their respective roles in the planning process for new developments. The document is described as the "first stop" for information to help developers make the most of their development for both people and the environment. It also provides links to more detailed technical information covering, for example, consents and permits.



Laying down the law

Trading on waste

With the export of waste a growth industry and regulators increasingly focusing their efforts on illegal transfers, **Ross Fairley** offers a reminder of the legislation and case law



There is a growing trade in waste across Europe. The amount of refuse-derived fuel exported from the UK for energy recovery rose threefold in 2012 compared to the previous year and there continue to be major exports of recyclate and recovered materials. Over the years, international conventions, EU rules and the UK Transfrontier Shipment of Waste Regulations 2007 (TFSW) have sought to create a procedural framework for the safe movement of waste, as well as prohibit the export of waste to, and import from, certain countries.

The growing trend among participants in the UK waste market to take advantage of attractive gate fees being offered at European waste-to-energy recovery facilities means that the area of transfrontier shipment has received a great deal of attention from regulators. The Environment Agency, for example, is devoting considerable time and effort to detecting, investigating and prosecuting those that breach the rules.

Detailed notification procedures were set out under the Basel convention on controlling transboundary movements of hazardous waste and its disposal. EU Regulation 1013/2006 implements the convention across the bloc. The rules applying in member states on shipments of waste within Europe must be understood and adhered to by those in the trade.

Defra has recently consulted on the draft Transfrontier Shipment of Waste (Amendment) Regulations 2013, which are going to update the UK procedures. The proposed changes include:

- allowing HM Revenue and Customs to disclose export data to competent authorities in the UK, giving the

regulators better intelligence on illegal waste export; and

- allowing the UK Border Force to stop and detain suspect containers.

The recent rigorous enforcement of existing rules has also resulted in the emergence of a significant amount of case law. Cases such as *R v KV* [2011] EWCA Crim 2342; *R v Ideal Waste Paper Company* [2011] EWCA Crim 3237; and *R v Ezeemo* [2012] EWCA Crim 2064, have clarified UK law, particularly reg.23 of the TFSW, which prohibits certain waste exports to non-OECD countries (see panel, right).

It is now clear that transporting waste to a non-OECD country is a strict liability offence and the breadth of activities that can be caught by the transfrontier shipment of waste regime is very wide. Anyone involved in the transport of waste from the point of origin, where the waste is collected and stored, to the point of delivery is potentially liable if there is an unlawful shipment.

The Environment Agency is pushing for heavier fines for waste offences and to be able to recover significant amounts from the proceeds of such crimes through confiscation proceedings. The Sentencing Council has just finished consulting on new guidance for penalties for environmental offences (environmentalstonline.com/LDTLJune), which will also raise levels of punishment.

Regulators are devoting more resources to tracking down illegal waste operations and the rules governing such activities are being strengthened. Responsible waste operators are also pushing for tighter controls and greater enforcement activity focused on less scrupulous exporters, who damage the waste industry as a whole.

However, spare a thought for the operators who, though generally compliant and responsible, can still fall foul of what are complicated rules. Many waste offences are strict liability crimes, so the defendant need not necessarily have been "at fault".

R v KV

R v KV [2011] EWCA Crim 2342 was the first Court of Appeal decision on the transfrontier shipment of waste regime and considered a prosecution related to the transport of waste for recovery in Nigeria and Ghana, which was contrary to art.36 of EU Regulation 1013/2006. The court considered whether reg.23 of Transfrontier to Shipment of Waste Regulations 2007, which makes it a criminal offence to breach art.36, created a broader offence than intended by 1013/2006. The appeal was dismissed.

R v Ideal Waste Paper Company

R v Ideal Waste Paper Company [2011] EWCA Crim 3237 concerned the transportation of waste to China for recovery. The appellants claimed the waste was mainly paper and paper products, whose export is not prohibited unless it is contaminated. However, inspection revealed the waste also contained household waste, plastic, cans and rotting meat. The appellants argued that the lack of guidance from the Environment Agency or standards (for example, what percentage of the waste needs to be contaminated) to determine whether their activities were criminal meant the proceedings against them amounted to an abuse of process. The appeal was dismissed.

R v Ezeemo

Seven individuals attempted to overturn their 21 convictions for transporting hazardous waste to Nigeria for recovery in *R v Ezeemo* [2012] EWCA Crim 2064. They appealed on several grounds, in particular whether the offence of transporting such waste, which in this case involved waste electrical equipment, to a non-OECD country was one of strict liability (environmentalstonline.com/LDTLFeb). The appeal was dismissed.

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Independent minds

Peter Brown looks at the increasingly individual approaches being taken to environment policy in Scotland, Wales and Northern Ireland

Since 1997, the process of devolution has seen an ever greater range of powers pass from the central UK government to the parliaments in Northern Ireland, Scotland and Wales.

Environment policy is one area that has generally been widely delegated since the original settlements, and while the devolved administrations necessarily share many environmental objectives with the UK, in recent years they have started to develop more distinctive policies that are designed to reflect their specific national circumstances.

The Scottish and Welsh governments and the Northern Ireland executive are bound by the same European legislation as the UK on a range of environment matters, including tackling climate change, improving air and water quality, protecting nature and biodiversity, and managing waste and natural resources. Within those frameworks there is still ample room, however, for setting national priorities and targets.

Scotland, for example, has set itself more stretching climate change goals than Westminster has for the whole of the UK, while the Welsh government has enshrined sustainable development in its constitution. In Northern Ireland, meanwhile, the executive is pursuing a strategy that focuses on resource efficiency rather than simply managing resources and waste.

As a devolved matter, the environment is also a politically useful arena in which the different administrations in Belfast, Cardiff and Edinburgh can express their unique policy priorities. With the Conservative–Liberal Democrat coalition in Westminster, a Labour government in Wales, a pro-independence Scottish National Party in power in Scotland and the multi-party Northern Ireland executive, it seems contrasting opinions over environmental policy between the different administrations are only likely to increase over time.

Peter Brown is a freelance journalist.

Scotland

The Scottish government has pursued a progressive environment agenda in recent years that in many ways exceeds the ambition shown by Westminster. According to Paul Wheelhouse, Scottish minister for environment and climate change, the devolved administration's smaller size means it can be more agile in introducing innovative legislation. "The scale of Scotland allows us to work more closely in partnership with our delivery partners and our environmental stakeholders," he explains.

Renewable aspirations

Nowhere is the difference between Scotland's and the UK's approaches to environment policy more clearly illustrated than in energy strategy. Scotland has repeatedly affirmed its commitment to renewable energy, setting the goal of meeting 100% of its electricity demand from renewable sources by 2020. Progress towards that target has been steady, with 38.7% of the country's electricity generated by renewables in 2012.

UK energy and climate change secretary Ed Davey, on the other hand, recently rejected proposals from the European Commission to raise the EU target for renewable energy generation post-2020. The coalition government instead plans to build at least 20 new gas-fired power stations over the next decade.

Climate change is another area where the Scottish government is keen to present itself as a leader, not just in the UK but globally. The Climate Change (Scotland) Act 2009 has won widespread plaudits for its ambitious target of reducing greenhouse-gas emissions by 42% by 2020, against a 1990 baseline. The Act also goes further than any UK legislation by imposing statutory climate change duties on public bodies and requiring the Edinburgh-based administration to set legally-binding annual emissions reductions targets.

Scotland's performance against these challenging targets has so far been mixed, but there is evidence to support the government's claim of being a world leader in tackling emissions: between 1990 and 2011, it cut emissions by 29.6%, the largest reduction of the pre-enlargement EU-15. And, with figures showing that in 2011 its annual reduction target was narrowly missed for the second successive year, Wheelhouse insists that Scotland is well on track to meet its 2020 goal.

Financial support

Beyond the headline emissions targets, two government-backed programmes, the climate challenge fund (CCF) and the climate justice fund (CJF), are both among the first schemes of their kind in the world. The CCF supports local communities to reduce their carbon footprints and £37.7 million has been awarded to nearly 400 projects under the scheme since 2008. The CJF, meanwhile, aims to help some of the world's poorest countries mitigate the effects of climate change. In the first round of funding, £3 million was awarded to clean water projects in

Malawi and Zambia. "We want to try and ensure that those countries that have done the least to cause climate change are helped by those of us in the developed world that have largely caused the problem," says Wheelhouse.

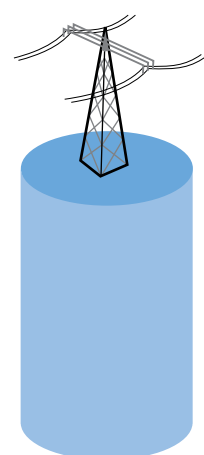
In waste policy, too, Scotland's ambition outstrips UK-wide targets. The *Zero waste Scotland plan* aims for recycling rates of 70% and for just 5% of waste to be sent to landfill by 2025. Scotland also plans to phase out biodegradable waste going to landfill by 2020. The Landfill Tax (Scotland) Bill, introduced to the Scottish parliament in April, represents another major point of difference with UK policy. If passed, the Bill will do away with the UK landfill tax which, crucially, only applies to legal activities. A new Scottish tax would include strong deterrents to illegal dumping and would also see the creation of a communities fund to support environmental work in the areas around landfill sites.

Lacking a voice

While control over environment policy is fully devolved, Wheelhouse admits that Scotland's status as part of the UK can sometimes frustrate the administration's ability to promote its progressive policies on the international stage. "I saw the Wallonian minister representing Belgium and being one of the EU's lead negotiators at the Doha summit on climate change, but unfortunately the devolved UK administrations don't even have the chance to speak at these meetings," he says. "We believe Scotland has a very progressive, ambitious agenda on the environment and climate change and we would like to be able to add our voice to those of others around the table to try and push for a higher level of ambition for the benefit of all."

The Scottish government can also point to areas where it feels its environmental policies are hamstrung by Westminster. One is the allocation of rural development funding under pillar two of the EU common agricultural policy. With no voice at European negotiations, the devolved governments must rely on UK ministers to state their case. "We've got ambitions around promoting biodiversity; peatland and habitat restoration; and species reinsertions, but these have been handicapped by the very unhelpful stance taken by the UK government," Wheelhouse says.

With the SNP pursuing independence – there will be referendum in September 2014 – Wheelhouse believes that self-rule could result in Scotland going further than the UK in promoting the benefits of transitioning towards a green economy. "The UK is one of the more ambitious governments in the EU on climate change," he acknowledges, "but we're more ambitious than they are."



100%

Scotland aims to generate all its electricity from renewable sources by 2020



Wales

The Welsh government's distinctive approach to environment policy is rooted in the fact that Wales is the only UK administration to have the principle of sustainable development written into its constitution. Alun Davies, minister for natural resources and food, says this principle informs all legislation generated through the Welsh assembly. "Sustainable development means what is good for the economy, what is good for the environment, what is good for the community of Wales," he explains.

"It's one of the founding principles on which the rest of our approach is built, so the environment for us isn't just a matter for the environment minister or the environment department; it's a matter for the government as a whole."

The UK government, by contrast, drew widespread criticism from environment campaigners after shutting down its own sustainable development commission in 2011. Davies says that there is no danger of a similar turn away from sustainable development in Wales: "We are very comfortable with having an approach, which is based on our ambitions not only for this generation, but also of ensuring that future generations are not disadvantaged by decisions we take today."

Complete control

Nonetheless, the terms of the devolution settlement for Wales mean that the Welsh government does not have complete control over all areas of environment policy. Energy, in particular, has been a source of public disagreement with Westminster in recent years, with Welsh first minister Carwyn Jones recently restating his request that consenting powers over energy projects and related infrastructure be fully devolved. The Welsh government argues that the current situation, with some energy decisions taken by Westminster and some by Cardiff, adds unnecessary complexity to the energy landscape and deters investors, hampering the country's ability to move forwards with its plans to transition to a low-carbon economy.

"There's a very jagged edge to the devolutionary settlement. It's a particularly poor settlement in terms of energy," says Davies. "We've indicated to successive Westminster governments the need for a more straightforward settlement and they've turned a deaf ear to that. The UK government is happy to operate a very complex and difficult system and we're disappointed about that."

Davies is frustrated that a conservative approach from Westminster on renewable energy and other areas is holding back Welsh aspirations to push a low-carbon agenda, as set out in the *Energy Wales* document published in March. However, he is determined to increase Wales's energy self-sufficiency. "One of

the things I'm excited about is the work we're doing around expanding renewables, particularly small-scale community renewable generation," he says. "I think we've got great opportunities here to push ahead on an agenda that powers local communities and enables everyone to play a part in changing the nature of our economy and the nature of our country."

"That means investing in a renewable revolution in Wales over the coming years whereby we will be able to generate far more of our energy ourselves. I don't just mean relying on big offshore wind farms, but having a real mix of energy sources." Further announcements on renewable energy are promised for later in the year.

No more waste

In 2010, the Welsh government published its zero waste strategy, setting out how Wales will become a zero waste "one planet" nation by 2050. It is the most aggressive waste target of any UK administration. Early steps towards that goal include the introduction in 2011 of the first single-use carrier bag levy in the UK.

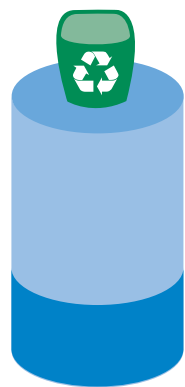
Davies also claims that strong recycling rates across Wales – more than 52% of waste was recycled in half of Welsh councils between October and December 2012 – prove there is widespread support for the Cardiff government's aspirations on waste.

Innovative policies around climate change include the Arbed investment programme, which aims to introduce energy-efficiency measures to deprived communities in regeneration areas in Wales, using local companies to fight the combined social and economic challenges of emissions reductions and fuel poverty. The scheme was a UK first when it launched in 2009. Another is the sustainable travel initiative, known as personalised travel planning, which was launched in 2011 and is the biggest project of its kind in the UK.

One-stop shop regulation

In environment management, Wales has recently taken the bold step of combining the functions of three bodies – the Welsh arms of the Environment Agency and Forestry Commission, plus the Countryside Council for Wales – into a single organisation, called Natural Resources Wales. The streamlining demonstrates the Welsh government's intention to adopt an integrated approach to environment regulation, management and protection, in keeping with its aspiration to embed the principles of sustainable development in all policy areas.

Davies hopes that the new body will enable more efficient decision making around environment matters in Wales and, echoing the thoughts of his counterpart in Scotland, believes that Wales's size means it has an opportunity to move more quickly than Westminster in responding to environment policy challenges. "We need to be agile in our thinking and in our delivery, and that means removing duplication where it exists and ensuring that we have the facility to develop new and intelligent policy approaches," says Davies.



65%

Wales hopes to produce 65% less waste in 2050 than in 2010

Northern Ireland

Devolution in Northern Ireland has followed a more complex path than in either Scotland or Wales, with several suspensions of the Northern Ireland assembly since 1998. However, political stability has increased in recent years and the last assembly term, which ended in 2011, was the first to run its full course.

In environment policy, one distinctive aspect of the Northern Irish landscape is the fact that, uniquely in the UK, there is no independent environmental regulator: the Northern Ireland Environment Agency sits within the department of the environment. There have been calls for an independent regulator since the 1990s, when a series of official reports criticised Northern Ireland's environmental performance in areas such as water pollution and conservation.

Successive Northern Ireland assemblies have rejected such calls, although in 2011 the minister for environment, Alex Attwood, announced plans to revisit the issue. While the discussion appears to have stalled once more and the future of environmental regulation in Northern Ireland remains uncertain, the executive is moving ahead with its own policies in several areas.

Sea change

The Northern Ireland Marine Bill is a major piece of legislation currently being scrutinised by the Stormont assembly. Described as a turning point in the protection of Northern Ireland's marine environment, the Bill includes provisions for the selection and management of marine conservation zones and the creation of a national marine plan to improve strategic planning and safeguard biodiversity.

"Northern Ireland's seas are home to some of the world's most spectacular wildlife and habitats, and have the potential to power our nation through wind and wave energy and create thousands of new jobs," says Attwood.

Waste is one issue where Northern Ireland has sought to go beyond the UK government's targets, leading to the publication of a far-reaching revised waste management strategy earlier this year. Its title, *Delivering resource efficiency*, reflects a shift in emphasis from the previous strategy, which was focused on resource management. The department of environment says the revised strategy is aimed at using resources in the most effective way, while minimising the impact of their use on the environment. Among the strategy's key proposals is a new household waste recycling target for 2020, which demands that local authorities recycle at least 60% of such waste, exceeding the EU target of 50%. The document also raises the possibility of the devolution of landfill tax, as is happening in Scotland.

Like Wales, Northern Ireland has introduced a 5p levy on single-use carrier bags. The stated target of the scheme, which was introduced in April 2013, is to reduce the number of bags issued annually by at least 80%, and there are plans to increase the levy to 10p from 2014 and extend it to multi-use bags. Charging for carrier bags is designed to bring real and sustained benefits to our natural environment, including reducing

carbon emissions, air pollution, water pollution and litter, states the environment department.

On climate change, there are growing calls for Northern Ireland to pass its own legislation to shore up its emissions reduction target of 35% on 1990 levels by 2025. Emissions in 2011 were 17% below 1990 levels, the lowest fall of any UK administration, with both England and Scotland achieving reductions of around 30% over the same period. The Northern Ireland executive is keen to emphasise the difficulties of accurately calculating emissions reductions for each country in the UK, and it can point to a more positive recent trend, with emissions falling by more than 5% between 2010 and 2011.

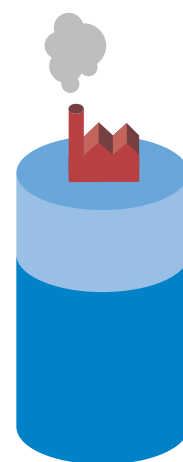
Attwood supports the drafting of a Northern Ireland Climate Change Bill. A pre-consultation on the value of such a Bill concluded in May, and sought views on whether legislation or a voluntary approach to emissions reduction was the best course for Northern Ireland. "I believe experience has shown that specific regional climate change legislation plays a part in delivering real sustainable change and I firmly believe that is the way to go," says Attwood.

Legislation under consideration includes measures that have proved effective in other parts of the UK, such as statutory targets to reduce emissions, a local climate change committee and imposing reporting duties on public bodies in Northern Ireland.

Unique position

The issues raised by the lack of local climate change laws can also be seen in the complexity of UK energy policy as it relates to Northern Ireland. As part of the single electricity market (SEM) arrangement with the Republic of Ireland, Northern Ireland occupies a unique position in the UK. A clear example of this was the UK government's recent decision not to apply the carbon price floor (CPF) in Northern Ireland. The CPF is part of the UK's electricity market reform programme and aims to stimulate investment in low-carbon electricity generation. However, the UK has acknowledged that such a tax in Northern Ireland would put electricity generators in the country at a disadvantage in relation to their competitors in the SEM.

However, the executive is planning the extensive use of renewables. A consultation on a proposed Offshore Renewable Energy Bill closed in April and sought ideas on how to establish a more sustainable energy system and ensure much more of Northern Ireland's energy comes from renewable sources. Under the executive's plans for a strategic energy framework, offshore renewable energy will contribute 40% of electricity and, 10% heating across Northern Ireland by 2020.



35%

GHG emissions from Northern Ireland to fall 35% by 2025 against baseline



The open atrium at One Angel Square faces south to collect heat from the sun

Sun shading prevents strong glare and the large amount of glass from overheating



Building the future

The Co-op's new head office is a landmark for sustainability and is inspiring staff who work there to reduce their carbon footprint

Ethical trading has been at the core of The Co-operative's business model since its inception 150 years ago; more recently, a commitment to sustainability has also become a vital part of the organisation's brand and ethos. In February 2013, The Co-operative Group opened its doors to receive the first influx of employees to its new Manchester head office, One Angel Square.

Situated on a site that is considered to be the birthplace of Britain's industrial revolution, the new office is an inspiring testament to the sustainability values of The Co-op.

The largest commercial construction in Manchester, One Angel Square is also one of the most sustainable offices in Europe and is currently the highest scoring BREEAM building in the UK (see panel, p.22), with an "outstanding" rating and a score of around 95%.

The 30,500m² structure brings 3,500 staff under one roof in a building that has been designed to deliver a 50% reduction in energy consumption and an 80% reduction in carbon emissions compared with the organisation's old office complex.

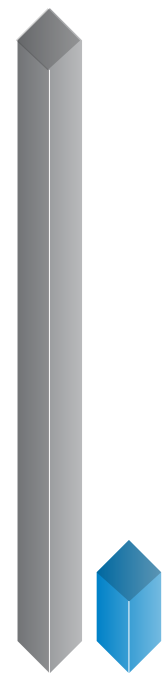
"In 2008, we undertook a review of our existing estates in Manchester and knew that only a new

building could fully embody The Co-op's socially responsible values," says Nigel Holden, head of energy and environment. "The building is stunning but functional, and should serve as a catalyst for change – its design will transform how people work, as well as the organisation's impact on the environment."

One Angel Square is the first visible result of "NOMA", a 20-acre, £800 million redevelopment scheme for North Manchester. It is a 10-year regeneration project, through which The Co-op is working closely with local government, transport companies and other organisations to create a new neighbourhood for the city.

Building blocks

The foundations for One Angel Square were laid in summer 2010 and the project finished on time and on budget just over two years later. The new office represented a mammoth project, with more than 4,000 people involved in its design and construction. The project awarded around 100 contracts to local businesses, delivering on a commitment by The Co-op to strengthen local communities and help reduce the embodied carbon of the building at the same time. A

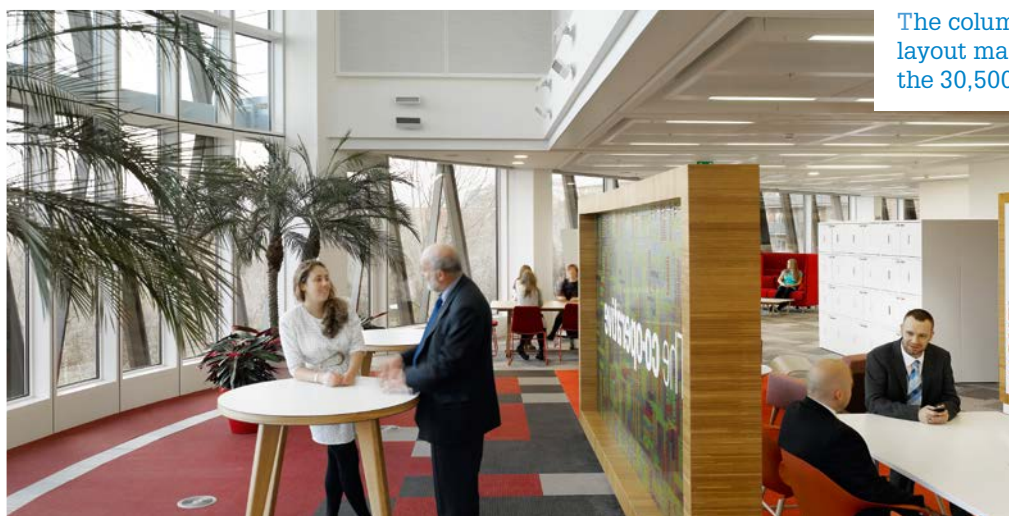


80%

fewer carbon emissions than The Co-op's former office



The double-skinned façade helps to generate natural heating, lighting and cooling



The column-free, open plan layout makes better use of the 30,500m² structure

project of the size and ambition of One Angel Square required The Co-op to work in partnership with experts in a number of fields. These included:

- architects 3DReid;
- building company BAM Construct UK;
- engineering consultancy Buro Happold; and
- project management firm Gardiner and Theobald.

The scale of the project and the number of key partners meant that close working relationships were essential. "As well as our main commercial partners, we worked closely with a large number of organisations. For example, developing effective partnerships with Manchester City Council and local transport companies was vital," explains Holden.

"The location of the building involved moving a section of the city's ring road, which was a massive undertaking, and encouraging staff to adopt green travel plans is a core part of our sustainability vision for the building, which meant ensuring good local transport links."

The Co-op's brief to the architects was straightforward, as Holden comments: "We were very clear about what we wanted; the building had to be built to the highest possible sustainable standards, but it also needed to be commercially viable and replicable." According to Holden, the architects and multidisciplinary team that brought the plans to life did not have to compromise on any of the design's more aspirational sustainability features. "It may surprise some people to know that the majority of the state-of-

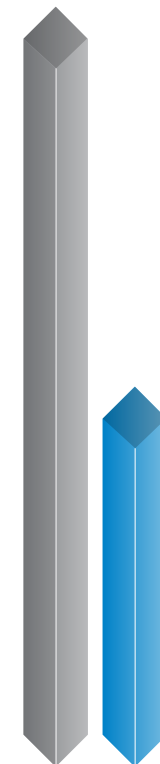
the-art innovations and technology incorporated into the building are not necessarily less cost-effective than less sustainable building features," he adds.

Greater than the sum of its parts

There is no one determining factor that is responsible for One Angel Square achieving such unrivalled sustainability status, as Holden explains: "The outstanding BREEAM score was made possible because the design takes on board every little detail and its potential environmental impact; it is the unique incorporation of so many sustainability features and how they work together, as well as how we use it on a day-to-day basis, that creates such a low-energy building."

The first point to note about the building's design and construction is what's missing – namely, four storeys of office space. One Angel Square has two below-ground and 14 above-ground floors, but the organisation would have needed 20 storeys to accommodate additional paper and people if The Co-op had not launched a massive cultural change programme more than two years before the relocation.

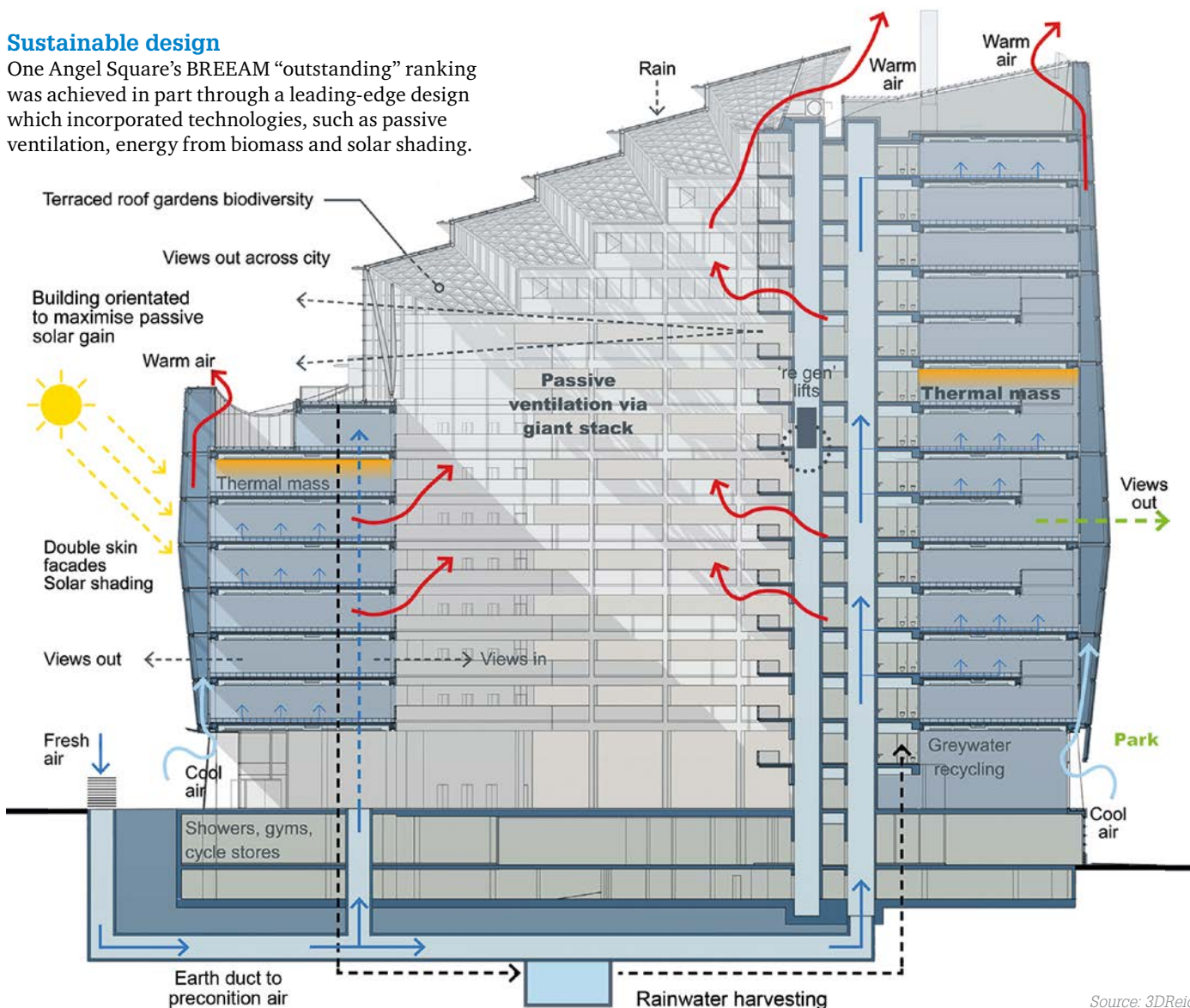
The change programme included a new flexible working policy, encouraging staff to work remotely, and a digital storage policy to reduce the amount of paper records retained by the business. Holden estimates that the addition of another four storeys would have increased the building's carbon footprint by around 30%, so their absence represents a considerable saving in sustainability terms.



50%
less energy
consumed
than The
Co-op's old
head office

Sustainable design

One Angel Square's BREEAM "outstanding" ranking was achieved in part through a leading-edge design which incorporated technologies, such as passive ventilation, energy from biomass and solar shading.



Source: 3DReid

BREEAM ratings

The Building Research Establishment Environmental Assessment Method (BREEAM) is an international method for assessing the environmental credentials of buildings. There are now more than 250,000 buildings with certified BREEAM ratings.

The Co-operative's One Angel Square has been rated as "outstanding" by BREEAM under its "new construction: offices" classification, which was launched in 1990 and was the first one developed in the BREEAM family of schemes. One Angel Square also won the 2013 BREEAM award for this category.

The assessment process uses recognised measures of sustainable performance to evaluate a building's

specification, design, construction and use. The assessment process awards points or "credits" against the following environmental impacts:

- energy – operational energy and carbon dioxide;
- management – management policy, commissioning, site management and procurement;
- health and wellbeing – indoor and external issues (noise, light, etc);
- transport – transport-related CO₂ and location-related factors;
- water consumption and efficiency;
- materials – embodied impacts of building materials, including life-cycle impacts like embodied carbon;
- waste – construction resource

efficiency and operational waste management and minimisation;

- pollution – air and water pollution;
- land use – type of site and building footprint; and
- ecology – ecological value, conservation and enhancement of the site.

The total number of credits gained in each section is multiplied by an environmental weighting factor that takes into account the relative importance of each section. Section scores are added together to produce a single overall score that is translated into a rating of: pass; good; very good; excellent; or outstanding.

Source: breeam.org

While the building's exceptional environmental credentials are the culmination of attention to every little detail, some architectural features are on a grand scale. For example, a soaring open atrium faces south to collect heat from the sun and a diagonal slice faces the same direction to allow light to radiate into the upper floors. This is a prime example of how the orientation and layout of the building have been designed to optimise the natural benefits of solar heat and light. Any risk of overheating in summer is mitigated by "brise-soleil", a system of sun shading that runs around the building and prevents strong glare and the large amount of glass from overheating.

The convex three-sided shape of the building and a double-skinned façade also help to create natural heating, lighting and cooling. Holden describes the façade as acting like a huge thermal blanket, trapping air in the gap between the inner and outer walls, but allowing the air to escape above and below. In the winter months, louvres on top of the façade work to keep the warm air in the building, while in the hotter summer months the louvres can open and expel hot air, helping to keep the building cool.

On the concourse outside the building's entrance is what could be mistaken for a huge modern sculpture, but the three large concrete cylindrical structures fulfil a functional and sustainable role: they are geothermal earth tubes that passively heat or cool the air outside before it enters the building to help moderate the office block's temperature. Air is heated or cooled in a basement plant room before large fans push it through the building. The system is based on air/earth heat exchange and requires a minimal amount of mechanical power.

Another major sustainability feature of One Angel Square is its pioneering combined heat and power plant. The system comprises two 400kW engines fuelled by rapeseed oil from crops grown on The Co-op's farms.

"This represents an end-to-end process and means we can track every aspect of the carbon emissions generated by this energy source, from growing the cold-pressed rotational crop to its transport and use as a fuel for the building," says Holden. "Eventually, we will export excess energy back to the grid."

The building has a vast number of other environmentally-friendly innovations, including:

- low-energy IT equipment and systems;
- water recycling and rainwater harvesting systems;
- a building management system to control ventilation, heating and lighting;
- an extensive LED lighting system;
- high-efficiency lifts that recapture the electricity generated by their use; and
- low-water consumption appliances.

Cultural change

One Angel Square has been designed to offer its occupants a flexible way of working, with new spaces, IT solutions and workstations that enable staff to choose how and where they want to work. However, the building's remarkable sustainability credentials do not result solely from its design, but also from how it is being used by The Co-op.

Cutting-edge technology means that most Co-op employees do not need to be office-based and can work from home. The new flexible working policy encourages remote working and has reduced the amount of office space needed. A programme to change behaviour and working practices began almost at the same time as the foundations for the new building were laid. One of the most important transformations has been the development of digital remote storage systems.

"In our previous head office buildings, working practices were often paper based, using up unnecessary space," comments Holden. "By looking carefully at our use of paper archives and maximising our digital storage, we have been able to create the right size building for our needs."

Three geothermal earth tubes passively heat and cool the outside air before it enters the building to help moderate temperatures

The design of the building has also revolutionised how people work. The layout of the office floors is predominantly open plan and makes better use of space to promote greater coordination and interaction between teams. There are break-out areas for meetings and informal working, as well as a restaurant and terraces. The impact is not purely aesthetic – the new space encourages better communication and innovation, and the fact that every employee is allocated a locker and not a desk has drastically reduced the amount of paper that people retain.

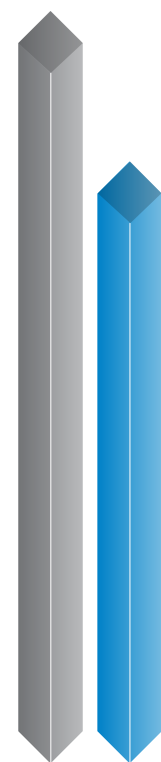
The positioning of the building and its proximity to good public transport links was a careful consideration. Encouraging staff to adopt green travel practices is a fundamental part of the organisation's vision to shrink its carbon footprint and, since moving to One Angel Square, the proportion of employees using public transport to travel to work has increased from 50% to 65%. There are also stands for more than 160 bicycles if people want to cycle to work.

Return on investment

The Co-op's new head office has been occupied for a short space of time and is not yet up to full capacity in terms of head count, but Holden says he is satisfied that it is performing in line with sustainability expectations. The feedback from staff on their experience of working in such an impressive, energy-efficient building is also very positive, he says.

Research conducted by Holden reveals that a high proportion of the carbon reduction possible in the new building emanates from its leading-edge design, which has not cost more to build than any modern building of this scale. In addition, there are considerable year-on-year energy and financial savings.

The Co-operative has already achieved a return on its £100 million investment to construct One Angel Square, by selling the building at a considerable profit. It now leases the building and is able to invest the money made in other projects.



20%

less floor space is needed in the new building

The Seveso antidote

From dioxins and EU directives to murder and missing waste, **Becky Allen** looks at the 1976 disaster's enduring legacy

Today, almost nothing remains of the Industrie Chimiche Meda Società Azionaria (ICMESA) chemical plant in Meda, a small working-class suburb north of Milan.

Nothing above ground, that is. A new forest has sprung up; thousands of oak, maple, pine and poplar trees spread across 43 hectares of landscaped parkland. Buried beneath the Bosco delle Querce lie demolished houses, personal possessions and the remains of 80,000 animals that 37 years ago belonged to the residents of Seveso, the community most affected by the 1976 accident at the ICMESA plant.

As well as human tragedy, Seveso has become synonymous with environmental disaster, lending its name to three European safety directives, bringing dioxins to the world's attention, and leaving in its wake bombings, shootings and 41 drums of wandering waste.

July 1976

The disaster began 6km north of Seveso in Meda, home to the ICMESA chemical plant. Built in 1971 and owned by Geneva-based Givaudan SA, the facility employed 170 workers and made intermediates for the cosmetic and pharmaceutical industries, including 2,4,5-trichlorophenol, produced by hydrolysis of 1,2,4,5-tetrachlorobenzene. Early on the morning of Saturday 10 July 1976, the nightshift came off duty, shutting down the manufacturing process as the plant closed for the weekend. The hydrolysis reaction, however, was incomplete: part of the glycol was distilled but the mixture had not yet been diluted with water and hydrochloric acid.

With only maintenance and security teams onsite, pressure mounted in the reaction vessel and just after midday the maintenance foreman, Giuseppe Bruno, heard the sharp metallic ping of a safety disc rupturing,



quickly followed by a roaring, whistling noise as a jet of whitish vapour shot into the air from an exhaust pipe.

With no expansion chamber above the bursting disc, ethylene glycol, soda and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD or dioxin) – an impurity produced by the overheated reaction – burst through the roof and spread on the north-westerly breeze across Seveso.

During the following days, residents, who found scores of dead rabbits and birds and whose children started suffering from skin rashes, were warned by plant managers not to eat local produce. A week later, on 17 July, Givaudan confirmed dioxin was the cause.

Three evacuation zones were established, between them affecting almost 250,000 people. In zones B and R, where dioxin levels were around 0.9mg/m², a ban on eating local fruit, vegetables and meat was imposed, and children and pregnant women were evacuated during the day but allowed to return home to sleep.

In zone A, the most heavily contaminated area, where dioxin concentrations reached 580mg/m² hundreds of residents were evacuated. An air of anxiety pervaded the area, which was sealed off by a 9.5km ring of barbed wire and guarded by armed troops. An employee at Rome's Institute of Hygiene described the situation as a having a "feeling of imminent disaster".

Residents had reason to be worried. As well as the evacuations, hundreds of people were treated for dioxin poisoning – including 187 cases of the disfiguring skin condition chloracne – and more than 80,000 animals were culled to stop the poison entering the food chain.

Knowledge gap

As patients were treated, scientists wondered how to cope with the clean-up. Speaking 20 years after the disaster Giovanni Bottari, president of the Fondazione Lombardia per l'Ambiente, the regional environmental research organisation, recalled how little information there was about dioxins. "At the time that the reactor of the ICMESA factory released several kilograms of 2,3,7,8-TCDD into the atmosphere, very little was known about the effects of this compound on human health and biosystems," he said. "We had no reliable

measuring techniques or methods to sample dioxin in organic matrices such as plant and animal tissues or human blood. Neither did we have any solid grounds on which to plan effective technologies for remediation of dioxin-contaminated soils and buildings."

A special emergency office was set up to cope with the disaster. Between July 1976 and May 1978, nearly 13,000 samples – from soil and water to the interiors of school buildings – were analysed and the emergency office worked for eight years overseeing the clean-up, establishing long-term epidemiological studies and monitoring dioxin levels.

Like the monitoring, the clean-up was of epic proportions: 35 families from the most contaminated parts of zone A were rehoused and businesses relocated. Hundreds of homes were cleaned or demolished, and more than 200,000m³ of soil and vegetation removed from gardens. Remaining houses were decontaminated, furniture replaced and thousands of trees replanted.

The debris was buried in two large tunnels beneath what would become the Bosco delle Querce, but it was not until six years after the disaster that clean-up of the plant itself was completed. Borrowing techniques from

More than 200,000m³ of soil and vegetation was removed from the area, and the debris buried in two tunnels beneath what would become Bosco delle Querce

The 'superpoison'

Dubbed the "superpoison" and part of the "dirty dozen" – a group of persistent organic pollutants – dioxins are a group of chemical compounds. The term dioxin usually applies to the family of structurally and chemically related polychlorinated dibenzo-para-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). Certain dioxin-like polychlorinated biphenyls (PCBs) with similar toxic properties are also included under the term "dioxins". Some 419 types of dioxin-related compounds have been identified, 30 of which have significant toxicity. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or dioxin is the most toxic.

Although dioxins can be produced by natural processes, such as forest fires and volcanic eruptions, they are mainly unwanted byproducts of industrial processes, from smelting and paper bleaching to pesticide manufacture and incineration. Dioxins are highly toxic, causing reproductive and developmental problems, immune system damage and cancers. TCDD's health effects were widely studied after its discovery as a contaminant in batches of the herbicide Agent Orange, which was widely used during the Vietnam War.

Dioxins accumulate in the food chain and more than 90% of human exposure is via food, mainly meat and dairy products, fish and shellfish, and their concentrations in food are widely monitored.

In 1999, high levels of dioxin were found in Belgian poultry and eggs and traced to animal feed contaminated with illegally disposed PCB-based waste industrial oil. Contaminated feed also led to the recall of tonnes of pork products in Ireland in 2008 after high levels of dioxins were discovered. And in 2007, the European Commission issued a health warning after high levels of dioxins were detected in guar gum, a food additive. The source was traced to gum from India that was contaminated with pentachlorophenol, a banned pesticide itself contaminated with dioxins.

A few cases of intentional human poisoning have also been reported, most famously the poisoning in 2004 of the president of the Ukraine, Viktor Yushchenko, whose face was scarred by chloracne.

Source: World Health Organisation, 2010.

The legacy of Seveso is considerable, shaping both EU and UK legislation on major hazards and waste

the nuclear industry, the plant was sealed, dismantled and the most heavily contaminated waste packed into 41 lead-lined barrels and removed from the site in September 1982 by contractors Mannesmann Italiana.

Missing barrels

For the next eight months, the barrels' whereabouts were a mystery and, in February 1983, a Swiss TV programme revealed they were "missing". The journalists traced the waste from Italy to Saint-Quentin in northern France, but there the trail went cold. In May, the barrels resurfaced in an unused abattoir in the northern French village of Anguillcourt-le-Sart, from where they made their way to a French military base near Sissonne. On 25 November 1985, more than nine years after the disaster, the Roche Group (Givaudan's parent company) announced that the waste had finally been incinerated in Switzerland.

Lord Hails told the House of Lords that the barrels had "been making the 'grand tour' of Europe, carting about the most deadly poison in the world".

But the drama had already taken a more violent turn. In May 1977, Dr Giuseppe Ghetti, Seveso and Meda's medical officer, was shot and wounded during an attack on his office. The Roche Group's Milan offices were bombed and in July 1977, on first anniversary of the disaster, the Swiss home of the firm's chief engineer Rudolf Rupp – who had been sent to Seveso to assist with the clean-up – was also bombed. Then, in February 1980, Paolo Paoletti, ICMESA's production director, was shot dead by Prima Linea, a tiny Italian terrorist group.

Three years later, in June 1983, ICMESA's managing director, company chair and three others appeared in court in Monza, charged with negligence, causing contamination and safety failures. All five were found guilty and given lengthy prison terms; however, three appealed successfully against their convictions and the remaining two had their sentences suspended.

Lasting legacy

Close to four decades on, Seveso's legacy remains considerable. Not only does much of what we now know about dioxin toxicity come from the events of 1976, but the disaster shaped European and UK legislation on major hazards and waste. Today, some 8,000 industrial sites are covered by the so-called Seveso Directive on the control of major-accident hazards involving dangerous substances and the furore that attended the missing waste

was the starting point for international controls on transboundary movement of waste by the OECD.

Former environment commissioner Stavros Dimas said Seveso had "become a shorthand term for major industrial accidents". Speaking at an event to mark the disaster's 30th anniversary in 2006, he explained: "The reason for this particular accident becoming such a symbol is because it exposed the serious flaws in the response to industrial accidents. The disaster brought home the need to combine industrial development with the protection of our citizens and the quality of the environment. And it led to the first EU legislation on the accident hazards of industrial activities."

Since the Seveso Directive was adopted in 1982, it has undergone several modifications, the most comprehensive review taking place in 1996, when Seveso II (96/82/EC) was adopted. Implemented in the UK via the COMAH (Control of Major Accident Hazards) Regulations 1999, the legislation requires high hazard sites to take all necessary measures to prevent major accidents involving dangerous substances and limit the consequences to people and the environment of any serious incidents that do occur. The COMAH regulations are being revised in line with Seveso III when it comes into force in 2015.

According to Dimas: "The most remarkable achievement of the Directive has been to instil a culture of safety in industry ... Seveso II introduced new concepts, which have become the pillars of our policy in this area – safety management systems, emergency plans, land-use planning and an effective inspections system. Both inside and outside Europe, Seveso II has become an important benchmark."

Back in Seveso's Bosco delle Querce, its small hills are the only sign of the tonnes of soil, rubble and contaminated equipment buried in the two waste-filled tunnels. Between them they contain almost 300,000m³ of material encased in impermeable membranes and surrounded by water extraction, treatment and outflow systems. The park was landscaped and planted with 5,000 trees and 4,000 shrubs in 1986. And, for many, it remains an important memorial.

"In the basins there lay the memories of the people who were compelled to leave everything on 26 July 1976," says the local council, the Comune di Seveso. "Today the forest is a symbolic place: it portrays the struggle against pollution, the toil to recover a seriously compromised environment and the commitment to keep the memory of the disaster alive. It is a token of the ability to react with determination, solidarity and sense of responsibility to environmental damage caused by superficiality and indifference."

Becky Allen is a health, safety and environment journalist.



Carbon (GHG) Accounting and Management

An IEMA-Approved 2-Day Training Course

CRA Europe is pleased to announce new dates for its IEMA-approved Carbon and Greenhouse Gas (GHG) Accounting and Management course. This two-day course is aimed at professionals responsible for measuring, reporting, and managing carbon dioxide and other GHG emissions for their organisation. The course modules will equip you with:

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- An awareness of applicable legal requirements, including **mandatory reporting for large companies**
- The capability to present business cases to senior management to gain commitment for initiatives to measure, reduce and report emissions
- An understanding of the key standards and protocols for GHG measurement and reporting
- The skills to develop a carbon (GHG) accounting system and to capture your organisation's footprint
- An understanding of techniques to reduce carbon and GHG emissions



The next course in the UK is planned for 17th-18th September in London. For more details, please visit www.cra.co.uk or contact us on 0115 965 6700 or training@cra.co.uk.

Progress towards a revised ISO 14001

The ISO working group revising ISO 14001 met at the end of June, with the objective of developing a new draft for consultation. Unfortunately, the group did not have enough time to review all comments from the previous consultation, and so the next draft will not be issued until after another meeting in the autumn. However, the comments on many of the clauses were addressed, with some clauses being substantially re-written. Areas of development include:

- The relationship between environmental risks (aspects) and business risks;
- The need for documenting management system processes;
- Addressing the value chain in its upstream and downstream phases;
- Emergency preparedness and response plans; and
- Determining the criteria against which performance is measured.

CRA will be publishing a new series of articles on these and other developments, including the implications for auditing. If you would like to receive updates, please sign up to our newsletter at www.cra.co.uk.

CRA's Nigel Leehane is one of the UK's technical experts appointed to the ISO working group revising 14001. Please contact him on 0115 965 6700 or nleehane@cra.co.uk if you would like to know more about the changes to ISO 14001 and the implications for your organisation.

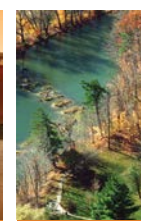
CRA's latest articles on the ISO 14001 revision can be found on the news page of our website: www.cra.co.uk



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Turning staff on to switching off

Claire Baker reports on a project to raise staff awareness of energy consumption at Costain

To any building, facilities or energy manager, reducing energy use in buildings is essential to maximise efficiency and reduce costs.

There are many technical solutions that can be implemented to cut a building's energy consumption but unless the occupants are engaged, efficiencies cannot be optimised.

Costain Group is one of the UK's leading engineering solutions providers and in 2012 a project in four of its offices – covering both permanent and temporary sites – examined the impact of interventions on knowledge and behaviour to reduce energy use.

The building fabric

Around 45% of UK emissions are from buildings; non-domestic properties alone generate 18% of the country's carbon footprint. With commercial buildings responsible for such a high proportion of the UK's overall emissions, property owners and operators increasingly acknowledge that this is an issue they need to address.

There is also an opportunity for companies involved in designing, constructing and demolishing properties to minimise energy consumption in processes and material use, and ensure the lifetime energy use of a building is as efficient as possible.

Costain Group reports its carbon emissions and promotes ways of reducing energy consumption. It is also involved in the design, construction and operation

and maintenance of buildings for its customers. There is an expectation that its own buildings and staff are highly energy efficient.

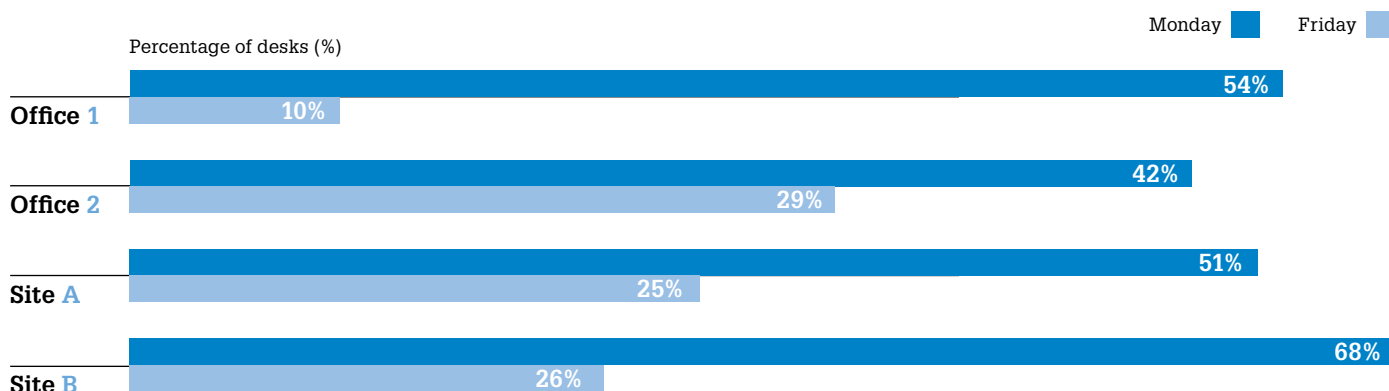
To test that assumption, Costain staged an energy awareness week, which included providing staff with relevant information, gathering feedback and establishing a system of "rewards and punishment".

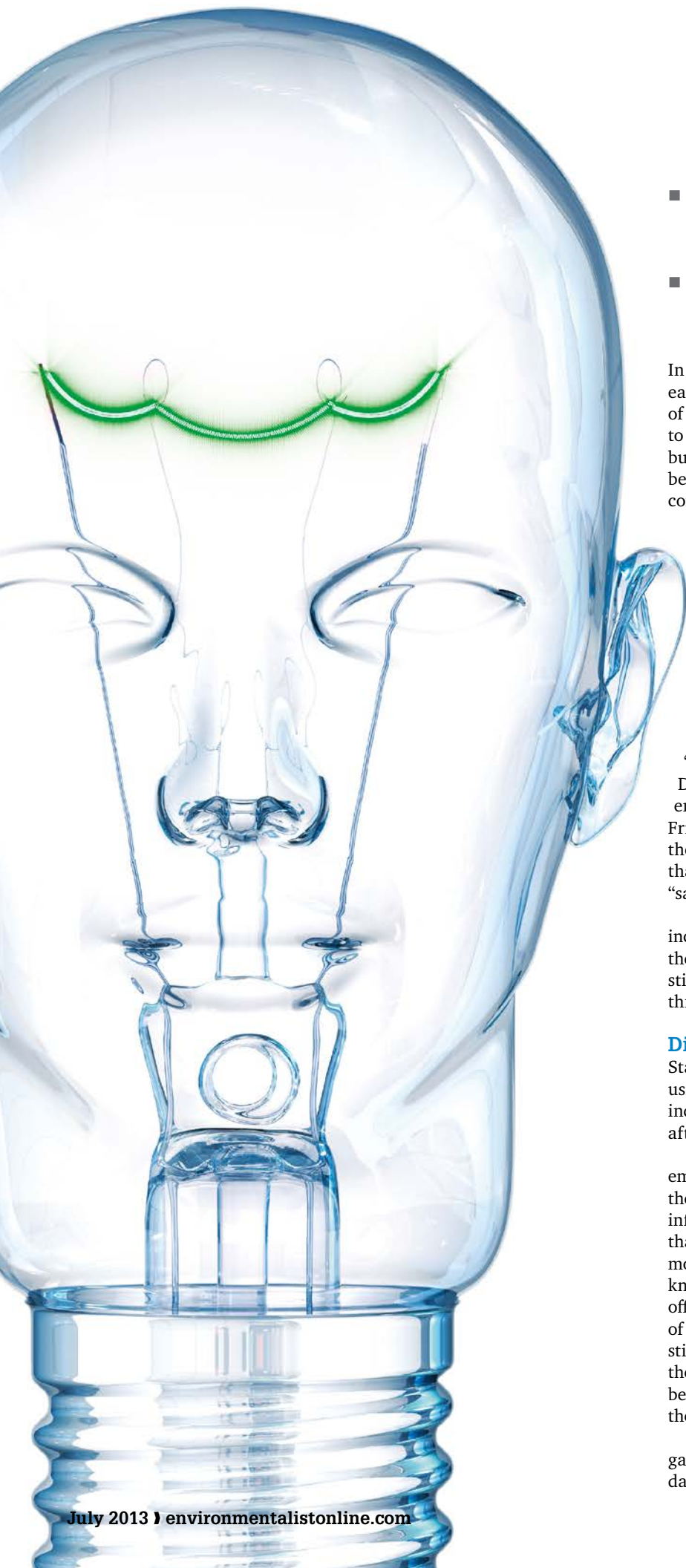
Spreading the word

Several communication methods were employed to disseminate information and raise awareness among as many employees as possible across the four selected offices. These methods included:

- **Energy emails** – All staff received a daily message about energy. There was a different theme each day and the topics covered included: computers, lighting, heating and photocopiers. On the last day, the email contained a general summary. The emails provided information about the specific theme for the day, with a link to an online interactive tool for those who wanted further details. The message also challenged building occupants to do something different to be more energy efficient. The first daily email included a statement on the energy consumption of the building and its cost.
- **Drop-in sessions** – Two lunchtime sessions were run during the week where occupants could find out more information, pick up leaflets on energy

Desks receiving 'bad behaviour' stickers on Monday and Friday





reduction opportunities at work and at home, and participate in activities.

- **“Toolbox” talks and briefings** – For the staff of subcontractors who did not have access to email, there were toolbox talks and briefings covering the same topics as the daily energy emails.
- **Themed posters** – Each day new posters (mostly produced by the Carbon Trust) were put up around the offices in line with the theme of the day.

In addition to sharing information on saving energy, each of the daily emails set a goal related to the theme of the day. The aim of providing the challenges was to help people focus on one particular thing each day, but there was an expectation that these goals were to be maintained going forward. The daily messages also contained feedback on the occupants’ performance on the goal set the previous day.

The very first objective, set on the Monday, was to switch off all electrical equipment when it was not in use and then performance was assessed throughout the week. This was regarded as the most measurable goal associated with individual behaviour, rather than group behaviour. Each day, the number of electrical items left powered were counted and the performance fed back to staff in the emails.

To further drive behaviour change, a “consequence intervention” was established. Daily inspections were carried out to encourage all employees to turn off equipment. On the Monday and Friday, this resulted in participants who had turned off their equipment receiving a reward (sweets) and those that had not, being given a sticker that told them to “save it – by switching off”.

Rewarding good behaviour was designed to incentivise the same behaviour through the week, with the expectation of more rewards, while issuing the sticker gave a visual indication of who had not turned things off, highlighting “bad behaviour”.

Did it work?

Staff understanding of energy issues was assessed using a quiz-style questionnaire and by asking individuals to rate their own knowledge before and after the energy awareness week.

The results showed that there was an increase in employees’ knowledge at all locations, but interestingly the results also indicated that permanent offices were influenced more by information contained in emails than those in temporary offices, where posters seemed more effective. Another finding was that self-rated knowledge showed a bigger increase in permanent offices than in temporary premises. Data on the number of occupants receiving the “save it – by switching off” stickers on the Friday reveal a large improvement over the week, and no significant difference was seen in the behaviour of staff in permanent offices compared with those in temporary locations.

The improvement in energy performance was gauged using energy data normalised against degree-day data – a measure of the difference between the

Stickers highlighted 'bad behaviour'



baseline and the actual outdoor temperature – to build a model of actual energy consumption against estimated consumption.

Normalising energy data against temperature is important, as external temperatures will affect the amount of energy used in a building. It is also a good way to build a model of energy consumption to determine whether an energy reduction project has been effective or not.

All four sites participating in the project experienced a decrease in energy usage of 2–5% against anticipated energy consumption.

Also, all of the intervention methods applied – information, goals, feedback and rewards/punishment – helped to develop knowledge, change behaviour and improve energy performance in the four offices.

Going further

Following the success of the energy awareness week project, Costain has rolled out the campaign nationwide. Feedback from 42 sites, responding to an online survey on the effectiveness of the initiative, reveals that around 3,000 employees and subcontractors have been influenced by the initiative.

Sites were asked to rate the different communication methods and the toolbox talks were seen as the most useful. Most sites responding to the survey also reported that energy consumption declined as a result of the campaign, with reductions ranging 1%–11%. The majority of sites recorded a 5–6% cut in their energy consumption compared with previous weeks.

The company continues to drive good energy behaviour by repeating the messages of the energy awareness week throughout the year.

The Costain project demonstrates that interventions to raise awareness of energy issues can be effective and are essential in addressing occupants' impact on a building. Occupant behaviour is a big part of the energy consumption of a building, so unless such a behavioural solution is implemented across all non-domestic buildings, the UK may have difficulty reaching its target of an 80% reduction in greenhouse-gas emissions by 2050.

Claire Baker is graduate environmental adviser at Costain Group.

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Common thread

Darren White explains how CH2M HILL is weaving sustainability into projects using programme management principles

Companies are starting to incorporate sustainability into their marketing, corporate communications, annual reports and their actions – whether it is designing and constructing a major infrastructure project or producing a household product. To effectively integrate sustainability, it must be a key theme in programme management methodologies and practices, in the same way as cost, delivery and efficiency.

Organisations approach the delivery of sustainability in different ways, whether it is through a stakeholder/client led approach or through the implementation of their own internal management systems. Over the past few years, CH2M HILL, a global consultancy, design, operations and programme management company, has developed a set of principles, which integrate, monitor and report on sustainability during the design of a building or throughout its construction, delivery and operation. It is an approach that goes much further than conventional project management.

From projects to programmes

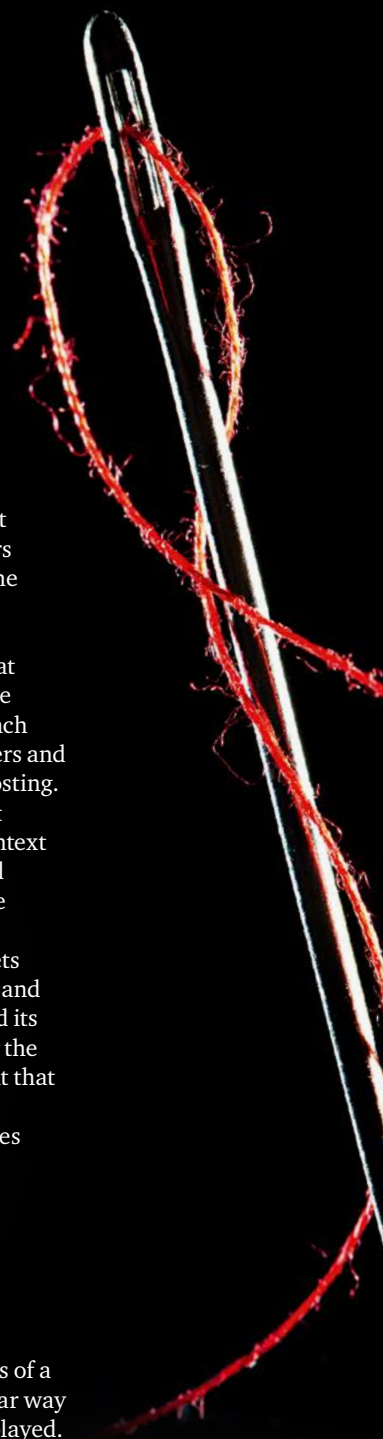
One of the major contributing factors to poor sustainability in the construction sector is the disconnect between the engineering, procurement and construction disciplines. It is relatively straightforward for designers to produce a sustainable design; however, the principles can be either diluted or lost once the design moves to procurement and the construction phase, unless the requirements are embedded in the supply chain. The original aims

of the design must be integrated into the contract documents as specific key performance indicators (KPIs) or deliverables that can be used to track the design through the various stages of the project.

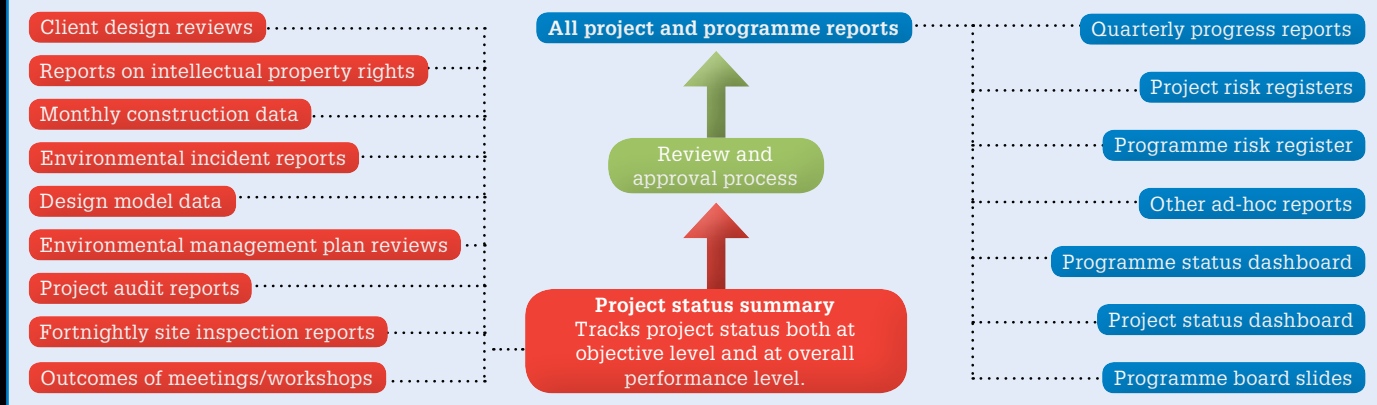
Traditional project management is usually concentrated on the delivery of a single project that satisfies the client and the lead organisation for the duration of that project. A more up-to-date approach incorporates the requirements of other stakeholders and the operation of the asset – similar to whole life costing. By contrast, sustainable programme management (SPM) looks at the local and the wider societal context of a development and provides a collaborative and integrated approach to deliver benefits beyond the life cycle of the project. SPM is defined as: “The organised management of change in policies, assets or organisations, integrating the economic, social and environmental aspects of the project, its result and its effect, for now and future generations.” To ensure the successful delivery of sustainability, it is important that it is embedded in:

- project and programme management processes and methodologies;
- project and programme reporting; and
- project and programme management competencies.

When developing reporting mechanisms, it is important to ensure that the end result is a clear performance report, which summarises the status of a particular sustainability theme or issue in a similar way to how financial performance or safety is displayed.



Sustainable programme management's 'single source of truth'



By reading the report, the target audience – whether it is the chief executive, an NGO or the client – should be able to immediately assess the project's sustainability performance. The report should be informed by a raft of data-collecting tools, including audits, KPIs and monitoring reports of individual aspects of the organisation's sustainability policy, such as material selection, diversity of workforce and resource efficiency. This information should be able to provide a "single source of truth" that can be traced back should further analysis be required (see panel, above).

When reporting on performance, it is essential that the scoring criteria are clearly defined and quantified. This will avoid the potential of the ratings being considered to be inaccurate or influenced by personal opinion.

SPM in practice

SPM was used successfully during the construction of facilities for the London 2012 Olympic and Paralympic Games, where the Olympic delivery partner CLM – a joint venture between CH2M HILL, Laing O'Rourke and Mace – adopted it as a method of reporting.

During construction of the Olympic park, the performance report for one project revealed it was at risk of not achieving its target on recycled content of materials. This would have affected the whole programme's performance against a key sustainability target. As the problem was identified during the design phase of the project, it was possible to review material selection to see if the amount of recycled material being used could be increased and put the programme back on track to meet its target.

It was identified that changing just one product would ensure that the project would achieve its goals. The product was a non-concrete kerb, which could be installed where kerbs were not susceptible to damage by heavy vehicles. The alternative product contained 88% recycled content and was predominantly made from recycled plastic – approximately 182 plastic bottles in each kerb. It was easier and quicker to install than traditional concrete kerbs owing to its lighter weight, with each plastic kerb weighing less than 6kg compared with 70kg for concrete. Replacing this single product

led to significant benefits in construction delivery time, recycled content and potential for end-of-use recovery, project performance and the wellbeing of the installer. Without adopting a programme management approach to monitoring and reporting performance, this might not have been identified at a suitably early stage.

Value adding

There are several potential benefits to adopting a SPM approach. These include:

- clear and consistent communication of expectations;
- progress is measured objectively and consistently;
- validated data are used as a "single source of truth" to generate multilevel and audience outputs;
- helps to establish a strong governance function;
- assists in the identification and management/mitigation of unsustainable trends;
- enhances reputation and stakeholder satisfaction;
- ensures alignment throughout supply chain;
- human resources, development and training (job creation, competencies retention, etc.); and
- a motivated workforce benefitting from shared culture and objectives.

Integrating sustainability into project and programme management involves the entire project delivery process and generates added value for project managers, communities, stakeholders and the natural environment. While the principles of SPM are the same irrespective of the project, the mechanisms must be tailored based on location, feedback from building owners and end-users, and a willingness from the design team to collaborate with stakeholders.

By adopting a SPM approach to delivering sustainability, organisations take a collaborative and holistic view of the strategic benefits to their firm of designing effective management and control systems that lock in sustainability to the programme process.

Darren White is sustainability project manager with CH2M HILL and is currently advising on the sustainability plan for the high-speed rail line, HS2. This article is dedicated to landscape architect and sustainability champion John Hopkins, who died in January 2013. He oversaw the design and delivery of the widely acclaimed London 2012 parklands.



The missing link

Victor Parrilla advises businesses on how best to measure their supply chain emissions

Businesses that have for years been measuring and managing their own direct carbon emissions are increasingly looking at their suppliers to gauge their overall carbon footprint as they seek to be more transparent. Supply chain footprinting also helps to identify “hot spots”, which are often not only sources of emissions, but also of significant cost.

Capturing information on so-called scope 3 emissions – those associated with purchased goods and services; business travel; employee commuting; waste disposal; transportation and distribution; investments; and leased assets and franchises – is often feared for its complexity, resource need and the cost of tools and support. However, there are some pragmatic and cost-conscious approaches that an organisation can take to measure such indirect emissions.

One step beyond

The majority of large businesses are familiar with how to measure their organisational carbon footprint, and more will be so with the advent of mandatory greenhouse-gas reporting, when it rolls out for businesses listed on the London Stock Exchange from 1 October this year.

The obvious next step is to consider emissions from suppliers. Many multinational companies, such as Kingfisher, Tesco and Unilever, are already doing this and there is a solid business case to underpin the action. A poorly performing supply chain will, ultimately, be obvious to stakeholders, including customers and investors; this will reflect badly on the business and can severely damage brands.

Failure to address suppliers' emissions could have financial implications, potentially damaging a firm's share price and costing it £240 for each tonne of carbon “wasted” through energy inefficiencies, for example.

Some organisations view their supply chain's carbon footprint as an integral part of ensuring sustainable operations – that can mean low cost, but also low risk. Others may be attracted by the potential marketing edge they can gain over their competitors, for example, by disclosing performance through the Carbon Disclosure Project (CDP) or the Global Reporting Initiative.

Rising to the challenge

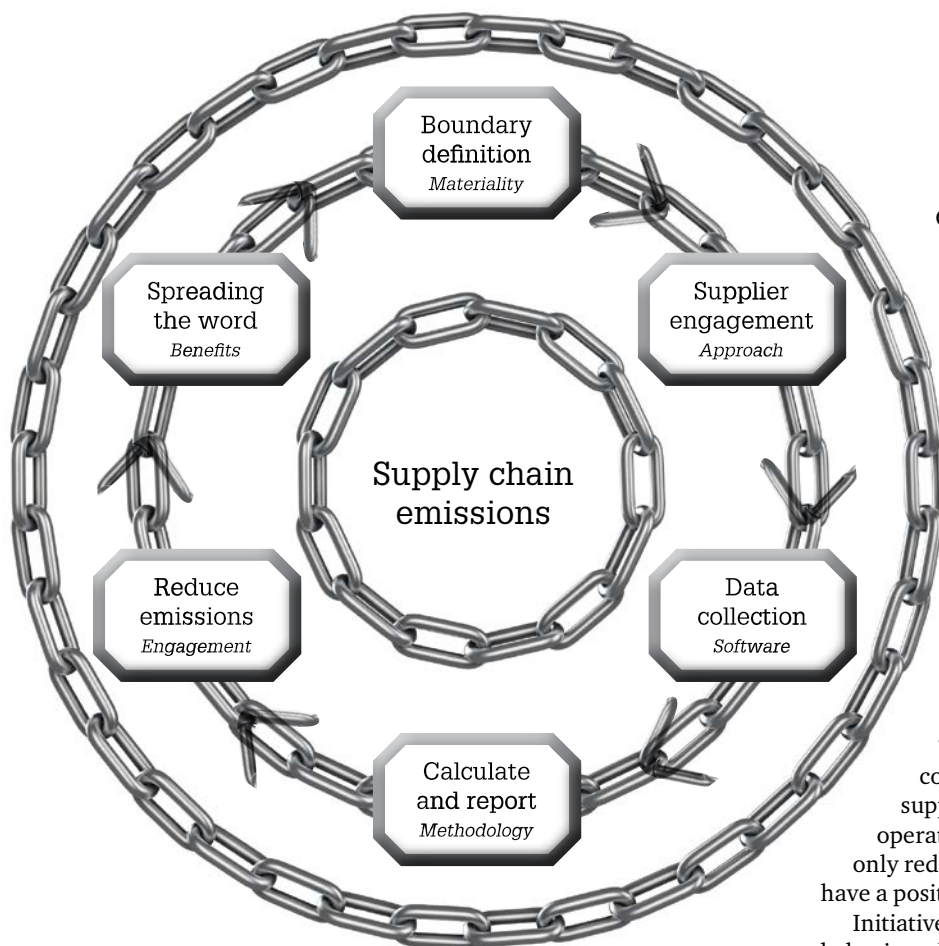
Footprinting a supply chain database that potentially runs into thousands of firms might seem a daunting task, so some pragmatic decisions need to be made.

Do you need to assess all suppliers? It is highly unlikely that most organisations will be able to report 100% of their supply chain emissions. So, unless a firm is following a reporting standard with specific requirements, it should focus on those emissions that are material to its operations.

The best way to do this is by first mapping your supply chain – this may include a list of purchased goods and services and a list of suppliers. Then you can decide the parameters to use in defining what is material to the business. For example, it could include all suppliers with which the organisation spends more than 5% of its purchasing budget, or those that supply it with more than 5% of its annual goods by weight.

Organisations wanting suppliers' data will need to engage with them. There may be obstacles to overcome; some, for commercial reasons, may be unwilling to disclose data, while others may be less knowledgeable about measuring emissions than their customers. If the latter is the case, it suggests that there is probably more scope for carbon efficiencies and cost savings.

You will need to “sell it” to suppliers by explaining why your company is seeking such information and the various potential benefits available for them – not forgetting that you are the customer.



The data collection process also needs to be very simple, as that is the best way to generate a high response. Sustainability software solutions can be very detailed, but are frequently expensive, difficult for non-expert users and can seem over-specified for what you need them to do. The humble spreadsheet still has a role to play, but you are likely to need a fair amount of administrative support to collate data, depending on the length of the supplier list, and a keen eye to spot errors. You may be able to use your spreadsheets in combination with a simple database to achieve this and save some pain.

Online tools – such as the Carbon Trust’s value chain manager software (lexisurl.com/iema15655) or Carbon Footprint’s carbon tracker tool (lexisurl.com/iema15656) – collect suppliers’ energy use and transport data, and can be easily completed by dozens of responders over international locations with one common methodology.

Where it is impossible to collect all the data, then you may need to model it. Modelling is a powerful tool as long as it is based on valid assumptions. Internationally respected databases, such as EcoInvent, provide broad emissions datasets for various steps of the value chain.

Defra also provides a useful set of emission factors at ukconversionfactorscarbonsmart.co.uk. These can be used to model supply chain emissions, based on the weight of specific goods or materials.

As an example, a hotel wanting to model how much carbon is associated with the purchasing of bedding and towels will need to estimate the weight of such goods bought during the reporting period and multiply it by 22.31kgCO₂ equivalent per tonne, as indicated by the environment department’s latest guidelines.

Updated guidance from the Greenhouse Gas Protocol concerning scope 3 emissions was released in April 2013 (lexisurl.com/iema15653). This free guide provides comprehensive detail on a variety of appropriate techniques and methodologies for calculating supply chain footprints, and is useful throughout the calculation process.

A return on investment?

Management of supply chain carbon emissions should not end at just knowing suppliers’ footprints, however. Corporate customers will benefit from making efforts to assist existing suppliers in reducing their emissions or from adding sustainability criteria to the process to select new ones. “Carbon insetting” is a relatively new concept and relates to investing in your supply chain to help suppliers reduce their operating emissions. Such assistance can not only reduce the embodied carbon of goods, but also have a positive effect on their cost.

Initiatives might involve sharing best practice on behavioural change, for example, or perhaps helping with the cost of energy or carbon saving equipment. This becomes a “win-win” proposition for the supplier and the client, as well as providing lower carbon goods and services to end-user customers.

If suppliers are small or medium-sized enterprises in the UK, they may also be able to get financial support to improve their environmental performance. The government-funded Manufacturing Advisory Service, for example, can provide matched funding to help businesses in England engage with consultants.

The analysis of the embodied carbon of products will frequently identify “hot spots” in CO₂ creation across the value chain and can lead to improvements in design, which reduce environmental impacts and take cost out of the product – providing a better “greener” design that can give competitive advantage.

Shedding some light

When the analysis of suppliers’ emissions is completed, the organisation will be in a good position to promote what it has done, both internally and externally. If it does not already report to the CDP, for example, doing so can be beneficial, by demonstrating to stakeholders that the organisation understands the risks posed by climate change and is seeking to future proof the business from their impact.

Sustainability professionals need to ensure their marketing teams are briefed properly and are able to communicate in a clear, jargon free and evidence based way the actions that are being taken by the business to tackle its supply chain emissions at both a corporate and a product level.

Victor Parrilla is a senior consultant at Carbon Footprint, victor.parrilla@carbonfootprint.com.

'All jobs greener' gains momentum

The June issue of *the environmentalist* launched IEMA's new "all jobs greener" courses, which have been developed and are being operated in partnership with respected training body City & Guilds. Judging by the number of enquiries received after the launch, the scheme is set to become a huge success.

Several organisations are already signing up teams of staff to become trained in how their role – regardless of specialism or level of responsibility – can have a positive impact on their organisation's environment targets.

Meanwhile, several key IEMA-approved training providers have expressed an interest in adding the courses (see panel, below) to their portfolio. Together with City & Guilds' training infrastructure, the additional providers will help to ensure these courses truly support IEMA's ambitions to equip every organisation with the right combination of environment skills across their workforce.

The City & Guilds' sales force is promoting the courses to its client organisations, colleges and other training centres to help embed this streamed

training programme into businesses' development programmes and vocational training schemes.

IEMA has been calling for environment knowledge and skills to be incorporated into every job role for several years, and the launch of the all jobs greener courses is a game-changing moment for the Institute, as well as City & Guilds, businesses and the global workforce. What sets these courses apart from general environment awareness courses is that each session is targeted according to the employees' level of seniority and can be further tailored to sector, industry and role.

The courses not only enable businesses worldwide to upskill their staff to help them meet their environment targets, but they also offer IEMA members the opportunity to provide leadership in embedding environment knowledge into every role as they have the opportunity to deliver the training to their colleagues with the support of City & Guilds.

To find out more about the suite of all jobs greener courses, including costs, availability and booking details, visit iema.net/all-jobs-greener.



The 'all jobs greener' training courses

The all jobs greener collection of courses from IEMA and City & Guilds includes two formal qualifications:

- **Working with environmental sustainability** – aimed at the entire workforce, this level 2 qualification (equivalent to a BTEC first diploma) provides employees in any role with the knowledge to do their job in a greener way to support organisational environment goals.
- **Managing with environmental sustainability** – aimed at managers and supervisors, this level 4 qualification (equivalent to a BTEC professional diploma) provides an operational and strategic understanding of the environment and its effects on a team or function.

Both courses focus on the importance of resource efficiency; pollution, prevention and control; environmental legislation; the impact of transport;

and how employees can support sustainability. The level 2 course has seven hours of guided learning hours (GLH), and the training and assessment are usually completed in one day. Assessment includes a paper-based, multiple-choice test. The level 4 course has 14 GLHs, and training and the short answer test can be completed in two days. Learners also have to submit a work-based report. Individuals can progress from level 2 to level 4 in environmental sustainability.

The portfolio also includes a strategy session for senior executives:

- **Leading with environmental sustainability** – aimed at leaders, this session gives senior executives, board members and investors a strategic understanding of the risks and opportunities presented by a changing environment and its impact on business operations.

Policy update



Biodiversity offsetting

After a recent summit hosted by environment secretary Owen Paterson, Defra is producing a green paper on biodiversity offsetting with the intention of running a consultation later in the summer.

At the event, commentators offered a number of perspectives. Dieter Helm, chair of the government's natural capital committee, for example, shared his belief that offsetting has the potential to help meet the goal set in the natural environment white paper of the current generation being the first to improve the environment.

Meanwhile, John Slaughter, director of external affairs at the Home Builders' Federation, focused on the need for transparency in any offsetting system, while another participant, Kerry ten Kate, a director at Trends and head of the firm's business and biodiversity offsets programme, made the case for a mandatory system. In highlighting the need to develop a clear set of conservation priorities to inform when developments on one type of habitat could be offset by improvements to another, she stressed the importance of preparing a system properly, launching it decisively and allowing enough time for it to become properly established. Having the right skills and enough capacity were vital issues, she said. Ten Kate also set out a three-tier system for biodiversity offsetting, with simple and swift offset transactions for the lowest biodiversity impacts; a more rigorous approach for more serious impacts and, potentially, an independent review for the most significant impacts.

In earlier consultations on offsetting, IEMA raised a number of concerns with Defra and the ecosystems market taskforce. These centred on the importance of the mitigation hierarchy and on ensuring "additionality" and offsets in perpetuity. Members can find out more via the IEMA policy hub at iema.net/biodiversity-ecosystems.

Nick Blyth is policy and practice lead at IEMA

IEMA responds to adult skills review

Limited employer engagement and a dated view of the UK's skills infrastructure impair the development of vocational qualifications, warned IEMA in its response to a major consultation on adult skills and qualifications.

As part of its review of adult vocational qualifications in England, the UK Commission for Skills (UKCES) invited key stakeholders, including IEMA, to contribute to its research. UKCES is aiming to ensure that employers and individuals value such qualifications. IEMA's response provided both a professional body's perspective on the issue and an environmental one.

The Institute believes that a central barrier to the effective development of adult vocational qualifications is the differing levels of employer engagement. Its response states: "This is in part due to the [UK's] skills infrastructure which doesn't reflect a developing economy, but focuses on an outdated description of sectors... Environment and sustainability skills cut across sectors, but the outdated

view held by some organisations has resulted in a fragmented and inconsistent approach to the development of environment and sustainability national occupational standards and qualifications."

As a solution, IEMA recommends increasing the involvement of businesses: "The design of adult vocational qualifications should always be through engagement and participation of industry to ensure that the qualifications developed are fit for purpose and meet the needs of industry both now and, as far as possible, in the future."

UKCES says the review will ensure that future adult vocational qualifications: are deliverable in a wide range of contexts; have a recognised identity; provide a passport for learners into and through a career; equip people with competency and support upskilling; and are trusted and respected by both employers and individuals.

To read IEMA's full response, visit lexisurl.com/iema15784.

Amey joins ranks as an approved training provider

Public services provider Amey has become the latest organisation to join the IEMA-approved training provider list. The firm, which works across the UK managing public services and infrastructure, such as waste collection, and highways maintenance, is now approved to offer the IEMA carbon awareness course to its staff.

Amey already has a reputation for delivering environmental improvements to its customers and the public using its services. With its help, the Home Office, for example, has reduced its carbon emissions by 15% and is on track to save £1.3 million in energy bills through a pioneering energy management contract.

IEMA's partnerships manager Jonathan Nobbs welcomed Amey to the approved training provider stable. "Our training provider list is already an impressive

roll-call of specialist trainers and private sector organisations that have a clear and demonstrable dedication to upskilling their staff," he said. "Adding Amey to that list will only strengthen the reputation and diversity of the scheme, and I am delighted to see them join us."

To download a comprehensive list of IEMA's approved training providers, go to iema.net/iema-training-providers.

Online training directory

A new directory of IEMA-approved training providers has been launched on *the environmentalist's* website. The directory features company profiles with contact information and links through to their websites. Visit environmentalistonline.com/trainingdirectory.

CEO announces summer roadshows

After promising to instigate a thorough, long-term programme to connect with as many members as possible, IEMA's new chief executive, Tim Balcon, has announced a "CEO roadshow" of events that will give thousands of members the opportunity to help shape the future direction of the Institute (see the panel below for locations and dates).

IEMA's current plan for the Institute's focus and goals ends in 2014, and Balcon believes that this provides the perfect opportunity to put in place measures to equip members with the right support and skills to enable them to drive change in their organisations.

Along with key staff, committees and representatives, Balcon is developing IEMA's succeeding agenda – Vision 2020 – that will guide and measure IEMA's performance over the next seven years. The project has now reached the stage where member views are being sought, and they are crucial to its progression.

"With the clarity that comes with 20:20 vision, our Vision 2020 will give IEMA ultimate direction, transparency and purpose," Balcon says. "But we cannot and will not form the content and anticipated outcomes of Vision 2020 alone. We need input from members to ensure that we not only become what you want and need us to be in seven years' time, but that we provide the right leadership."

Between now and mid-September, Balcon will personally attend 14 events around the UK to gain face-to-face feedback on the proposed structure and content of Vision 2020. Webinars on 29 July and 22 August will enable everyone who cannot attend the regional events to engage in the consultation process and offer their perspective on what has been drafted. A third webinar, on 5 August, will be held specifically for international members.

"What we have worked on so far puts the individual IEMA member at the centre of our being, with a supporting framework of community, development and influencing opportunities that we hope will inspire and enable every single person to become exactly the professional they want to be," explains Balcon. "But I need more detail particularly around what adds value, which can only come from the membership, so that I can tell our board why Vision 2020 will work."

"In last month's issue of *the environmentalist* I explained that I intended to make champions out of our members. It's a bold statement, but an achievable one. Getting everyone involved in the development of Vision 2020 is the first rung of that ladder so I genuinely hope to meet as many of our members as I can over the coming months."

Members will have received an email inviting them to attend the events but, for more information or to book your place, visit iema.net/events. If you would like to contact IEMA about Vision 2020, email vision2020@iema.net.

Future issues of *the environmentalist* and *IEMA Downloaded* will contain details of further engagement opportunities and the development of Vision 2020.



CEO Vision 2020 roadshow

IEMA's chief executive, Tim Balcon, will be visiting 14 towns and cities across the UK to meet members and hear their views on what the Institute's Vision 2020 should look like. This is your opportunity to talk to Balcon about what you want and will need from IEMA to support your professional development over the coming decade. To book your place at any of the events visit iema.net/events.

Date Location

July

22 Newcastle

23 Birmingham

25 Manchester

30 Aberdeen

August

06 Bristol

07 London

08 Newmarket

12 Glasgow

13 Leeds

19 Southampton

28 Belfast

28 Dublin

September

02 Peterborough

05 Liverpool



More successful IEMA members

IEMA would like to congratulate the following individuals on successfully upgrading their membership.

Associate

Elaine Adamson, First ScotRail
Alan Aldridge, Wellcome Trust
Richard Arroyo, CH2M Hill
Joshua Barber, Sellafield
Martin Brand, First Glasgow
Dan Chi Wong, Paia Consulting
Gareth Coffey, Coffey Construction
Samuel Collier, Quarryman's Arms
Jason Cox, SEH Ipswich
Beverley Craven, Santia Consulting
Joel Crompton, SDK Environmental
Catrina Davies, Nestlé
Helen Drewery, Marine Scotland
Camilla Durrant, ADAS
Andrew Fowler, Crane Environmental
Johanna Gosling
Jillian Horvath, Klinger
Robert Hunt, Golder Associates
Gareth Jones, Marine Scotland
Hywel Jones, Atkins

Andronikos Kafas, Marine Scotland
Mike Ketley, S2 Partnership
David Kiddell, Scottish Power (DCL)
Penelope Ladd, Vodafone
Miles Lewis, Lend Lease
Julia Levy
Francis Lobb, Cope Safety Management
Richard Livock, Murco Petroleum
Chelsie Love, Ramboll
Karen McAuley
Fiona Mackintosh, Marine Scotland
William Marshall, Action Sustainability
Roger May, Marine Scotland
Sam Metson, Bidwells
Alice Mitchell, Peterborough City Council
Hannah Nelson, Planning Inspectorate
David O'Sullivan, Marine Scotland
Nicola Paterson
Clare Pitts-Tucker, Eunomia Research and Consulting
David Preston, Environment Agency

Colin Price, Central Roofing and Building Services
Elizabeth Rhodes, Bath University
Sonja Shaw, IJS Consultants
Philippa Sim, Tickety Boo
Racheal Smith, Heineken
Niamh Spurle, Lakehouse
Matthew Stones, Lindsay Carrington Ecological Services
Rebecca Strickland
Lee Stuckey
Andrew Sutherland, Marine Scotland
Hannah Trotter, Trinity Mirror
Tessa Waite
Robert Watret, Marine Scotland
Samuel Henry Williams, Environmental Resources Management
Laura Wilson
Stuart Woodburn, BP Global
Jialiang Zhang

Full
Alan Barthrope, Bryen & Langley
Ashley Hurst, AHQM

IEMA events

Date	Region/time	Topic
9 Jul	Midlands	Managing resource risks and delivering business opportunities (Birmingham)
21 Aug	Scotland West	Travel planning and the new Scottish government electric vehicle road map
11 Sep	Scotland West	Closing the circle on food: becoming a link to regenerate local food production and supply
Membership workshops		
2 Sep	Scotland West	Full and CEnv membership workshop (Glasgow)
30 Sep	Yorkshire and Humber	Full and CEnv membership workshop (York)



People like Michael say:

The only way to change behaviour is to change minds first. So I introduced a graduate programme which included a compulsory environment module. Now everyone's on board I've reduced waste to landfill by 68%, cut paper purchasing by 13% and saved £27,000 a year on water charges.

Read Michael's story at www.iema.net/mystory

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A SUSTAINABILITY
MESSAGE TO BUILD
MORALE ACROSS
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Just cause

Okey Ngoka describes how he helped prosecute the owner of an illegal waste operation next to the Olympic park and ensure the closure of the site



When I joined the environment team at the London Borough of Tower Hamlets in 2004, I had no idea that I would become involved in the prosecution of an illegal waste site that would reach the Court of Appeal and be studied by my peers as an example of case law.

As a major projects officer for the borough, my day-to-day job revolves around noise and air quality. I work with the developers of projects such as Crossrail, the Docklands Light Railway (DLR) expansion, Canary Wharf's redevelopment and the Thames tideway tunnel to mitigate and monitor the environmental impacts of construction work.

Engaging local communities is a big part of my job – or we would be in the newspapers every day – and there's also a lot of coordination with other local authorities and the developers. I'm involved from the planning stages and throughout the construction phase: discussing potential mitigation options at the outset, moving on to monitor noise and air quality impacts of the construction and, if necessary, taking action to prevent harm to the environment or local community. On one memorable occasion, this involved putting up the residents of an entire street at a local hotel for six weeks while their glazing and insulation was replaced!

My job is about balancing the need to encourage large-scale development with the significant impacts such projects have on those who live nearby. In particular, I spend a lot of time examining work carried out at night. Developments involving the railway network, for example, require significant construction work to be carried out between midnight and 5am because the lines have to remain operational during the day. In my job you get used to staying awake! Knowing that you've helped to ensure big projects are successfully delivered and that local residents haven't been inconvenienced, makes it worthwhile.

One project I'm particularly proud to have been involved with is the expansion of the DLR. This is in part because it was very complex and involved a lot of nightwork, but also because we identified a firm that was operating without a waste management licence and were able to successfully prosecute it. Pursuing an unlicensed waste operator was not part of my standard job role. However, the Cleaner Neighbourhood Act in 2005 provided local authorities with the powers to enforce environment regulations and we became the first borough in London to prosecute using those powers.

I had come across O'Grady Plant and Haulage operating in Tower Hamlets in the past and requested information regarding its waste carrier and

management licences, but the firm had been quite evasive. It was by chance that I saw the director of the company while attending a meeting at the DLR contractor's offices.

I asked DLR to provide me with details of its dealings with O'Grady Plant and Haulage. We were able to trace construction waste from the DLR works and found that the lorries were not going where they were supposed to, but to an unregulated site in Tower Hamlets next to the Olympic village.

Over six to nine months, I worked to gather evidence against the firm, aided by DLR, the Environment Agency and other London councils, including Kensington and Chelsea. The illegal dump was close to a new housing development and the residents also played an important role, taking photographs of the site and appearing as witnesses at the trial.

It was one of the most interesting periods of my career. I spent a lot of time following lorries, being verbally abused and physically threatened. The company's director also attempted to sue Tower Hamlets and me for harassment. But the passion of the residents and the knowledge that we were doing something to stop someone illegally dumping waste were both great motivators.

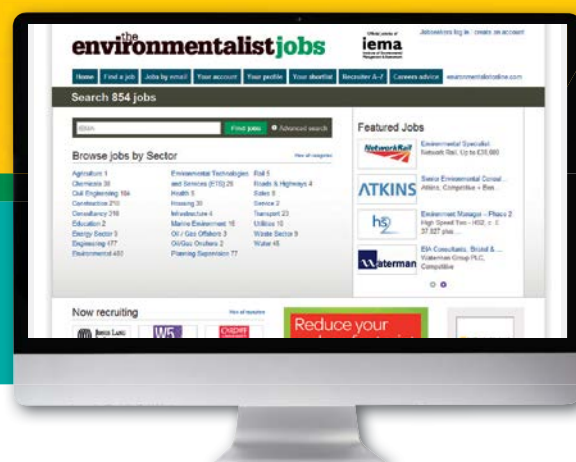
The case was referred to the crown court, where a jury found O'Grady Plant and Haulage and its director guilty of four breaches of the Environmental Protection Act 1990 after dumping controlled waste on an unlicensed site. The director attempted to appeal against the convictions, but the Court of Appeal refused to overturn the decision, saying that the evidence I had helped to collect spoke for itself and that the company had caused substantial pollution. The director was fined £12,000, and the multi-million pound waste operation that had blighted the area was shut down.

Acting as an expert witness in a successful prosecution was one of the best things I have done in my career, and something I never expected to do. Frequently, when you work in this sector, you are seen to be there to ask organisations to make voluntary changes to lower their environmental impacts, such as adopting ISO 14001. However, such actions would not happen if you didn't have an active regulatory regime and robust enforcement of those rules. Regulation is what really makes it economically viable for organisations to be environmentally friendly most of the time, and I'm proud to have been part of that process.

Okey Ngoka, AIEMA, is a major projects officer for the London Borough of Tower Hamlets.

LOOKING FOR THE RIGHT ROLE?

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www.environmentalstonline.com/jobs



FEATURED JOBS

<p>Senior Consultant £34,000 – £36,000 London Ref: 2013/SSC/IEMA</p>	<p>Environment Specialist £36,000 – £40,000 + Benefits East London Ref: Network Rail</p>
<p>Director of Sustainability £Competitive Nottingham Ref: JK12577</p>	<p>Environmental Assurance Advisor £Competitive Canary Wharf (London) Ref: CS525</p>
<p>Environmental & Sustainability Manager £Competitive Newcastle Ref: North East Ambulance Service</p>	<p>Principal Sustainable Development Mgr £45,000 Home Counties Ref: 4650</p>

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