

>> BUILDINGS 21

A rooftop vista

Looking at the blossoming green roofs providing vital habitats throughout the UK

>> STRATEGY 25

EA cuts back

How reducing carbon, travel, waste and water is saving the regulator £6 million a year

>> KNOWLEDGE 28

Cause and effect

Make sure you know your aspects from impacts with this back-to-basics guide

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FEBRUARY

NEWS

- 4** Apple tests suppliers' green credentials
Government loses FITs appeal, but original cuts will go ahead from March
- 5** Packaging producers donate £217,000 for waste offences under new civil sanctions
- 6** Running on hydrogen – government backs new low-carbon fuel programme
Firms keen to invest in sustainability
In parliament Chris Davies discovers a different approach across the EU to enforcing environmental legislation
- 8** Suppliers failing customers on carbon
Case law Experts at LexisPSL on the quashing of the St Regis conviction for falsifying environmental data
- 9** MEPs get tough on WEEE – European Parliament endorses higher collection targets for waste electrical goods
Warning that high-carbon investments could be the next sub-prime mortgages
- 10** Businesses risk billions by failing to adapt
Carbon price will floor business, warn MPs – both industry and environment at risk

BRIEFING

- 13** New regulations: flooding, pollution, hazardous substances, energy, water, waste, climate change, environmental protection
- 14** Latest consultations: lighting, waste, legal challenges, landscape and visual impact, nitrate pollution, energy performance
New guidance: emissions monitoring, waste competence schemes, environmental permitting, industrial emissions

IEMA NEWS

- 34** IEMA wins international EIA award
Regional events and workshops
Graduate advice
- 35** Institute responds to CRC consultation
Claire Lea's latest blog
- 36** Energy-saving device – ISO 50001

February 2012 » environmentalisonline.com

FEATURES

16 Thirsty work

the environmentalist reports on how companies are combating water scarcity

21 Breaking through the grass ceiling

As more UK buildings install "green" roofs, Becky Allen investigates why

24 Laying down the law

Stephen Tromans argues that even the government is not above the law

25 Agency creates its own better place

How improving environmental performance saves the EA £6 million a year

28 The art of interaction

Paul Reeve goes back to basics on how to identify aspects and impacts

30 ROCKy road ahead

Energy experts at Royal Haskoning on the impact of changes to ROCs

32 Beating the bean counters

Systems act as a barrier to experts providing solutions, warns Mark Everard

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In the hot seat

In his first public policy comments as the new energy and climate change secretary, Ed Davey stressed that his department would continue to support the roll-out of renewable energy as a way to stimulate “green” economic growth. “There may have been a change at the helm, but there’ll be no change in direction or ambition,” he said.

Although the true value of his pledge can only be judged by his future actions, environmentalists will be heartened by Davey’s comments, particularly as most will have viewed Chris Huhne’s departure with dismay. Huhne was thought by many to have played a key role in getting the coalition to back the creation of the Green Investment Bank and to endorse a tighter fourth carbon budget.

Davey’s transfer to DECC from the business department comes at a time when MPs supporting the government’s environment agenda increasingly find themselves on the back foot, while confidence among

Despite his assurances that DECC will not backtrack on its low-carbon objectives, the new energy secretary is likely to come under increasing pressure to do just that

their opponents is rising. Following Huhne’s resignation, David Cameron received a letter from 106 MPs demanding that the coalition scrap its financial support for onshore wind-energy generation. This suggests a new-found belief among the motley crew of climate change sceptics and “nimbys” in the House of Commons that the self-styled “greenest government” may be reining back on its commitment to the environment.

Many signatories will have been emboldened to publicly challenge government policy by the chancellor’s autumn statement last year, in which he offered to help energy-intensive sectors mitigate the impact of policies aimed at reducing carbon emissions, dismantle existing environmental regulation and build more roads.

Meanwhile, DECC is operating under a financial straightjacket imposed by the Treasury, which led to its decision to pull the rug from under the feet of the solar panel industry by halving the feed-in tariff.

So, despite his assurances that DECC will not backtrack on its low-carbon objectives, Davey and his department are likely to come under increasing pressure to do just that.



Paul Suff, editor

Short cuts

Zero-carbon buildings

The UK can remove all the carbon emissions being emitted from homes and offices by 2050 if the government introduces legally binding and progressively tougher energy performance standards, according to Oxford University's Environmental Change Institute (ECI). In its new report, *Achieving zero* (lexisurl.com/iema11657), the ECI argues that if 40% of the £35 billion spent each year on improving and maintaining buildings is invested in energy-efficiency measures, by 2050 all UK properties will be insulated so well they will not need any additional energy for heating. The report concludes that such measures could halve electricity use in buildings and mean that demand could be met entirely by low-carbon renewable-energy technologies. However, the report estimates that 82 buildings will have to be retrofitted to efficiency band A every hour for the next 39 years if the UK is to meet the zero-carbon target.

Southwest wave power

The UK's first marine energy park will be based in southwest England. The new initiative, commissioned by Cornwall Council and Plymouth City Council, will bring together local enterprise partnerships, universities and businesses in the renewables sector in a bid to speed up development of scalable wave and tidal power technologies. The South West Marine Energy Park will encompass the whole region, stretching from the Bristol Channel to the Scilly Isles. Energy minister Greg Barker hailed the scheme as an important milestone for the technology. "Marine power has huge potential in the UK not just in contributing to a greener electricity supply and cutting emissions, but in supporting thousands of jobs in a sector worth a possible £15 billion to the economy to 2050," he said. Meanwhile, the Scottish government has approved plans to support new renewable-energy developments to connect to the national grid.

Apple tests suppliers' green credentials

Supply chain Technology giant Apple suspended business with two suppliers in 2011 after discovering they were in breach of environmental regulations.

Apple's 2012 supplier responsibility progress report (lexisurl.com/iema11655) reveals the results of 229 audits examining suppliers' performance against its environmental, safety and ethical requirements and a further 14 specialist environmental assessments.

It shows that only 68% of the facilities audited were managing hazardous waste and air emissions in accordance with local legislation and Apple's supplier code of conduct, and that one-quarter of sites did not have the requisite environmental permits. Performance was better when it came to managing waste and preventing pollution, with 89%–94% of suppliers compliant with Apple's requirements.

Of the 14 suppliers subject to more detailed scrutiny, six facilities were found not to have up-to-date environmental impact assessments, two had not registered



with their local authority as polluters and two were disposing of industrial wastewater through storm drains.

Despite the non-conformities, Apple stated it had found only four core violations of its requirements and confirmed it was taking action to help suppliers improve their environmental management practices, including rolling out a new training programme.

Original cuts to FITs to go ahead

Energy DECC is planning to introduce a phased reduction in feed-in tariff (FIT) payments once a specified number of installations is reached.

The move follows the Court of Appeal judgment that the energy and climate change department acted unlawfully in proposing to curtail FIT levels before a consultation on reducing subsidies ended on 23 December 2010.

A DECC spokesperson said the department would set out proposals to introduce a cost-control mechanism for solar photovoltaics (PVs) to help provide long-term certainty for the industry. The plans are similar to the German model, which automatically adjusts subsidy levels to accommodate changes in the price of PVs and amount of capacity installed.

Even before the Court of Appeal had given its ruling, DECC confirmed that it would reduce payments for PV systems of less than 4kW in line with its earlier plans – from 43p per kWh to 21p – for panels installed from 3 March.

The failure of the government's legal challenge – although it is seeking

permission to appeal to the Supreme Court – means there could be insufficient funds in the existing FIT budget to meet its commitments, particularly if demand rises substantially ahead of the new March deadline. "We must reduce the level of FITs for solar panels as quickly as possible, to protect consumer bills and to avoid busting the whole feed-in tariff budget," said energy minister Greg Barker.

The budget is capped under Treasury rules related to the amount of funds that can be generated from levies on consumer bills. While DECC has confirmed it has been able to increase the funds available to the FIT scheme by shifting cash allocated to the Renewables Obligation, the overall spending cap remains in place.

In welcoming the Court of Appeal decision, Edward de la Billiere of Prospect Law, which represented Solarcentury, one of the plaintiffs, said: "[The ruling] goes wider than the original challenge, about the December deadline, and makes it clear that DECC cannot retrospectively change the rate of the FIT for people who are locked into it."

Packaging producers donate £217,000 for waste offences

Regulation In its first year of civil powers, the Environment Agency (EA) dealt with almost two-thirds of offences under the Producer Responsibility Regulations through voluntary compliance agreements rather than prosecutions, raising more than £217,000 for environmental projects.

From 4 January 2011, the EA has been able to tackle a variety of pollution, waste and water offences through civil sanctions rather than pursue all cases through the criminal courts.

Powers open to the EA include ordering firms to comply with legislation, clear up pollution, compensate victims and pay fines. The agency is also able to accept voluntary offers from organisations, known as “enforcement undertakings”, which describe what actions the firm will take to ensure compliance moving forward, how it will restore any affected environment and, where restoration is not possible, how it will ensure an equivalent benefit or improvement to the environment.

During 2011, the agency accepted 25 such offers from firms for breaches of the Producer Responsibility Obligations (Packaging Waste) Regulations 2007. Over the year, it successfully prosecuted 16 firms for the same offence.

The benefits of adopting civil sanctions, according to the agency, include the ability to avoid costs associated with legal action and have offenders put funds directly into projects benefiting the environment, rather than paying fines. It says a decision to accept an enforcement undertaking offer will be based on an assessment of the significance of the offence to the environment and community.

In the first year of operation, the civil sanctions resulted in donations from firms averaging £8,716 to local authority projects and charities. Gym company Fitness First, for example, had its offer of a donation of £8,621 to Dorset Wildlife Trust accepted by the EA as adequate remedy for its breach of the producer responsibility Regulations.

Other firms subject to enforcement undertakings included: facilities management company MITIE, which gave £7,263 to Trees for Cities; technology distribution company Steljes, which made the largest voluntary donation under the



Civil sanctions in 2011 were mostly for packaging offences

sanctions – £25,000, for canal towpaths improvements in Surrey; and Rivington Biscuits, which donated £14,278 to Wigan Groundworks.

While raising a total of £217,907 for environmental remediation and improvements, the average donation made under the scheme remained lower than the average fine issued by the courts for similar offences in 2011, which was £10,880.

The first 12 months of civil sanctions appear to have seen only limited use of the powers, with the EA accepting just one other enforcement undertaking, from a horticultural firm after breaching the Control of Pollution (Oil Storage) (England) Regulations 2001, and failing to issue a single compliance notice, restoration notice or financial penalty.

Reacting to the EA figures, the Environmental Services Association (ESA) cautioned that it is too early to judge whether the new civil sanctions are providing an effective alternative to criminal prosecutions. While supporting the principles behind the sanctions to enable the agency to better focus its resources, Rid Hollands, policy support officer at the ESA, said organisations needed more guidance.

“It is vital the sanctions are applied proportionately and consistently, and robust governance and appropriate officer training is crucial to ensure that this happens,” said Hollands. “Regulators should publish action plans and guidance, to improve transparency and consistency and help businesses understand the process of regulatory enforcement placed on them.”

Short cuts

Axe lifted from remediation relief

The Treasury has confirmed that plans to abolish land remediation relief will not go ahead. It is one of only four relief schemes to be reprieved from the list of 36 the government had initially planned to axe. Respondents to the consultation on ending the tax reliefs argued that removing the land remediation relief would affect the regeneration of uneconomic brownfield sites, exacerbating the financial pressure on developers that was already mounting owing to the removal of the exemption from landfill tax for soils and waste from contaminated sites, which although agreed in 2009 will be scrapped shortly. As a result, the Treasury concluded that removal of land remediation relief would risk undermining the government’s plans to support the housing and construction sectors through its planning reforms. Annually, approximately 1,300 companies claim land remediation relief, at a cost of about £40 million.

Smarter air controls

A new study claims that measures to capture methane and tackle black carbon emissions could have a swifter impact on global warming than cutting carbon dioxide emissions. Scientists from NASA and the Stockholm Environment Institute at the University of York claim to have identified 14 air pollution measures, using existing technology, to more effectively control methane and black carbon – a product of the incomplete combustion of fossil fuel or biomass. In the journal *Science*, the researchers advocate keeping high-polluting vehicles off the road, installing particle filters in diesel vehicles, and upgrading stoves and boilers to control emissions of black carbon, while levels of methane in the atmosphere could be cut by capturing gas that currently escapes from coal mines, oil rigs, gas pipelines and landfills, updating wastewater treatment plants and limiting emissions from manure.

IN PARLIAMENT

The north-south divide



Chris Davies is the Liberal Democrat environment spokesperson in the European Parliament

Environmentalists in the UK have it easy. We take it for granted that laws intended to curb pollution will be properly enforced. We have inspectors to carry out checks and a legal system that supports their action. It's not perfect, but it's not bad.

In making European environment laws we tend to assume this is how it is everywhere. It's an assumption that is often false. The stereotype is that, while northern Europeans expect new laws to be applied, southern Europeans regard them more as expressions of good intent. I was reminded that there is some truth in this when I spoke in the European Parliament the other day to a visitor group from Greece.

The enforcement structure that we regard as normal simply doesn't exist in Greece. The data needed for proper pollution control are often not available, pollution inspections take place only in response to complaints rather than on a routine basis, and under-the-counter payments too often make inspectors go away.

Perhaps it's not surprising that Greece was the first country to face the full rigour of EU infringement proceedings. After the European Commission failed to persuade the authorities to prevent a waste tip on Crete leaching into the Mediterranean, the European Court of Justice in 1999 imposed a fine of €20,000 a day on Greece until the work was carried out. It took five months before the all-clear was given and payments ceased.

The country's economic plight frustrates other improvements, yet some are being made. Discharges into the sea around the coasts have been almost eliminated, I am told, and of course the EU standards now required of auto manufacturers mean that all new vehicles are less polluting than their predecessors. Now if only the illegal use in lorries and taxis of high-sulphur marine fuel could be stopped ...

Running on hydrogen

Transport The widespread adoption of hydrogen-powered vehicles in the UK could become a reality if a new government-backed project is a success.

The project, called UKH2Mobility, will evaluate the potential for hydrogen as a fuel for ultra low-carbon vehicles in the UK prior to developing an action plan for an anticipated roll-out to consumers in 2014/15. Launching the project, which is being backed by £400 million of government funding, business minister Mark Prisk said: "Hydrogen fuel cell electric vehicles are increasingly being recognised as one of the viable options as we move to a low-carbon motoring future. It is vitally important that we identify what is required to make these cars a realistic proposition for UK consumers."

UKH2Mobility involves three UK government departments – DECC and the business and transport departments – and 13 industrial partners from the utility, gas, infrastructure and global car manufacturing sectors. Automotive companies signed up to the scheme include Toyota, which has been developing hydrogen technologies for 20 years, Nissan, which is set to start manufacturing its Leaf electric car in the UK this year, and Air Products, which is



the world's largest hydrogen manufacturer and already operates nine hydrogen fuelling stations in the UK.

In a separate move, energy storage and clean-fuel company ITM Power, another UKH2Mobility partner, is beginning trials with Marks & Spencer to test hydrogen-fuelled vehicles, such as forklift trucks, at the retailer's 1.1 million sq ft distribution centre in Bradford. The trial is the first of its kind in the UK.

"We are excited to be trialling this solution, which has the potential to drive significant carbon reductions from our warehouse operations," commented Darrell Stein, director of IT and logistics for M&S.

Firms keen to invest in sustainability

Strategy Spending by large UK firms on energy, environment and sustainability initiatives will grow at an average of 16% a year between now and 2015, according to research by analysts Verdantix.

The predicted growth in sustainable business spending in 2012 will be 12%, which is 20 times faster than the forecast growth of the UK economy, at 0.6%. The study finds that such spending by 421 UK firms, with revenues greater than £1 billion, will grow from £4.3 billion in 2012 to £6.8 billion in 2015.

"The UK's sustainable business market is continuing to grow at a healthy rate because firms have aligned sustainability strategies with operational efficiency. Energy cost savings and more efficient use of natural resources now underpin sustainability investments – not philanthropic commitments to fight climate change," commented Susan Clarke, Verdantix analyst and author of the report (lexisurl.com/iema11706).

It concludes that some initiatives will experience significant growth over the next four years, while others will barely keep pace with inflation. Areas of spending expected to grow significantly up to 2015 include smart meters (23%), electric vehicles (22%), on-site renewable energy (22%) and product stewardship (21%). Areas forecast to experience slower growth rates include spending on social responsibility (5%), and environment, health and safety (6%). Taken as a whole, strategic energy management will be the largest area of spend in sustainable business budgets, finds the study.

Despite the buoyant predictions in some areas, Verdantix warns that a further economic contraction in the UK could see some planned investments culled. "If the UK economy falls back into recession in 2012, spending on capital-intensive initiatives will be delayed or cancelled," commented Rodolphe d'Arjuzon, Verdantix's global head of research.



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Suppliers failing customers on carbon

Supply chain Efforts by large companies to reduce their operational carbon emissions are not being replicated by suppliers, says the Carbon Disclosure Project (CDP), despite the fact that emissions that occur beyond the direct operations of multinationals can account for as much as 86% of a firm's footprint.

A CDP survey of 49 multinationals, including L'Oréal, Philips and Walmart, which owns Asda, and 1,864 suppliers, reveals that while 43% of large firms have achieved year-on-year emissions cuts, only 28% of suppliers have done so.

The findings are contained in the *CDP supply chain report 2012* (lexisurl.com/iema11677). It claims the business case is strong and growing, and that suppliers that do not measure, quantify and manage their greenhouse-gas emissions will soon see their business move to competitors that can provide better information and clearer evidence of change. The survey results demonstrate that large companies stand to gain from carbon-reduction activities by suppliers, with more than one-third (34.5%) benefiting from new revenue streams or financial savings as a result of their suppliers' carbon-reduction activities.



However, fewer than 25% are actively helping their suppliers identify the cost savings and revenue generated by their emissions cuts. The failure of companies to help their suppliers understand the business benefits of cutting carbon through greater energy and resource efficiency will hamper their efforts to lower their scope 3 emissions (most indirect emissions) and, potentially, future growth, argues the CDP.

Nonetheless, the findings reveal that leading businesses are changing their operating models to force suppliers to improve their performance. There is a marked rise in the proportion of large

companies with climate change strategies that incorporate procurement guidelines – 90%, up from 74% in 2009 – and 67% of firms now include CO₂ management in their procurement policy. And the proportion of multinationals that claim they will deselect suppliers that fail to meet formal environmental criteria within five years has more than doubled, from 17% in 2009 to 39% in 2011. Almost two-thirds (63%) report investing in training their procurement staff in supply chain carbon-management, up from 26% in 2009.

“Companies are evolving the way they operate to better capitalise on the opportunities presented by carbon-efficient supply chains,” says Frances Way, programme director at the CDP. “Such a large shift in companies' procurement models is encouraging but we are yet to see a transformational impact on suppliers' emissions.”

The poll also discovered that extreme weather events disrupted 30% of large companies' supply chains in the past year and that more than half (53%) of the suppliers identify certain or likely exposure to increased operational costs as a direct result of climate change.

CASE LAW

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Breaking free from paper chains

In November 2011, the criminal division of the Court of Appeal overturned the Crown Court's conviction (lexisurl.com/iema11678) of St Regis Paper Company for the offence of intentionally making a false entry in an Environment Agency (EA) record in contravention of reg. 32(1)(g) of the Pollution Prevention and Control (England and Wales) Regulations 2000 (PPC).

St Regis had to keep records of the amount of pollutants flowing into the River Culm, in Devon, from its Cullompton mill as a condition of its environmental permit. The technical manager, Christopher Steer, had to produce daily environmental report sheets for the amount of suspended solids in the outflow from one of the plants. False readings were recorded and misleading reports returned to the EA. Consequently, in April 2011, the paper mill was ordered to pay £455,000 in fines

and costs for the breaches. The Crown Court jury also heard that a freshwater dilution system had been installed to dilute effluent with river water before it reached the sampling point, something the EA was unaware of. Nonetheless, the Court of Appeal decided:

- There was no basis in law for attributing the technical manager's dishonest intentions to the company.
- It was not possible to impose criminal liability for a breach of reg. 32(1)(g) on St Regis – as opposed to the manager with record-keeping responsibility, who was found guilty of the same offence.
- The exception to this approach was where an intention to make a false entry could be attributed to the company by operation of the *Tesco Supermarkets Limited v Natrass* rule – that the intentions of the manager could be said to be the directing mind and will of the company. But

this case did not warrant imposing such liability.

- Regulation 32(1)(g) should be seen in the context of that regulation as a whole, which showed immediately that a contrast could be drawn between offences of strict liability, such as reg. 32(1)(b)–(e), and those which require proof of intent, such as reg. 32(1)(g)–(h).
- The conviction could not be sustained on the basis of vicarious liability.
- The PPC Regulations 2000 have been repealed. However, reg. 38 of the successor Regulations – the Environmental Permitting (England and Wales) Regulations 2010 – contain similar offences.

Despite the conviction being quashed, this case sends out a strong message to firms to not falsify environmental data.

Colleen Theron and Deirdre Lyons, LexisPSL

MEPs get tough on WEEE

Waste The European Parliament has approved proposed updates to the Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC), introducing new legally binding collection targets and tighter export controls.

Under the new Directive, all European member states will, by 2016, have to collect 45 tonnes of WEEE for every 100 tonnes of electronics put on sale three years before.

In 2019, these targets rise to either 65 tonnes for every 100 tonnes of new goods or 85% of total WEEE being generated annually. The European Commission estimates the new targets will ensure that 10 million tonnes of WEEE are collected, reused and recycled each year, five times the amount under the existing Directive.

Alongside the tougher bloc-wide collection targets, other changes will include new rules allowing consumers to return mobile phones and other small devices to large retailers without having to buy a new product. MEPs also approved changes aimed at tackling illegal shipments of WEEE overseas, by swapping responsibility for proving the content of shipments from customs officials to exporters. This will require companies to

provide documents on the nature of the cargo and run tests to prove it is not waste.

European commissioner Janez Potočnik welcomed the MEPs' decision, saying the new Directive will play an important role in encouraging resource efficiency.

"Proper treatment of WEEE is important to prevent harm to human health and the environment, and its systematic collection is the precondition for recycling valuable raw materials," he said. "In challenging times of economic change and rising prices for raw materials, resource efficiency is where environmental benefits and innovative growth opportunities come together."

Potočnik's assertions were supported by the World Economic Forum (WEF), which estimates that if governments and industry do nothing to address energy use and metal shortages, \$2 trillion-worth of output will be put at risk by 2030.

Using the consumer goods sector as an example, the WEF concludes that if manufacturers improve their use of steel and increase recycling rates they could save \$46.9 billion by 2030, while greater energy efficiency could create further savings of \$37 billion.

Warning that high-CO₂ investments could be next sub-prime mortgages

Finance The UK's future economic stability is at risk from organisations investing in activities that are damaging the environment, the Bank of England has been warned.

In an open letter to Sir Mervyn King, the bank's governor, a group of investors and academics has called for an investigation into the level of the UK's exposure to high-carbon investments as the country transitions to a low-carbon economy. The letter argues that as technological advancements and government policies drive a shift away from fossil fuels, pension funds and other long-term investors that continue to invest in companies working in high-carbon sectors, such as oil and gas abstraction, could find themselves saddled with uneconomical assets in 20 or 30 years.

"Counter-intuitively, investors continue to pour cash into unsustainable high-carbon assets without understanding or

being able to manage the risks associated with these investments," says James Cameron, of low-carbon investment firm Climate Change Capital. "This poses significant challenges for the future prosperity of Britain that can't be ignored."

Paul Simpson, CEO of the Carbon Disclosure Project, warned: "The current economic woes of Europe present a short-term headache; if we are to avoid a much larger hangover from our high-carbon economy, then regulators, stock exchanges and long-term investors must analyse the fossil fuel reserves on company balance sheets in order to better understand and reduce risk from high-carbon investment."

Regulators do not monitor the number of high-carbon investments being made in the UK, and the letter urges the Bank of England to investigate the level of risk posed by this exposure. Following the letter, King indicated the bank's financial policy committee may well begin an investigation.

Short cuts

Water stewardship

Global chemical company BASF has announced it will implement the European Water Partnership's stewardship standard at all its sites in "water-stressed locations" by 2020. The announcement followed the firm's six-month pilot of the water sustainability standard at its Verbund site in Germany. The standard, which was officially launched in November 2011 (lexisurl.com/iema11650), was created to help organisations monitor and improve their water usage, examining in particular: sustainable water extraction, pollution, biodiversity, and water management. In a statement confirming its wider adoption of the water stewardship standard, BASF said it was driven in part by increasing requests from stakeholders to provide more information on its water use, along with a desire to ensure ongoing access to a crucial resource.

Retailer's fine cut in half

Discount retailer Trago Mills has had its fine for illegally dumping and burning thousands of tonnes of waste at sites near Newton Abbot and Liskeard halved by Exeter Crown Court. The company appealed the fine of £185,000 imposed by magistrates in September 2011 (lexisurl.com/iema11654). Although the firm pleaded guilty to five offences under the Environment Protection Act 1990, it claimed senior managers at the firm did not know of the breaches. After reviewing the original sentence and hearing that the company had incurred clean-up costs of £475,000 in addition to the financial penalty imposed at the earlier hearing, Judge Cottle reduced the fine to £65,000. Prosecution costs of £14,588 remain unchanged. The judge said he would give his reasons later in writing. An Environment Agency investigation in 2009 revealed that the company had dumped more than 6,000 tonnes of waste, including hazardous materials such as asbestos, in illegal landfills in the Devon countryside and unlawfully burned more waste at its centre in Cornwall.

Businesses risk billions by failing to adapt

Climate change Organisations have been warned to prepare for climate change, as Defra predicts that more frequent floods, hotter summers and pressure on water supplies are likely to cost the UK economy billions of pounds in the coming decades.

In the first UK Climate Change Risk Assessment (CCRA), government scientists examined in detail 100 potential impacts of a changing climate and their costs if no adaptation measures are taken. The CCRA concludes that flooding poses the greatest risk to infrastructure, homes and businesses, with the cost of damage likely to be twice today's annual figure of £1.2 billion, and potentially reaching £12 billion by 2080.

Looking specifically at businesses, the CCRA warns that the number of non-domestic buildings to be at risk of flooding could reach 400,000, with expected annual flood-related damage costing £1.6–£2.5 billion and with further costs to be expected as a result of productivity loss and supply chain disruption.

The CCRA also reveals that rising temperatures could prove to be the most expensive impact of climate change, with the number of working days lost to overheating expected to at least double by



2050. Without energy-efficient measures to cool buildings, the report estimates that by 2080 the business costs of overheating could be twice that caused by floods and gaining access to water, increasing from £770 million today to £3.6 billion, and possibly as high as £15.2 billion.

Lord John Krebs, chair of the adaptation subcommittee of the energy and climate change committee, welcomed the CCRA warning that without effective adaptation plans the UK could “sleepwalk into disaster”.

Martin Baxter, policy director at IEMA, agreed, calling on environment professionals to help their organisations

to adopt long-term strategies considering how their operations will be affected. “There is an urgent need for action to be taken now to build knowledge and skills to improve business resilience, but too few businesses and public sector organisations are reflecting climate risks in their decision-making processes,” he said. “Environmental practitioners are well placed to help organisations understand climate risks and build adaptive capability.”

The CBI's head of climate change policy, Dr Matthew Brown, reacted to the report by urging companies to ensure risk-management plans consider the threats posed not only to supply chains, assets and operations, but also to business markets, regulatory compliance and reputation.

While welcoming the CCRA as a helpful awareness-raising tool, the Business Continuity Institute (BCI) says its focus on the finance sector, as the economy's greatest contributor to GDP, means that it hasn't addressed those sectors most at risk.

“The major problems of climate change are likely to have the most impact on sectors – like manufacturing and retail – with large physical assets and those with diverse geographical supply chains,” said Lyndon Bird, BCI's technical director.

Carbon price will floor business, warn MPs

Emissions MPs claim plans to establish a carbon price floor (CPF) could devastate UK industry's ability to compete in Europe and harm the EU's efforts to cut emissions.

In a new report from the energy and climate change committee, MPs say the recent collapse in the price of allowances for the EU emissions trading scheme (ETS) will mean the unilateral introduction in the UK of a CPF could cost industry and the power sector an additional £10 for every tonne of carbon dioxide emitted in 2013.

The planned CPF sets out a minimum price for carbon that would apply in the UK, charging a “top-up” tax on emitters if the price of ETS allowances falls below the predetermined price floor. In 2013, the CPF will be £16 per tonne of CO₂, rising to £30 by 2020 in 2009 prices.

At the start of 2012, ETS allowances were trading at €6.78 and analysts

forecast that prices are likely to remain low at around €8 during phase III of the ETS, which starts next year. The lower the price of allowances, the more top-up tax UK emitters will have to pay in comparison with EU emitters.

MPs fear the CPF will force UK power generators to relocate to other EU states, reducing the effectiveness of the ETS in helping to cut the bloc's emissions. They say the CPF risks the economic future of conventional electricity generation in the UK, effectively subsidising higher fossil fuel emissions elsewhere in Europe. “Unless the price of carbon is increased at an EU-wide level, taking action on our own will have no overall effect on emissions other than to outsource them,” said committee chair Tim Yeo.

The committee wants the government to push for a strong and stable carbon price across the whole emissions trading scheme instead of taking unilateral action.

“Instead of going it alone, the chancellor would be better off working with other European governments to make the ETS more effective as a whole,” said Yeo.

Meanwhile, the government has responded to concerns raised by the environment audit committee that the promised review of the fourth carbon budget (2023–27) in 2014 could put achievement of the UK's 2050 carbon reduction target in jeopardy. It describes the decision to review the budget as “pragmatic” and says it will revise it up to align it with the actual European trajectory if other member states do not adopt similarly ambitious goals.

Under the Climate Change Act 2008, the government must set legally binding budgets for UK emissions. The fourth carbon budget puts a cap on emissions equivalent to 1,950 million tonnes of CO₂ for 2023–27, putting the UK on course to cut emissions by at least 80% by 2050.

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- An understanding of techniques to reduce carbon and GHG emissions

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NEW REGULATIONS

In force	Subject	Details
1 December 2011 	Flooding	The Incidental Flooding and Coastal Erosion (Wales) Order 2011 relates to the powers of the Environment Agency (Wales) and local authorities under ss.38 and 39 respectively of the Flood and Water Management Act 2010. lexisurl.com/iema11532
13 December 2011 	Hazardous substances	EU Directive 2011/97/EU amends Directive 1999/31/EC as regards specific criteria for the storage of metallic mercury considered as waste. Member states are required to bring into force regulations and administrative provisions necessary to comply with the new Directive by 15 March 2013. lexisurl.com/iema11530
15 December 2011 	Energy	The Renewable Transport Fuel Obligations (Amendment) Order 2011 amends the 2007 Order, transposing, in so far as they relate to transport, articles 3, 17–19 and 21(2), and Annexes I and V, of EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources. lexisurl.com/iema11536
15 December 2011 	Water	The Water Supply (Amendment to the Threshold Requirement) Regulations 2011 amend s.17D(2) of the Water Industry Act 1991 so as to reduce the threshold level for water supply to specified premises from 50,000 litres to 5,000 litres. lexisurl.com/iema11542
22 December 2011 	Energy	The Electricity and Gas (Carbon Emissions and Community Energy Saving) (Amendment) Order 2011 amends both the Electricity and Gas (Carbon Emissions Reduction) Order 2008 and the Electricity and Gas (Community Energy Saving Programme) Order 2009, increasing the participation thresholds of both schemes. lexisurl.com/iema11544
30 December 2011 	Waste	The Waste Management Licensing (Amendment) Regulations (Northern Ireland) 2011 provide an exemption for the landspreading of sludges from on-site effluent treatment of waste from abattoirs and meat and fish processing plants following “conventional treatment” or “enhanced treatment”. lexisurl.com/iema11533
31 December 2011 	Climate change	The Climate Change (Limit on Carbon Units) (Scotland) Order 2011 sets a limit in accordance with s.21 of the Climate Change (Scotland) Act 2009 on the net amount of carbon units which may be credited to the net Scottish emissions account. lexisurl.com/iema11539
31 December 2011/ 1 January 2012   	Environmental protection	The Pollution Prevention and Control (Amendment No.2) Regulations (Northern Ireland) 2011 – came into force in Northern Ireland on 31 December 2011 and implement EU Directive 2009/126/EC on Stage II petrol vapour recovery during refuelling of motor vehicles at service stations. Similar Regulations – the Environmental Permitting (England and Wales) (Amendment) (No.2) Regulations 2011 – came into force in England and Wales on 1 January. lexisurl.com/iema11404 , lexisurl.com/iema11531
1 January 2012 	Climate change	The Greenhouse Gas Emissions Trading Scheme (Amendment) (Registries and Fees etc) Regulations 2011 amend the 2005 Regulations to give effect to EU Regulation 920/2010 for a standardised and secured system of registries. The Regulations also amend the powers of the Environment Agency, Scottish Environment Protection Agency and Department of the Environment in Northern Ireland. lexisurl.com/iema11659
1 January 2012 	Pollution	The Pollution Prevention and Control (Designation of Industrial Emissions Directive) (Scotland) Order 2011 designates the recast EU Directive on industrial emissions (integrated pollution prevention and control) (2010/75/EU) as a relevant Directive for the purposes of para. 20 of Sch. 1 to the Pollution Prevention and Control Act 1999. lexisurl.com/iema11401

LATEST CONSULTATIONS


29 February 2012

Lighting

 The European Commission has launched a consultation on a green paper examining the future of light emitting diode (LED) or LED-based lighting in the EU. The commission says that LED lighting can save up to 70% of energy and money compared with other lighting technologies. The green paper highlights the challenges for wider market uptake and the policies it is proposing to overcome these and foster the European lighting industry's leading position and competitiveness in LED lighting.
lexisurl.com/iema11556


9 March 2012

Waste

 Defra is consulting on plans to amend s.46 of the Environmental Protection Act 1990, which sets out the penalties that local authorities may apply to householders who present their waste incorrectly for collection. The amendments abolish the criminal offence currently provided, replacing it with a new civil sanction. Under the plans, local authorities will continue to be able to issue fixed penalties in limited circumstances.
lexisurl.com/iema11560


12 March 2012

Landscape and visual impact

 IEMA and the Landscape Institute are consulting on the third edition of their joint guidance document – *Guidelines for landscape and visual impact assessment* (GLVIA3). The GLVIA3 draft is available to download and responses to this consultation must be made via an online survey. Following the consultation period the guidelines will be updated and finalised, with the third edition expected to be published in early 2013. Until then, the existing GLVIA2 will continue to provide practitioners with effective advice on how to undertake both landscape and visual impact assessments within EIA and planning applications.
lexisurl.com/iema11661 (draft)
lexisurl.com/iema11662 (survey)


16 March 2012

Nitrate pollution

 As part of its obligation to review its implementation of the Nitrates Directive (91/676/EEC), the Welsh Assembly government is consulting on revising the coverage of nitrate-vulnerable zones and on modifying the action-programme measures implemented in them.
lexisurl.com/iema11562


28 March 2012

Energy performance

 DECC is seeking views on changes to the Standard Assessment Procedure (SAP), the government's tool for assessing the energy and environmental performance of dwellings. The consultation aims to ensure that SAP continues to meet both existing and new user requirements and focuses on the five primary amendments, which are supported by technical papers, and on a number of other minor changes.
lexisurl.com/iema11561

3 April 2012

Legal challenges

 The Scottish government is seeking views on rules of court for awarding protective expenses orders in legal challenges to certain environmental decisions and which fall within the scope of the Public Participation Directive (2003/35/EC). The government is proposing that: "these rules should strike a balance, within the requirements of European obligations, which enables legitimate challenges to be brought without removing all cost risk to the petitioner and thereby encouraging spurious challenges."
lexisurl.com/iema11558

NEW GUIDANCE

Emissions monitoring/ Waste competence schemes

The Environment Agency (EA) has revised its quick guide on emissions monitoring (lexisurl.com/iema11564). It describes the requirements for selecting new continuous emission monitoring systems (CEMs) for industrial installations regulated by the agency, and how the EA applies its Monitoring Certification Scheme (MCERTS). The latest version (2.2) was issued in December 2011, replacing the previous guide, which was released in August 2011. The EA's *Frequently asked questions* publication on waste technical competence schemes has also been updated (lexisurl.com/iema11565).

Environmental permitting

As part of its regulatory guidance series, the Environment Agency has published a new version of its guide to the Environmental Permitting Regulations (England and Wales) 2010 (lexisurl.com/iema11567). The changes since the previous version, released in April 2010, relate to best available technique, setting emission limit values in permits for installations, the Waste Framework Directive and the Marine and Coastal Access Act 2009. The operator is normally responsible for proposing how it intends to meet the requirements of the Regulations, but the guidance explains how the agency will determine the requirements that apply to a particular activity. It is mainly aimed at the permitting stage but some elements will be relevant to tasks such as permit reviews and compliance assessment.

Industrial emissions

Defra has produced further guidance (lexisurl.com/iema11568) on the EU Industrial Emissions Directive (2010/75/EU) (IED), which supersedes the Integrated Pollution Prevention and Control (IPPC) Directive and consolidates six other Directives – related to large combustion plants (2001/80/EC), solvent emissions (1999/13/EC), waste incineration (2000/76/EC) and the production of titanium dioxide (78/176/EEC, 82/883/EEC and 92/112/EEC) – into one new, streamlined and strengthened law. The Directive came into force on 6 January 2011 and member states have two years to apply the IED in their national legislation.

EVENTS CALENDAR

Date	Course	Location and details
1–2 March 2012	The European chemicals policy – REACH	MWB Victoria, London lexisurl.com/iema11571
6–7 March 2012	Hazmat 2012	NEC Birmingham lexisurl.com/iema11285
7 March 2012	The national flood forum conference	School of Oriental and African Studies, London lexisurl.com/iema11570
8 March 2012	SafeCom 2012 – chemical compliance	St John's Hotel, Solihull lexisurl.com/iema11572
8–9 March 2012	Responsible business 2012 (11th annual summit)	Novotel London West lexisurl.com/iema11426
9 March 2012	envecon 2012: applied environmental economics conference	Royal Society, London lexisurl.com/iema11113
14–15 March 2012	Responsible business exhibition 2012	Business Design Centre, London lexisurl.com/iema11444
20–21 March 2012	CIWEM annual conference: water and environment 2012	Olympia Conference Centre, London lexisurl.com/iema11117
20–22 March 2012	Ecobuild 2012	ExCel, London lexisurl.com/iema11425

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Thirsty work

With the issue of water scarcity rising up the corporate agenda, *the environmentalist* reports on how companies are responding

There are few businesses that could survive without water, yet it is a resource which is frequently taken for granted. As businesses have focused on higher-profile issues, such as energy use and carbon emissions, work on reducing water use has traditionally lagged behind. But the case for businesses to act is increasingly compelling.

Freshwater consumption worldwide has more than doubled since World War II and is expected to rise another 25% by 2030 as the global population reaches eight billion. One-third of the world's inhabitants already lives in water-stressed countries and by 2025 this is expected to rise to two-thirds. Below 1,000 cubic metres of water per person a year, a country faces water scarcity. Parts of northern China have as little as 750m³ available per person, while the UK, although generally perceived to be a relatively wet country, has only 1,300m³ of water available per person a year.

According to consultants McKinsey, the world may face a 40% global shortfall between forecast demand and available supplies by 2030.

Business risk

Water shortages caused by these trends will increasingly expose businesses to risks ranging from a lack of water for key ingredients or manufacturing processes to reputational damage.

The Carbon Disclosure Project (CDP), which has done much to encourage disclosure of corporate carbon outputs, has recently expanded its focus to water. The results of its second annual survey, which included companies from the FTSE Global 500, the Australia 100 and the South Africa 100, revealed that the majority of companies see water as a substantial risk in their business. Almost 60% of respondents reported exposure to water-related risk and more than one-third had already suffered water-related business impacts, with associated costs as high as \$200 million.

Ignoring the impact of water use can cost companies dearly. The experience of Coca-Cola in India provides a stark example: in 2007, more than 400 people marched on the district magistrate's office in the state of Varanasi demanding that the company's bottling plant in the Indian village of Mehdiganj be shut down. The protesters claimed that the factory's need for hundreds of thousands of litres of water dried up their fields, and polluted the land and the water tables.



Another Coca-Cola plant in the state of Kerala had already been shut in 2004 when the local authority refused to renew its licence due to local water shortages and pollution, which it blamed on the company. That year, at the firm's AGM, there was a call for an independent report on the potential environmental and health damage from Coca-Cola plants in India.

Although the company's reputation was damaged by these events, it saw the opportunity to turn the situation around and is now well known for being at the forefront of businesses striving to reduce the impact of their water use. In 2007, Coca-Cola pledged to replenish all the water used in its drinks and production processes by 2020. In 2009, the last year for which figures are available, it restored 28.6 billion litres of water, 22% of its target, through watershed restoration projects and schemes improving access to water supplies. From being the *bête-noir* of environmental campaigners, it now wins praise from WWF, the non-governmental organisation (NGO) most involved in campaigning on water.

The regulatory front

Another looming threat to business is greater regulation on water. A report by US business and environment organisation Ceres in November 2011 warned that regulators around the world are likely to take tough action as pressure on water supplies increases. This includes price rises and restrictions on water access. Conversely, it pointed out, even businesses operating in areas with little or poorly enforced regulation may face still greater risks as a result of unfettered use or pollution.

Governments around the world have already taken action. For example, South Africa has implemented legislation that prioritises domestic consumption of water over industrial users. It also provides specific allocations to protect the ecological integrity of water bodies. Droughts in China have prompted its government to introduce a target to reduce water use by 30% per unit of industrial output.

Businesses also have a positive incentive to act on water efficiency as saving water can save money. Derbyshire-based soft drinks manufacturer Cott Beverages saved £52,000 in a year on water costs after it installed a recirculation system to reuse water for forming seals. Financial savings come not just from water use, but also from associated costs such as energy. Jam maker Wilkin and Sons has identified ways of saving hot water, which costs £2.68/m³ compared with cold water costs of 58p/m³. There are also business opportunities from devising new products and services to improve water efficiency.

A board issue

Despite a growing awareness of the issues surrounding water, however, many businesses are still failing to fully appreciate the risks. In particular, water does not have as high a profile as climate change, despite the risks being more immediate. Only 57% of companies

surveyed by the CDP have board-level oversight of water strategies and plans. This compares with 94% of similar companies whose board oversees climate change strategy. This contradiction is all the more puzzling since availability of water is inextricably linked to climate change. The Intergovernmental Panel on Climate Change warns: "Water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change."

Stuart Orr, water policy officer at WWF, believes that awareness of water is catching up with that of climate change, but that water is much more complex for business to deal with. "Carbon is simpler to calculate and it's simpler to know what to do about it. Water presents some real difficulties – it takes you into a realm of stewardship that is really uncomfortable for some firms," he says.

Most companies are completely perplexed by water because of the social and environmental values connected to it, such as population increase and questions being asked about their resource use.

"With carbon, it's about being efficient and driving your own intensity, but water forces you to act outside your 'fence line'. You can have lots of efficient businesses sitting around a river, but if the river is heavily impacted by overuse, then efficiency doesn't get you anywhere," explains Orr.

Almost 60% of companies polled by the CDP reported exposure to water-related risk and more than one-third had already suffered water-related impacts

Water footprints

As yet, there is no internationally recognised standard for water resource management – although ISO is in the process of developing ISO 14046. Nonetheless, there is a plethora of tools and guidelines available to businesses to help them assess their water use.

These include the CEO Water Mandate from the United Nations Global Compact, the World Business Council for Sustainable Development's (WBCSD) Global Water Tool, the Global Environmental Management Initiative's water sustainability tools, the World Resources Institute's aqueduct tool and the Water Footprint Network's (WFN) water footprint tool.

The latter indicates the volume of freshwater used and/or polluted to produce the goods and services consumed by society or produced by a business, either in its direct operations or in its supply chain. Its calculation is complicated by various factors. For example, the production of one kilogram of beef requires 15,000 litres of water, according to the WFN. But this is a global average and there is huge variation around it. The precise footprint of a piece of beef depends on the type of production system and the composition and origin of the cow feed.

Brewer SABMiller was one of the first companies to calculate its water footprint in countries including Peru, South Africa, Tanzania and Ukraine. Andy Wales, head



of sustainability at SABMiller, explains: “We’ve been working on water for a long time and have had some strong local programmes in place for a number of years.

“But when the WBCSD water tool became available in 2007, it allowed us to map all of the sites where we have operations and identify those areas which are at risk of long-term water scarcity. This then enabled us to decide where we most urgently needed to carry out further analysis and water footprinting.”

WWF, a founding partner of the WFN, has worked closely with SABMiller on its water assessments. “Water footprints are a great advocacy tool,” Orr says. “The footprint tool has been fantastic in bringing people into a water debate that they hadn’t considered before.”

Water footprints are useful in places where issues have been identified – a footprint may help you drive performance improvements or set baselines

However, Orr is concerned there is a lot of confusion about water footprints. Dealing with them should not be the first action that a company takes on water assessment and companies do not necessarily need to know every drop of water that they use, he says. “Water footprints are useful in places where issues have been identified – a footprint may help you drive performance improvements or set baselines.”

Ultimately, discussions need to move on from the quantity of water used to how it is used and what the impact is, Orr says. Although there has been an evolution in the past 10 years in the work companies are doing on this issue, there are still firms that are using water footprinting primarily to find “the perfect number to put on a label,” he complains.

Jacob Tompkins, managing director of water-efficiency campaign group Waterwise, is not a fan of water footprinting, which he says has become almost

like a “cult”. He worries that it is taking companies’ attention away from action on improving water-catchment management. “Water footprints give corporates a lovely smokescreen to spend ages with accountants gathering data and giving performance indicators while completely ignoring any participatory stuff at the local level,” he says.

There is no doubt that some companies are using water footprinting to greenwash their operations, Orr believes. “A lot of people have been driven into the water debate and some of them don’t know why they’re there yet, quite frankly.”

Andrew Noone, senior consultant at WSP, which has been advising on water footprinting since 2009, disagrees. “There are no clients who are spending all this money on water footprinting just to have a nice page in their corporate social responsibility report.”

Not the new carbon

Both Orr and Tompkins are concerned that many companies are treating water in the same way as they treat carbon emissions. Understanding the difference between the two is a key challenge for firms working on water assessments, according to Noone. “Water is such a local issue – it’s not like carbon, which can be amortised globally, and the boundaries aren’t as clear,” he says.

Assessing the impact of water use is made more complex by the fact that water availability varies year on year, according to meteorological conditions. Water also has significant social and environmental uses, which are often not tied to the availability or quantity of water in a given location. As such, there are no straightforward or “one size fits all” solutions to water problems – each issue has to be dealt with in the context of its local setting. “If we want to go down the route of trying to raise the awareness of customers, water footprinting is the wrong tool,” says Orr. Action on water efficiency has so much more to it than just increasing or decreasing the total used, he argues.

This complexity can be daunting for businesses starting out on water efficiency. GlaxoSmithKline (GSK) intensified its work on the issue in 2010, when it set new targets for an absolute reduction in water use of 20% by 2015 in its own operations, which currently use 20 billion litres of water a year. GSK also wants to slash the amount of water used in its supply chain by the same amount by 2020. The company claims that the new focus is already having traction, estimating that in 2011 it reduced water use by about 5%, compared with a 1.6% reduction the previous year.

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Richard Pamenter, vice-president of sustainability at GSK, says the company realises the key issue is the impact of its water use, rather than just the quantity it uses. For example, saving water at its Lake District factory would not have the same level of benefit as saving it at a more water-stressed site. It also needs to investigate the source and impact of the water used in all its ingredients. "There are some very complicated models and studies for assessing water impact in academia. The problem is that we can't see how we can take those models and translate them into something constructive because it's so complicated. We get paralysis by analysis," says Pamenter.

GSK is working through the CEO Water Mandate to develop a tool to quickly identify where investing resources in water reduction will have the biggest benefit in terms of water availability in the whole system. "But we're really feeling our way," Pamenter reveals. Until such a tool is developed, he believes the best thing the company can do is to reduce the absolute amount of water in its operations.

"Is it the perfect thing to do? Not for the whole value chain, but we think it's a good start because at least it will help us build our own capability and help us understand what we need to do," he says.

Ultimately, Pamenter believes that for water assessment to move forward constructively, it will need collaboration between businesses, government, NGOs and stakeholders. "There are more questions than answers on this issue at the moment," he says. This broad engagement is essential to ensure that local water users are involved in water efficiency work.

Wake-up call

There is no doubt that awareness of water risks will continue to grow among businesses. WSP has seen its work on water footprinting grow by 25% year on year, and predicts further opportunities from work following on from footprinting, such as supply chain strategies and customer engagement.

"It's definitely a growing market," says Noone. "Clients' risk profiles are starting to consider where they build assets and how long they are going to be viable for. If water scarcity means that an asset only lasts three-quarters of its life then that's going to be a pretty difficult conversation for a financial director to have with their board."

Getting water taken into account when capital investment plans are being drawn up would have real value, he says. WSP is already working on this with a major client, Noone reports. He does not advocate businesses disregarding working in certain parts of the world purely on the issue of water, but argues that water should be taken into account during the design phase of a new asset so that businesses can operate on less water should they need to.

Orr believes that a lot of businesses are now waking up to water and will be increasingly less able to sit out the debate. They will need to know and act on all aspects of their operations and supply chain. "Part of the realisation of water is that you're not going to be able to sit on the sidelines and pretend it's not your issue."

SABMiller IN TANZANIA

The one overriding lesson cited by SABMiller and WWF in their work on water is that businesses or organisations cannot effectively mitigate the complex and often deeply embedded causes of water risks by working alone.

For example, Tanzania Breweries Limited (TBL) – SABMiller's subsidiary in Tanzania – has its main brewery situated in Dar es



Salaam, where there were serious doubts over the ability of available water supplies to meet the needs of the population and commercial activities. After holding workshops with local stakeholders and undertaking a detailed study of the river basin, TBL identified a series of actions to improve water efficiency in the area.

These included an educational campaign for farmers to improve their use of water and incentive-based schemes to reduce their impacts on water resources; working with local authorities to prevent water leakage from infrastructure and raising the profile of water resource management with senior government officials. TBL is aiming to become a member of the water board so it can contribute to decision making.

GSK USES WATER FOOTPRINTING



Water footprinting helped GlaxoSmithKline (GSK) understand where water use associated with the manufacture and product life of its Aquafresh toothpaste is particularly sensitive. Working with WSP and using the consultancy's water-footprint tool, GSK measured the following three elements for Aquafresh:

- the water consumed in producing the toothpaste at its manufacturing site;
- the water usage of the supply chain components used in the production of Aquafresh; and
- the water used by Aquafresh customers.

WSP's work for GSK highlighted that by far the most significant contribution to the water footprint, and therefore the greatest opportunity for water saving, was the use of the product. This results from consumers letting the tap run during the recommended two minutes. The assessment revealed the Aquafresh end-to-end annual water footprint (rivers, groundwater and lakes) totalled 1,309,169m³. Customers brushing their teeth accounted for 99.7% of the water footprint of each tube of toothpaste, with the supply chain and site operations accounting for just 0.1% and 0.2% respectively.

As a result of the findings, GSK supported the "Turn off the tap" ("Chiudi Il Rubinetto") consumer behaviour programme in Italy in 2010. GSK estimates that the programme could save approximately 40,000 litres of water every day.

Breaking through the grass ceiling

Becky Allen discovers 'green' roofs growing everywhere

On the southern fringes of Sheffield city centre sits South Yorkshire's newest local nature reserve. At just 2,000m², it's also one of the county's smallest, but what makes the reserve unique is its location – on the roof of Sharrow School. Designated in 2009, Sharrow is the first green roof in England to be afforded nature reserve status (see panel, p.22), marking a significant milestone in the green-roof movement.

Once seen as the preserve of the environmental fringe, green roofs are joining the mainstream. London's Canary Wharf estate now has the highest concentration of green roofs in the UK, and Barclays Bank, Waitrose, London Zoo and the Museum of London have all added a touch of grass to the tops of their buildings.

Sheffield leads the way

Away from London, Sheffield is staking its claim as the UK's green-roof capital, thanks to the university's Green Roof Centre. Its director, Dr Nigel Dunnett, confirms: "There are 60 or 70 major green roofs in Sheffield –

more than any city outside London." Until recession hit the construction industry, green roofs were springing up across the city. "The reason for this growth was that green roofs started to become part of planning policy in Sheffield," Dunnett explains.

For the past two years buildings in Sheffield of over 10,000m² must have a green roof, as must residential developments with more than 10 flat-roofed dwellings. As a result, more than 25,000m² of the city's roofs have gone green. "Only when green roofs are included in policy do they start to take off. That's why it began in Germany, because it was part of planning requirements."

Although they owe their resurgence over the past 35 years to developments in Germany, the roots of green roofs stretch much further back. They have been



SHARROW SCHOOL

Designed to reflect the different habitats found around Sheffield, Sharrow School's green roof is made from locally sourced and recycled materials.

The habitats on-site include Peak District limestone grassland, urban brownfield meadows, unmanaged areas encouraging natural colonisation and a wetland area with birch trees surrounding a wildlife pond. As well as providing vital habitats for biodiversity in Sheffield, says head teacher Lynne Ley, the green roof is "a great resource to get children out of the classroom to learn about biodiversity".



constructed for thousands of years, from the Hanging Gardens of Babylon to the more humble sod-topped dwellings of rural Scandinavia.

Germany's green-roof trend began in the 1960s and by the 1980s had become the focus of a significant amount of interest and research. By 2001, 13.5 million square metres of German roof space had gone green.

It was travelling in Germany more than a decade ago that planted the seeds of Dunnett's interest in green roofs. "There, they are often called an ecological protection layer and in many ways it's a factory product, a very technical approach to creating a green roof." But as an ecologist, he admits: "I found them very monotonous and it occurred to me that we could do different things in the UK with our different climate."

Intensive benefits

So, while German firms majored in lightweight, plastic-based roofs with sedum, the UK ploughed its own furrow, developing a greater diversity of green roofs. These two approaches are usually described as extensive and intensive green roofs. While both are laid over a waterproof membrane and root barrier, intensive roofs have a much deeper substrate, supporting a greater variety of vegetation. They are often built to be accessible to people as well as wildlife, and require greater input and more maintenance compared with their extensive counterparts, which are designed with minimal depth of substrate and are often planted with varieties of sedum, which can not only tolerate heat, cold, wind and drought, but have a height and growth habit that means they need almost no maintenance.

The benefits of intensive systems, say their proponents, are legion, but green roofs are most often installed to boost biodiversity. Conducted at Royal Holloway London for a PhD thesis, the first long-

term study of green roofs and biodiversity in the UK discovered that they provide valuable habitats for invertebrates, increasing their populations tenfold over conventional roofs.

According to researcher Dr Gyongyver Kadas: "The most remarkable fact about green-roof habitats is that they host a high percentage of species of interest. On both the green and biodiverse roofs studies, on average 20% of the spiders and 15% of beetles found had either a local or national importance, including species listed as threatened by the International Union for Conservation of Nature and Natural Resources."

In cities, where space is limited and development is removing the brownfield sites on which much urban wildlife depends, using roofs to provide space for nature seems logical. Roofs make up 16% of Greater London's area, and green roofs cover 10 times as much land as Richmond Park, the capital's largest open space.

But biodiversity is only one of the benefits of green roofs, as Dunnett points out. "They bring life to otherwise sterile surfaces and introduce nature back into cities, but they also help solve the problems of surface water runoff, the urban heat island effect and social issues. Addressing these is hard because there's not much space in cities, so we need to be radical and start to look at roofs."

In an era of climate change, cities need to find ways of mitigating its effects. According to the London Climate Change Partnership, by 2050 our summers will be 1.5–3.5°C hotter, and in central London the heat island effect currently adds 5–6°C to summer night-time temperatures and will intensify in the future.

The green roofs of London

As well as biodiversity, hydrology is another hot topic for green-roof research. In the coming decades, the UK's rainfall is expected to arrive in more intense storms, increasing peak rainfall rates by up to 40%. These rainstorms will exacerbate the risk of surface flooding, and to mitigate that risk we need first to better understand it.

In the heart of the City, the Museum of London is one of several test beds for Drain London – a project looking at flooding from surface water in the capital. As part of a major £20 million refurbishment that involved refitting galleries, exhibition spaces and adding two new cafes, the museum is also retrofitting several green roofs.

"We had a failing existing roof covering and over the past 18 months we've renewed 4,200m², and we've installed a number of different types of green roof," explains the museum's projects manager, Gavin McCourt. "For two projects, the Rotunda Garden and roof garden, we decided we'd try planting sedum to give us a particular colour to go with the garden."



ADNAMS' DISTRIBUTION CENTRE

The complexity of the roof layout, with its different levels, aspects and degrees of shade generating a variety of microclimates, has also allowed the museum to be adventurous, incorporating wildflower plug plants and a wildflower blanket. A rooftop planter running round the edge of the building has been relined and planted with wildflowers and hedges, and bee-friendly plants feed the museum's hive, which this year yielded 15kg of honey for staff and visitors.

With funding from Drain London, one of the museum's roofs has been half covered with green roof and half with just a cap sheet. Flow meters installed by the University of East London will measure their relative impact on storm-water attenuation. The museum now acts as a centre of excellence, allowing building managers and architects to see different green roofs in action, fitting in well with its educational remit and netting the museum several awards in the process. The green roofs also help deliver the museum's agenda for corporate social responsibility through biodiversity benefits and CO₂ savings, but McCourt says that making a solid business case for the green roofs was crucial.

"The project generates enthusiasm but you still need to have a very good business case to sell it to the finance director ... We're saving 10% a year on our energy costs as a result of the green roof and will be able to reduce the size of our new heating and cooling plant as a result," he explains.

One of the Museum of London's many fans is climate change and sustainability manager Aylin McNamara. She works at London Zoo, which installed its first green roof in 1992 and has since added a new one every five years, most recently above the Galapagos Tortoise House.

In 2008/09, the zoo added a so-called brown roof – where the growing medium comes from local spoil – over its Komodo Dragon House. "It's good for biodiversity and is more sustainable because it used reclaimed building materials," explains McNamara. "The base is builders' rubble and it's sown with a wildflower mix. We wanted to mitigate the environmental impact of the build and enhance biodiversity on-site, which is important to us as a conservation organisation in London, where space for nature is limited."

Upkeep

London Zoo's long-term experience has helped dispel some of the myths surrounding green roofs, not least their cost and maintenance. McNamara admits their green roofs cost 25%–50% more than traditional roofs to build but, she stresses, the greater initial spend must be viewed in the round. "The added benefits of low

At 0.6 hectares, the green roof on Adnams' Distribution Centre on the edge of Southwold, Suffolk is one of the UK's largest. Adnams installed it in 2006, opting for a sedum roof to blend in with the building's surroundings. Karen Hester, the build's project manager, explains: "Part of the planning permission was to minimise the impact from a landscape perspective."



Costing some 15% more than a traditional "metal box" warehouse, the company wanted the green roof to help create a carbon-passive building. "The roof soaks up 80 tonnes of CO₂ a year, helping us offset the transport side of our distribution operation," says Hester.

Requiring minimal maintenance – just a once-yearly inspection – the roof has its own irrigation system, which, says Hester, has been used only twice in six years. "The roof looks after itself. It never needs trimming and because the colour changes with the seasons it helps blend in with the local landscape." As well as looking good the roof, together with the building's lime hemp walls, insulates the warehouse, saving the company in the region of £100,000 a year. "The building doesn't need air conditioning or cooling," explains Hester, "so it's not just a green decision. Because we have shareholders we're looking to future utilities' costs, so it's about efficiency and saving money."

maintenance and biodiversity mean it's worth it," she says. "Although there's a risk that any problems would be more costly to repair, ours have done very well and we've had no problems. And they've been relatively maintenance-free – less than traditional roofs – which is a real plus ... Another benefit is their longevity, because they last for the lifespan of the building."

Dunnett too is keen to address preconceptions preventing greater uptake of green roofs in the UK: "One survey we did found that a major concern was the amount of maintenance, but in reality it's not a major burden so that's just a misconception. The same is true for leakage and flat roofs, but that's to do with waterproofing, not green roofs per se.

"They work, not just environmentally but economically. Buildings with green roofs are more attractive environments for investment and for people to live and work in," he concludes. All of which suggests that as far as our cities' roofs are concerned, the future's bright – the future's green.

Becky Allen is a journalist in the field of health, safety and the environment, and is a regular contributor to *the environmentalist*.

Sun shines on the righteous

Stephen Tromans reminds us that the government must always act lawfully when changing the rules



Stephen Tromans
QC, 39 Essex
Street

Much modern environmental law involves the government trying to influence markets and modify market behaviour. The use of such techniques can be traced back to the landfill tax of the mid-1990s, through to the proposed Green Deal. But the government must act lawfully when setting and modifying such rules, otherwise the players in the market may be unfairly impacted. This is well exemplified by the decision of Justice Mitting in the case of small solar energy systems, decided a few days before Christmas: *R (Homesun Holdings Limited, Solar Century Holdings and Friends of the Earth) v Secretary of State for Energy and Climate Change* (Administrative Court, 21 December 2011), which was affirmed by the Court of Appeal in January.

It is well known that the government introduced, from 1 April 2010, a system of feed-in tariffs to encourage the installation of photovoltaic solar panels with no more than four kilowatt hours capacity. The scheme requires licensed electricity suppliers to pay money for the next 25 years to owners of such systems for the electricity generated.

On the basis that what the secretary of state (in this case Chris Huhne) giveth, the secretary of state can also taketh away, Huhne then proposed in a consultation the reduction of that benefit, which would apply to systems installed before the end of the consultation period.

This proposal was successfully attacked as unlawful by Friends of the Earth, and by companies in the solar energy market. Essentially, the decision turned on three legal issues. First, whether a proposal to change the law could be the subject of challenge in the courts at all. It was held that it could, particularly, as in this case, the secretary of state was proposing to make an executive decision, as opposed to parliament proposing to enact primary legislation, and where (as here) the very making of the proposal would have an immediate and significant effect on the market. Second, as a strict point of law, whether the secretary of state had the power to make the change. And, third, even if Huhne did have such a power, this was retrospective legislation, as it would have an adverse retrospective effect on solar systems installed after 12 December 2011, halving the tariff they would receive from 1 April 2012 – a

significant adverse impact on those proposing to install systems before the date on which the modification took effect. Such changes would not, the judge found, further the statutory purpose of encouraging small-scale, low-carbon generation of electricity. Rather, they would undermine consumer confidence.

The reason given for prompting the proposed change was that the cost of small solar systems had fallen by about 30% – from approximately £13,000 to £9,000 – and the price of electricity had risen, affecting the original assumptions underlying the scheme, and making it unduly favourable to small-scale generators, which in turn had led to the scheme taking off at a much higher rate than foreseen.

The proposal, as Justice Mitting put it, “inevitably caused dismay in the industry which has grown up to supply and install small solar systems and amongst community organisations which proposed to install small solar systems in social housing schemes, village halls and schools.”

The government subsequently appealed. The Court of Appeal upheld the original ruling, stating that: “The question [is] whether parliament conferred a power [to DECC] to make a modification with such a retrospective effect. It did not.”

But to some extent the ultimate outcome is not what is important. The key message that comes out is that the government is now, in many areas of the environment and energy field, taking decisions in terms of programmes and policies that have a direct and immediate effect on commercial activity, investment, and company plans. Decisions on matters such as the use of biofuels and support for particular types of low-carbon energy, for example, all have that effect. Indeed, it is inevitable in systems where government seeks to work through, rather than above, the market. But as this case shows, it is not always possible to get it right initially, and for every winner there is a loser.

The sums paid by the energy suppliers to the owners of the rooftop solar energy systems do not come out of thin air – they come out of the tariffs charged to other, quite probably much poorer, consumers. Low-carbon generation comes at a cost. The question is, who bears it? This case highlights the critical importance of getting those rules right in the first place.

Agency creates its own better place

the environmentalist reports on initiatives that are saving the regulator more than £6 million a year

You could be forgiven for thinking that the Environment Agency (EA), as the environmental regulator in England and Wales, is seeking to improve its environmental performance solely because it should be seen to practise what it preaches. Of course the EA wants to help create a better environment, but there are also significant economic benefits from increasing energy efficiency, travelling fewer miles, and reducing water use, waste to landfill and carbon emissions.

These five areas are the main focus of the EA's activities to reduce its environmental footprint. Targets were set in 2006/07 in each area, so that by March 2015 the agency aims to have reduced its CO₂ emissions and buildings' energy consumption by at least 33%, cut its mileage and water use by 25%, and sent zero waste to landfill. Four years into the journey, the EA is already close to achieving several of its goals. Operational office energy consumption has fallen by 21%, water use has declined by 18%, while the amount of waste to landfill is down by 66%. Furthermore, carbon emissions have been cut by 17% and mileage is already down by 33%.

These achievements are excellent results for the environment and are saving the regulator more than £6 million annually in operating costs – a significant saving for an organisation with an energy bill of £7 million each year and reduced funding.

“Effectively managing our energy, transport, waste and water helps address our environmental footprint and also helps reduce our running costs. It makes both environmental

and financial sense,” explains Julian Feasby, head of internal environment management at the EA.

Staff appeal

A key factor in helping to progress the agency towards its 2015 targets is changing the behaviour of its 12,000-strong workforce. While it includes environmental specialists, the EA also employs a wide range of people who are not necessarily environmentally aware because it is irrelevant to their day-to-day activities.

“There is an expectation externally that everyone at the agency is knowledgeable about the environment, but that is not always the reality,” says Feasby. “We’re like many other workplaces. Sometimes you can find waste in the wrong bins. Why? Because we are 12,000 people, and these things happen.”



10 TIPS ON REDUCING A FIRM'S FOOTPRINT

1. Gain the express support of senior managers. Their engagement will send a clear message to staff and lay a good foundation for making difficult decisions.
2. Set easily measurable targets that form part of your corporate performance. This will help ensure that focus is not lost.
3. Be prepared to invest in technology. Some outcomes are only likely to be deliverable through investment in your buildings or systems – but it doesn't have to cost much.
4. Gather good data on all your utilities and travel. Knowing what you use, and where, will help you manage those resources and report accurately on performance. Consider using automatic meter readings to give online reports.
5. Dedicate some people resource to delivering your outcomes. While delivering your environmental objectives needs to be part of everyone's job, having a dedicated person or team to provide advice and direction will reap rewards.
6. Do the simple things on energy. Insulate your buildings to a high standard; fit low-energy lighting; control building temperature to an agreed standard; fit voltage optimisation.
7. Do the simple things on waste and water. Remove desk-side bins; have clearly labelled recycling points; and conduct bin audits and publicise your findings to staff. Fit low-flush toilets and infra-red-controlled spray taps.
8. Don't offset! Instead of paying money to an offset company, internalise that expenditure and invest the money in directly reducing your own emissions.
9. Think about your procurement. Making sure you consider sustainability issues can deliver big benefits throughout your supply chain – don't buy what you don't need and will then dispose of.
10. Engage your staff and help them help you. The behaviour of staff can be crucial in delivering your outcomes. Listening to their ideas will help them to feel more involved and make lasting changes.

Focusing on the five key areas highlighted earlier is seen as the best way to engage the whole workforce. "We track 12 measures annually, but set formal, public targets for these five. We focus on these because staff can easily relate to them. Also, other companies generally measure these things, so it's also about being in line with what others are doing," explains Feasby. "If we started to say we're going to report on how much timber we use is from

sustainable resources, there are not many other organisations doing that, so it's harder for some staff to relate to it. It is more helpful to focus on issues that others are also disclosing information on."

He says the key to helping staff adopt the "right" behaviour is to keep both the message and the process simple. "We keep it straightforward. My own test is that if my grandmother can't understand the language then others won't."

One example of this approach is the "efficiency" stickers in operational vehicles, which are similar to the energy rating stickers found on white goods. So the most efficient vehicles, those emitting less than 140g of CO₂ per kilometre (CO₂km), get an "A" rating, while those emitting more than 270gCO₂km are rated "D". The stickers also provide further advice. For example, the stickers in A-rated vehicles also include the message: "This is one of our most fuel-efficient vehicles. But you can still reduce our carbon footprint by sharing it."

Feasby explains that on some issues, particularly waste, the message needs to be constant. "Dealing with waste is very much behaviour-based. We've taken away all bins except for collective ones on each floor, and introduced clear signage," he comments. "The two biggest wastes arising in an office environment are paper and food. You set a target, but after a while improvement tails off. So, it's about relentless messaging."

The EA's top tip for reducing an organisation's environmental footprint (see panel, left) is to get senior management directly involved. On one occasion, Feasby invited the agency's directors to go through the waste bins. "They were horrified by some of things they found, but it gets them involved and sends a message to staff that the organisation is serious about its targets."

An everyday activity

Ensuring a relatively large organisation such as the agency, with operations spread across England and Wales (280 depots and 2,500 other sites), remains on track to achieve its 2015 targets requires the constant attention of senior managers. Feasby says that the key to retaining that focus has been to make the targets part of normal business life. "One of the best things we've done is to create a corporate scorecard that also contains our targets, so we've made our environmental indicators just one more business target alongside all our other corporate aspirations," he comments.

Another innovation to help managers concentrate on the targets has been the introduction for regional

directors of a tool similar to the star chart often used to monitor the progress of children. There is a chart for each of the five targets and they illustrate how well each of the eight regional directors is performing against the baseline. It is colour-coded, so if they hit their target it's green; amber signals that they did well but didn't quite achieve the target; while red means they are off target. "Everyone gets to see this, so they can see how they are doing compared with colleagues in other parts of England and Wales," says Feasby. "Data really help to focus attention on the key issues. We try not to overcomplicate the performance management process."

Feasby is an advocate of using data to show where activity could be most effective. He compiled a pie chart of the EA's carbon footprint in 2010/11 to illustrate the proportion of emissions from different parts of the organisation. The chart reveals that one-third of its 55,800 tonnes of carbon emissions was from the electricity consumed by its operations. "It's essentially the electricity consumed by pumping water. If it rains a lot we pump lots of water to try to prevent flooding, and if it's really dry we have to pump water out of the ground to prevent rivers from running dry."

"I started using the pie chart detailing our carbon footprint everywhere and at every opportunity. I used it as my email footer. I asked other managers to take it into meetings and leave it out so others would see it and talk about it. Nobody could ignore it," explains Feasby. "We've now run several surveys and have developed plans to deal with operational electricity. It's a long-term thing, we're not going to change overnight. It's about altering how you operate your pumps, turning them off when they are not required. And, when a decision on building a new pumping station is considered, we now ask if it is really necessary or is there some other way of doing this. And if it does get the green light we work [so as not to] over-engineer it, and consider installing efficient pumps, powered by renewables if possible."

As the EA has already surpassed its 2015 commitment to reduce mileage by 25%, Feasby is confident that it will achieve its other targets, but concedes: "Most of the low-hanging fruit has been picked, so reaching our targets is now more stretching."

Feasby advises environment managers to try not to do too much at one time. "Pick, say, 10 things and focus on them. Do one, then move on to the next. You can't do everything at once."

THE AGENCY IN ACTION

Carbon and energy – "First of all it's about insulation and getting your building maintained correctly," says Julian Feasby, head of internal environment management. "There's no point spending money on a solar panel if the energy is just going to leak away." The Environment Agency (EA) does not own all its buildings, so works with landlords to improve efficiency. It uses automatic meter reading equipment (installed at 500 sites) to identify "hot spots" of big energy use. The installation of equipment to reduce energy use and improve efficiency ranges from sun pipes to voltage optimisation – which has been installed at 40 sites so far and cut energy use on average by 8%.

The EA installed its first direct-drive wind pump at the Red Bridge pumping station near Blackpool. The pump replaced an energy-intensive one. It was a member of staff who came up with the idea of using a traditional windmill-powered pump, and the installation was financed from the EA's carbon-reduction fund – money set aside for low-carbon investment and allocated to ideas from staff. The wind pump operates more slowly than the previous electric-powered one, so the water trickles continuously to maintain a constant level. The agency is now installing wind pumps at another nine sites. The reduction fund financed 15 projects in 2011, ranging from voltage optimisation and sheep-wool insulation in a building in Wales to using new types of batteries in remote sites.

Mileage – "Mileage is probably our biggest success," says Feasby. "In the past, it was a bit of an 'untouchable'. But sometimes you have to go for the things that are really hard." The EA has now reduced its mileage by more than 19 million miles a year. A clear travel hierarchy has been built into the agency's policies: don't have the meeting at all; go by public transport; or hire a car. Technology has also helped, with widespread adoption of teleconferencing. The EA has also installed webcams at some monitoring sites, enabling officers to check remotely whether weed screens are clear and visit a location only if something needs removing. Operations teams also now plan their routes better, so if they are going to 10 different sites in a day, they use a map or a satellite navigation system to plot the most efficient route. The agency's switch to risk-based regulation has assisted in reducing mileage, as it no longer visits good performers as regularly as in the past.

Water – "The best thing to do is leak detection," remarks Feasby. "So, in October each year we send an email to our facilities teams reminding them to check water meters every day during cold snaps, when pipes are more likely to burst. That enables us to capture a leak the day it happens." In addition to better monitoring of water use, the EA's new head office, Horizon House in Bristol, uses 69% less mains water than the previous main office building. A rainwater harvesting system collects and stores water for use in toilet flushing, for example. Harvesting equipment has been installed at other selected agency sites but the number is limited because, as it involves retrofitting, it is a fairly expensive measure. Reducing water is a key focus for activity when buildings are refurbished, so most EA buildings now boast waterless urinals, spray taps (which use much less water than normal "free-flow" taps) and sensor controls so taps switch off quickly.

The art of interaction

Paul Reeve goes back to basics on how to identify aspects and impacts

The terms “environmental aspect” and “environmental impact” are fundamentally important to environment management. Understanding aspects and impacts allows organisations to identify and manage the most environmentally significant parts of their activities. This understanding is essential for the effective operation of a certified environment management system (EMS), notably ISO 14001.

Aspects are those parts of an organisation’s activities, products or services that interact with the environment, while impacts are changes to the environment that result from these interactions.

Identifying aspects

A very helpful, and logical, approach to determining environmental aspects is to identify the various “inputs” and “outputs” of key activities, products and services. Considering the aspects associated with products and services is a requirement of 14001, with users of the standard compelled to establish, implement and maintain procedures that:

- identify the environmental aspects of its activities, products and services within the scope of the EMS that it can control and those that it can influence, taking into account planned/new developments, or new/modified activities, products and services; and
- determine the aspects that have (or can have) significant environmental impacts.

All activities have inputs, such as the use (including reuse) of materials, water, energy and land. They also have outputs, such as products, by-products, waste materials, emissions or energy, including pollution. The interactions of various inputs and outputs with the environment are environmental aspects.

Direct environmental aspects arise from an organisation’s own activities, such as manufacturing or other on-site processes. The organisation usually has direct control over these aspects. Direct aspects are usually identified through a systematic examination of site-based activities and processes. This process

is generally referred to as an environmental review. Indirect aspects arise from the activities of others with which the organisation interacts – usually its supply chain. Indirect aspects are subject to varying influence from the organisation in question, but they can be highly significant. They are aspects over which the organisation should have a degree of influence, such as through raw material specifications, energy sourcing or supplier selection. Their identification requires a broader organisational view of activities, products and services beyond site-based activities.

Planned and unplanned aspects

Annex A to 14001 states that organisations should consider “normal operating conditions, shutdown and start-up conditions, as well as the realistic potential significant impacts associated with reasonably foreseeable or emergency situations”. Organisations should thus consider both planned and unplanned (potential) environmental aspects.

Planned aspects are part of normal operations. For example, they can arise from inputs or outputs (production wastes, combustion emissions, use of energy, use of water and minerals); releases below the regulatory limit or internally set target; or planned clearance of land. By contrast, unplanned aspects are associated with incidents, near misses or unintended operating practice. Examples include: leaks or spills, fires or explosions; situations where regulatory





standards are not met or emission or discharge limits are exceeded (equipment malfunction, operator error); or accidental ecological damage during construction.

The need to consider unplanned aspects requires an organisation to think about the potential for something that could cause a significant environmental event. The management of planned and unplanned environmental aspects supports risk control, continual improvement, pollution control and legal compliance, which are all essential requirements of an effective EMS.

A simple example is waste oil, which should be contained until it is reprocessed, recovered or responsibly disposed of. However, loss of containment through tank corrosion or vandalism, for example, could lead to an unplanned oil spill reaching drains or a watercourse, or seeping into the ground. The potential for spills is a prospective environmental aspect, for which planning and suitable precautionary measures are required.

However, the risk of unplanned environmental impacts can be much more serious than this. Major disasters such as the accidents at Flixborough, Seveso, Chernobyl and the Gulf of Mexico have had such a human or environmental impact that they have shaped stakeholder opinion and subsequent regulatory control.

Processes that have a particularly high risk of causing a major impact usually require an assessment of the frequency of unplanned aspects, and the severity of the resulting impacts. Identified risks

should then be reduced to tolerable levels with planning, control measures and, if an impact occurs, emergency procedures.

Cause and effect

It is worth pointing out that activities (inputs and outputs) cause aspects, and aspects cause impacts. It is helpful to regard aspects as “causes” and impacts as “effects”. An organisation’s environmental aspects and impacts depend on:

- its activity, product and service profile;
- where the activity takes place – proximity to sensitive environments (receptors), transport requirements; and
- the key suppliers – location, distance, type of materials/energy supplied, and the significant environmental impacts of the supplier.

Once there is an understanding of an organisation’s environmental aspects, the resulting environmental impacts can be considered. Except for high-hazard processes, the identification of impacts does not normally require detailed scientific evaluation. In most situations it is enough to understand the overall issues and concerns associated with the impacts, and to be able to communicate them effectively.

Identifying and managing significant environmental aspects is the priority for environment management, whether or not certification to ISO 14001 is the goal. Environment management should focus on those activities that are the root cause of significant environmental aspects, because, while the bulk of impacts cannot be effectively managed, the aspects that lead to them can.

Often a given aspect can be linked to a particular environmental impact, but some aspects can have more than one impact. For example, emissions of nitrogen oxides can contribute to both tropospheric ozone creation and acid deposition. Conversely, different aspects can contribute to the same overall environmental impact – carbon dioxide and methane are both greenhouse gases implicated in global climate change.

Information on aspects and impacts can be organised into environmental aspect (energy use, water use, different waste streams or types of emission) or impact (climate change, stratospheric ozone depletion, water pollution, resource use and nuisance) categories.

Whatever the method by which this information is compiled, the environmental aspects and the associated activities should be clearly identifiable, as should aspect/impact relationships.

A future article will examine environmental reviews.

Paul Reeve is head of environment at the Electrical Contractors’ Association and an IEMA Fellow. He originally conceived and produced the Associate membership course with Paul Hyde. They are joint authors of the popular textbook *Essentials of environmental management*, on which this training series is based.

ROCKy road ahead

Andrew Dyne and Alistair Davison on changes to Renewables Obligation Certificates

For some sectors of the renewable-energy industry, the proposed changes to the allocation of Renewables Obligation Certificates (ROCs) are viewed as a welcome flip that will stimulate investment, but for others, a reduction in incentives and further pressure to cut costs makes for a gloomy forecast. While some find the proposals electrifying, others may fear a damp spell in the doldrums is in store as the government reiterates its commitment to marine energy, but urges offshore wind to reduce costs.

DECC's consultation on renewable-energy rebanding, which closed on 12 January, focused on scalable lower-cost renewable technologies that will deliver the majority of electricity the government needs to meet its 2020 renewables target – and outlined aims to ensure developers will continue to receive appropriate support when market conditions change and innovations develop.

New technology

The proposals are expected to cost in the region of £400 million to £1.3 billion less than retaining the current bandings, but drive a higher level of deployment. Overall, it means less of an impact on consumer bills, without reducing levels of ambition.

The ROC consultation's suggestions confirm increased support for the emerging wave and tidal sector, moving from a 2-ROC allocation to 5 ROCs, until 2017.

This is a clear signal that government is committed to supporting this rapidly developing industry. Along with other

funding initiatives, the proposed ROC upgrade helps the UK wave and tidal industry bridge the all-important gap between technology development to full commercialisation and industrialisation.

Support for the offshore wind sector is, however, more complex. The current arrangement would have seen a drop in ROCs from 2 to 1.5 in 2014. DECC's new proposals greatly soften the impact, by reducing the ROCs to 1.9 in 2014, then dropping them to 1.8 in 2016. The offshore wind industry is already taking significant steps to reduce its costs and DECC recently created the industry-led Offshore Wind Cost Reduction Task Force to assist in this effort.

The onshore wind sector is also likely to see a reduction in support, from 1 ROC to a proposed 0.9 ROCs by 2017. The profitability margins available to some projects will be squeezed by this reduction and may result in schemes being less attractive or commercially unviable, perhaps even shifting a focus to those with a lower consent risk or larger scale.

Wind and marine energy trade body RenewableUK suggests the ROC reduction could result in a loss of 1.6GW of installed onshore wind capacity to 2017, enough to power almost one million UK homes. This depreciation may, however, act to bring about faster delivery through a more targeted approach by wind-power developers.

Mature sectors

Other proposals see technologies with low-capital expenditure (capex) and high-generating capacity, such as dedicated biomass, retain short-term ROC benefits up until 2014. This enables the extension of plant life on existing assets and reflects the maturity of the technology and investment risk borne by the generators, as well as a gradual reduction of support, similar to that for the onshore wind sector. Geothermal, for instance, which is linked to offshore in its characteristics, has a proposed and continued high level of support (2 ROCs), on the basis of technology maturity, high-capex costs, and potential generating capacity.

However, the energy-from-waste (EfW) sector seems to have been dealt another blow. EfW has been fraught with consent delays for some time, and its ROC allocations will be halved under DECC proposals, from 1 to 0.5, with the exception of some specialised technologies, such as advanced gasification and anaerobic digestion. With the exception of a few individual schemes, the EfW sector has still to mature, and a premature reduction in ROCs will do little to facilitate it reaching its full potential.

Meanwhile, a 2-ROC incentive (reducing to 1.9 (2015/16) and 1.8 (2016/17)) for anaerobic digestion, advanced pyrolysis and advanced gasification clearly recognises a shift from the large-scale centralised facilities to smaller, more localised operations.

Also, DECC clearly sets out in the consultation document support for "co-firing". This will perhaps incentivise existing coal generators to switch to biomass on the basis that plants with at least 15% biomass content will receive 1 ROC. Meanwhile, fossil-fuel plants that are converted to run solely on biomass – cheaper than

PROPOSED NEW ROC BANDS

Selected technology	Current support – ROCs/MWh	Proposed support – ROCs/MWh
Advanced gasification	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Advanced pyrolysis	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Anaerobic digestion	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Biomass conversion	No current band but eligible to claim 1.5 ROCs under existing arrangements	1
Co-firing of biomass	0.5	0.5
Energy from waste with CHP	1	0.5
Geothermal	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Onshore wind	1	0.9
Offshore wind	2 in 2013/14; 1.5 from 2014/15 onwards	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Tidal impoundment (range) – tidal barrage (<1GW)	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Tidal impoundment (range) – tidal lagoon (<1GW)	2	2 in 2013/14 and 2014/15; 1.9 in 2015/16; and 1.8 in 2016/17
Tidal stream	2	5 up to a 30MW project cap 2 above the cap
Wave	2	5 up to a 30MW project cap 2 above the cap

building a new plant by a factor of five – will see a reduction from 1.5 to 1 ROC. A move that is viewed as being a positive, albeit minimum, contribution in support of these investments.

While the above reflects the proposals for England and Wales, the only major difference in the Scottish consultation on new bandings is the decision not to incentivise large-scale biomass. This is presumably on the basis of concerns regarding biomass feedstock and long-term embodied carbon, given shipments and supply chain maturity in North America and eastern Europe.

Who wins?

Clearly, there are winners and losers under DECC's proposals. The big winners are the tidal and wave developers and technology providers. They will now have the medium-term potential for increasing UK exports and longer-term benefit of the UK's numerous waterside energy-generating assets.

Whether the new ROC allocation structure is suitable to drive investment, and, more importantly, achieve a robust and balanced portfolio of energy-generation infrastructure, remains to be seen.

Andrew Dyne is business development director and **Alistair Davison** is development director for energy at consultants Royal Haskoning.

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Beating the bean counters

Mark Everard calls on practitioners to fight back against environment management by number

In the face of mounting evidence to the contrary, sustainability professionals must remain optimistic about their ability to help create an ecologically, socially and economically robust future. While there have been some positive developments over the past two decades, including increased tree cover, improved river quality and better air quality, there is an overwhelming body of evidence that tells another story.

Negative outcomes include escalating, and in some cases apparently runaway, growth in greenhouse-gas (GHG) emissions and climate instability, increasing per capita resource intensity and disparities in resource access, and higher levels of food, water and energy poverty. At the same time, there has been a dramatic loss of biodiversity and the resilience of fisheries and ecosystems, burgeoning marine litter, and the erosion, salinisation and eutrophication of soils.

Perversely, these overwhelmingly negative trends over past decades have been concurrent with both the proliferation and increasing stringency of environmental legislation, and a massive switch in organisational approaches to the management of environmental pressures that is founded on the truism that “if you can’t measure it, you can’t manage it.”

Shifting management systems

Over the past 25 years, there has been an imposition of measurable metrics recorded on spreadsheets, for which targets managing organisations’ environmental impacts are then set. Consequently, experience, tacit knowledge and other non-statistical forms of information have been squeezed out of management systems. This has led to the erosion of specialist skills, experiential knowledge and local context.

Yes, we have tighter management, or perhaps more accurately we have tighter accountancy, of disparate facets of the environment. But, despite all these targets and more comprehensive controls, making a transition towards sustainability continues to elude us.

The models we run on the basis of spreadsheet aspirations and targets may sometimes yield us a theoretically “nicer world”, but objective facts and trends tell us quite a different tale. We have, in fact,

come to manage spreadsheets and the models that support them, while in so doing divorcing ourselves from the real world and the human actors who are intimately embroiled in both its problems and its pragmatic solutions.

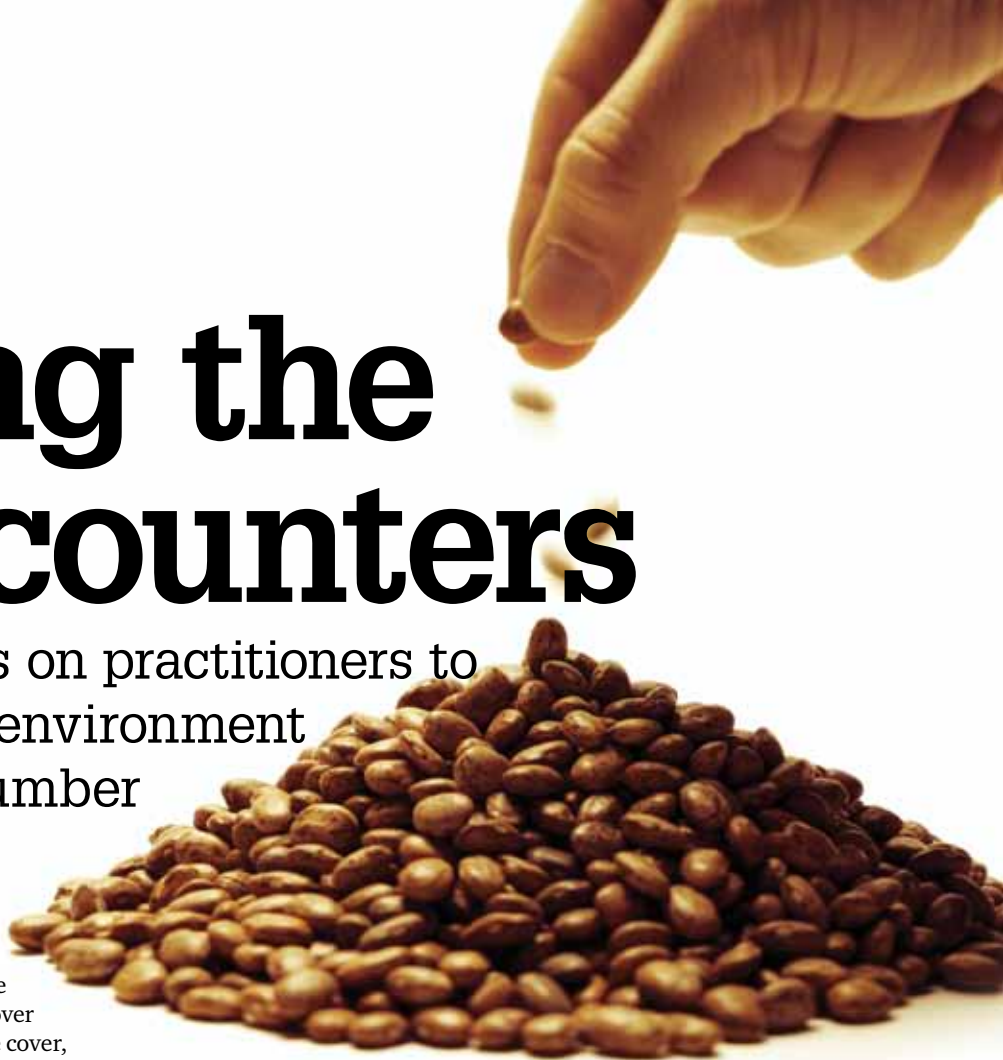
A central tenet of systems thinking is that the relationships between the elements of the system are at least as important as the elements themselves.

It is here that a chasm has formed between management and understanding. The instinct of hierarchical management structures when exposed to a systems approach is to measure the state of elements of the system in a rather reductionist way, overseen by a generalist management community increasingly starved of direct environmental experience.

The management structure subdivides lower strata of organisations to address discreet “elements” – river levels, macroinvertebrate scores, air-quality metrics, data production and analysis, and a range of other discipline-specific management goals – generally without the all-important linkages to address how these different facets interact. The inherent assumption is that the intelligence to “see” the whole system that is being managed is centralised at the highest tiers of the organisation, effectively treating the lower orders as unintelligent drones. Yet context, interdependence and the wider ramifications of decisions and actions are all too often most apparent to these lower levels through their interactions with the real world of the environment.

A clash of cultures

Today, we are at a crossroads. The stiffly hierarchical culture of (spreadsheet-based) target-setting currently remains in the ascendancy. Take, for example, the



first round of implementation of the aspirational and inherently systematic EU Water Framework Directive (WFD (2000/60/EC)). In the UK, early implementation was turned into a “tick list” of compliance, for small water bodies, against some 50 sets of standards. This approach is insufficient, as the Directive itself is inherently about the vitality of water systems, their ecology and their long-term value to humanity. The fragmentation effect of “systems” on WFD implementation to date has obscured the broader focus on sustainable outcomes.

Under this initial spreadsheet-based model of implementation and management, insight and innovation into realising multidisciplinary, win-win benefits is mostly perceived as a challenge to corporate dogma and management authority, rather than as an opportunity to make step changes towards sustainability and the long-term wellbeing of all. The current approach is manifestly holding back progress towards integrated solutions to inherently interconnected problems, ranging from food security to water-quality management, and from controlling GHG emissions to minimising flood risk.

Unleashing institutional intelligence

The reality is that relatively junior staff in organisations, who are in touch with local catchments and others (including customers) who benefit from and influence ecosystems, are far better placed to

know what’s going on: they are more directly exposed to the often perverse outcomes of, for example, poorly targeted agri-environment subsidies, and better informed about how the funds could be best directed to achieve WFD, flood risk, biodiversity and other connected goals, and to work across constituencies capable of identifying and achieving socially beneficial, win-win outcomes.

The explosion of stakeholder-led river trusts across the UK has been hugely successful in addressing these complex issues in connected ways and highlights “grass roots” mobilisation to fill a democratic gap left by fragmented top-down management systems.

Taking account of the complex interactions between ecosystems, people, technology, land use and the economy, river trusts are, in fact, living practitioners of the kinds of progressive accords – the Aarhus Convention, WFD, ecosystem approach, integrated water resources management and so forth – that science and international politics are highlighting as necessary for making progress on sustainable development.

Dr Mark Everard is visiting research fellow at the University of the West of England and author of a number of books, including *Common ground: The sharing of land and landscapes for sustainability*.

the environmentalist

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**Christopher Bennett, Managing Director,
Sustainable Commercial Solutions.**

Contact Elle Umeh
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IEMA wins international EIA award

Institute receives IAIA accolade for its EIA Quality Mark scheme and its special report into 25 years of impact assessment practice

Award On 25 January, the International Association for Impact Assessment (IAIA) announced that IEMA had won its 2012 institutional award, stating the Institute had been selected “because of its promotion of quality and [for] improving environmental practice and performance in environmental impact assessment in the UK”.

IEMA was nominated for the award by Ross Marshall, manager of the Environment Agency’s National Environmental Assessment Service (NEAS), following the 2011 launch of the EIA Quality Mark scheme and publication of its special report, *State of environmental impact assessment in the UK*.

Josh Fothergill, IEMA’s policy and practice lead on environmental impact assessment (EIA), will collect the prize when the awards are formally presented during the IAIA’s 32nd annual conference in Portugal in May.

Marshall put IEMA forward for consideration because of the Institute’s



“strategic approach to improving quality in EIA practice”. Claire Lea, IEMA’s director of membership strategy and development, said: “IEMA is delighted the EIA Quality Mark and special report on the state of EIA practice has been recognised by IAIA. We would like to thank Ross and the IAIA committee and board for recognising IEMA’s leadership and contributions to EIA.

“We feel that the EIA Quality Mark scheme, which has been in place less than

a year, is making a significant contribution to the improvement of EIA in the UK, encouraging knowledge sharing and the improvement of practice. Receiving the institutional award is a great achievement and a fantastic start to 2012.”

The IAIA’s institutional award is presented to a national or international government or non-governmental organisation that has made an outstanding contribution to impact assessment practice or other environmental activity.

Past winners include the African Development Bank, the International Institute for Environment Development, the Swedish International Development Cooperation Agency and the Capacity Development and Linkages for Environmental Assessment in Africa.

To find out more about IEMA’s work on EIA, including the Quality Mark scheme and the *State of environmental impact assessment in the UK*, visit lexisurl.com/iema11639. Further details on the IAIA awards are at lexisurl.com/iema11640.

IEMA EVENTS

Date	Region	Topic
Regional events		
1 March	South East	Social
1 March	Wales	Civil sanctions: one year on
2 March	North West	Renewable technologies and low-carbon construction skills
6 March	South West	Woodland carbon code
8 March	Midlands	Woodland carbon code
8 March	South East	Green drinks (Southampton)
13 March	North West	Woodland carbon code
15 March	Central Scotland	Woodland carbon code
Membership workshops		
5 March	East of England	Full and CEnv membership (Bishop Stortford)
7 March	Central Scotland	Associate open book (Edinburgh)
15 March	Midlands	Associate open book (Birmingham)
Webinars		
1 March	12.30–1.30pm	Traffic assessment in EIA
29 March	12.30–1.30pm	Cumulative effects in EIA

Graduate advice

Students On 17 January, IEMA’s director of membership strategy and development, Claire Lea, offered advice to graduates and others interested in securing an environmental role via an online webchat hosted by the *Guardian*.

Lea joined representatives from consultancies, recruitment organisations and industry charities on the panel of a careers webchat entitled “Ask the experts: breaking into the environment sector”. Lea was able to offer advice on the skills, development and training necessary to succeed in environmental roles.

Questions about qualifications versus experience and the value of volunteering were popular topics. Many also asked how Associate membership of IEMA could help them to stand out from the crowd, while others expressed an interest in how the networking opportunities available to IEMA members could help them meet others and keep their knowledge up to date. The chat attracted more than 230 comments, which remain online at lexisurl.com/iema11636.

CRC response

Consultation IEMA has called for greater carbon price certainty within the Carbon Reduction Commitment Energy Efficiency (CRC) scheme, to help organisations substantiate the medium-term business case for energy reduction and low-carbon investments.

Nick Blyth, IEMA policy and practice lead, said: "Practitioners will contrast the CRC situation of allowance rates set by the annual Budget, with successful environmental schemes like the landfill tax, which had rates known and factored across a far longer period."

The draft CRC Energy Efficiency Scheme Allocation Regulations set the price at £12 per tonne of CO₂ for 2012, with future carbon prices left as a matter for the Budget process. IEMA's response (lexisurl.com/iema11699) was compiled with support from members and progresses findings from the Institute's 2010 special report on greenhouse-gas management and reporting, as well as the recently launched climate change position statement.

Members and organisations can respond directly to the Treasury ahead of the 2012 Budget at lexisurl.com/iema11700.

More successful IEMA members

IEMA would like to congratulate the following individuals on moving onwards and upwards during 2011 by achieving Dual – Full and Chartered environmentalist – membership of the Institute.

Penelope Fuller, Magnox
Daniel Griffiths, NRDA

Congratulations are also in order for the following four members, who likewise recently graduated from the IEMA Diploma in Sustainable Business Practice (DipSBP) course through approved training provider EEF.

Mark Gallagher, Wrigley Company
Chris Guirdham, Lovell Partnerships
Ratna Majoria, Evonik Goldschmidt
Fiona Moores, MWH UK

The IEMA DipSBP (lexisurl.com/iema10655) is a course for delegates requiring a high-level environmental qualification and is designed to support progression to Full IEMA membership.

SPREADING THE WORD

Setting the pace for sustainability skills

In her latest blog for Guardian Sustainable Business – the online network for corporate sustainability – IEMA's director of membership strategy and development, **Claire Lea**, addresses the need to narrow the gap between the skills available and those that are increasingly in demand by businesses facing a raft of environmental and sustainability challenges.

The government's recent report on skills for a green economy provides a ray of light for sustainability. The report recognises the skills that are often overlooked and yet are vital to drive the green economy and develop sustainable, resource-efficient and resilient businesses of the future.

The first step is having a good understanding of all the environment and sustainability skills needed, and ensuring these are well defined. The majority of previous reports have focused only on one part of the environmental skills equation – the skills required to develop and deploy new environmental technologies. While important, it's only part of the consideration. We have seen a similar pattern in business, where the environment is treated as an isolated issue or combined with health and safety or quality responsibilities.

As a relatively "young" profession, environment or sustainability job roles, and titles, are still developing and evolving – there are differing responsibilities, seniority and specialisms that provide a variety of work and opportunities. For example, Jonathan Garrett of Balfour Beatty, commenting in *the environmentalist* in September 2011 on his role as group head of sustainability, said: "In addition to developing a sustainability strategy (2020 vision and roadmap) for a global organisation of 50,000 people, my role touches a number of core functions outside the traditional area of environmental compliance. These include embedding sustainability into our work activities, procurement and leadership development programmes to ensure sustainability becomes part of the organisation's DNA."

Garrett's role and experience demonstrate that environment and sustainability issues don't have to be considered in isolation. If they are integrated into the overall business strategy they become core to the business.

There are many different ways that organisations manage environment and sustainability issues for their businesses, depending on numerous factors, including scale and complexity of the business. Finding the right person to enable business to meet the challenge of increasing policy and regulatory standards is difficult and undoubtedly made harder by the confusing landscape of mixed job titles.

IEMA's environmental skills map (lexisurl.com/iema11641) has been developed with employers and helps businesses to identify the environmental knowledge and skills they need in their organisations. It provides support to companies whether they are looking to recruit an environment manager, someone to manage their environmental legal compliance issues either at an operational or managerial level, or a strategic leader who can embed sustainable thinking across an organisation's value chain.

Environmental roles in organisations are evolving, just as the way in which organisations are addressing issues around the environment and sustainability is changing – with an increasing recognition of the need for strategic sustainability skills.

People who have the skills and talent to embed sustainability into the fabric of an organisation to deliver value for the long term are the leaders of the future, and they are setting the pace and direction for the future sustainable economy.

IEMA members are invited to comment on the blog at lexisurl.com/iema11697.



Energy-saving device – ISO 50001

IEMA conference sponsor NQA reveals how adopting a separate approach to energy management can help organisations to cut costs, reduce carbon emissions and improve staff engagement

Energy For more than 15 years, organisations wanting to lessen their environmental impacts have used ISO 14001 as a framework to understand how their operations affect the natural world and to combat harmful outputs.

Alongside waste management, pollution prevention and resource efficiency, many businesses have examined their energy consumption under 14001 as a way of lowering greenhouse-gas emissions. However, dramatic increases in energy costs, coupled with the introduction of mandatory requirements to lower emissions, such as the Carbon Reduction Commitment Energy Efficiency scheme, have lifted energy efficiency to the top of many organisations' environmental agendas.

A new standard

With firms looking for more guidance on how to improve energy efficiency, new management systems standards have been developed: first BS EN 16001 in 2009, followed in June 2011 by the international standard ISO 50001.

ISO 50001 follows the same plan-do-check-act improvement cycle as 14001, but focuses specifically on energy performance and planning. The similarity in structures means that organisations with an existing 14001 system shouldn't find it difficult to adopt 50001 and could even develop a single integrated management system, according to Martin Hockaday, client executive at certification body NQA.

"While 50001 includes a number of requirements that have no direct equivalent in 14001, many of them are similar," says Hockaday. "50001 also provides guidance on how its clauses correspond with those of 14001 to make the integration process even easier."

What 50001 does introduce over and above that of 14001 are requirements to conduct an energy review – analysing both consumption patterns and energy sources – and to use the collated data to identify energy-efficiency improvements and establish a baseline against which changes in performance can be measured.



Whitbread Group's Costa coffee roastery in London

"One key benefit of the standard's structured approach is that it allows organisations to prioritise how they manage energy," explains Hockaday. "This allows them to make significant improvements and ensures effort isn't wasted on ineffective actions."

According to Hockaday, developing an energy management system (EnMS) helps organisations to identify efficiencies that a broader approach might not identify and provides a tool to focus minds and efforts at all levels. "Adopting 50001 can help to promote better use of existing equipment; encourage best practice and more efficient behaviours; evaluate the adoption of new technologies; and provide a framework for promoting better energy management across supply chains," he says.

Each of these elements played a role in the Royal Mint's decision to create a 16001 EnMS and gain certification, later transitioning to 50001. As a large metal works subject to a climate change agreement, and with annual energy bills running into the millions, the Royal Mint had been working to manage its energy consumption for several years before looking into 16001 in December 2010.

"We had gone through all the low-hanging fruit and we wanted to introduce a standard that would reinforce what we had been doing and rekindle our initial impetus," explains Martyn Grant, environment manager at the Royal Mint. "At the same time our procurement

department wanted to introduce an energy management consideration to our supply chain. There was a keen sense that we could go for a standard and then explain to our suppliers how we achieved it, and encourage them to go for it as well."

Spreading the word

Implementing an EnMS alongside its 14001 system has helped to raise the profile of how energy is consumed across the Royal Mint's foundry, with energy management now given equal footing with environmental management in quarterly management reviews.

The key benefit of adopting 50001, according to Grant, has been the ability to use it as a communication tool and to embed responsibility for energy consumption throughout the organisation, with those responsible for environment, health and safety now being given the role of energy champions.

"Energy management used to be more of an extra layer of structure," says Grant. "But the ISO management system approach means that the message is integrated throughout the organisation and gets down to the person on the shop floor. It gives everybody in the business an impetus to look at energy."

Ben Brakes, environment manager at the Whitbread Group, agrees. His organisation gained its first 50001 certification in January after installing an EnMS at its only industrial site – the



The Royal Mint's site near Llantrisant, South Wales

Costa coffee bean roastery in Lambeth, London. "Going for certification really gave us a platform to go to staff and say: 'We are one of the first companies to go for this standard, we're really proud of it and you should be too,'" he says. "It gives you something over and above the usual 'switch it off' campaigns, and allowed us to really engage people with simple housekeeping issues like switching off lights and closing windows."

Whitbread began exploring ways to improve its energy efficiency at the roastery site when it became obvious that, owing to the limited amount of electricity available to the site, expansion would only be possible if they could create spare capacity. Completing the baseline energy review was particularly useful for the firm, which had previously only looked at energy use across the whole site.

"We looked at every piece of equipment, from the coffee bean roasters and packaging equipment down to the kettle in the staff room," remembers Brakes. "It helped us to identify that we needed to better control our energy-using equipment and allowed us to see when our peak energy uses were."

As a result, some processes were changed to give a more even spread of energy use, for example, delaying the switching on of packaging equipment until coffee beans are roasted, instead of having it on from the start of the 12-hour operating period. Such measures, when coupled with more efficient equipment and behaviour-change programmes, enabled the site to cut its energy use by 16%. The savings have meant that the firm has met its key target to generate enough spare capacity to install a third roaster.

Following the success of 50001 at the roastery site, Whitbread has begun to look

at how the EnMS approach might work at its other operations, in particular its larger hotels. The first step, however, has been to roll out the system at the group's head office, an easier task than it might appear, according to Brakes. "Once you have the documentation and the processes in place, it is relatively simple to move the system from an industrial environment to an office," he says. "At the heart of the system, you are simply looking at your energy uses. In our case, instead of looking at coffee roasters and packaging equipment, we're now looking at PCs and servers."

Greenest government

A more public set of targets in which 50001 played a key role was David Cameron's pledge to reduce carbon emissions from government buildings by 10% in the coalition's first year in power. Facilities management company ETDE is responsible for running the Cabinet Office estate and implemented an EnMS to meet its client's targets (see panel below).

Ruth McKeown, environmental lead at ETDE, says that 50001 has been important in gathering and analysing data.

"Smart metering systems monitor a building's energy use in half-hour, real-time segments. This means we can pinpoint spikes in consumption, identify the cause and remediate as appropriate," she says. "The standard has given us the ability to scrutinise energy practices in detail and support our client in meeting its carbon emissions reduction targets."

However, accurate and relevant data is only half the battle, confirms McKeown. "Staff engagement is very important. Improving energy consumption and employing the appropriate energy conservation measures involves everyone at the end of the day."

The data collated, as well as playing an important strategic role, are used as a part of buy-in programmes. The company provides individual business areas with information on their energy performance and the number of activities they have taken to combat energy misuse. This allows teams to benchmark themselves against each other and encourages individuals to get involved. After successfully implementing 50001 at the Cabinet Office, ETDE is rolling out the system across other buildings in its portfolio.

"The system demonstrates to our clients and the rest of our sector that we are forward thinking in terms of resource efficiency, and that energy and carbon management are at the top of our agenda," says McKeown.

While having a 50001-certified EnMS provides a way for firms to differentiate themselves from their competitors, the top benefit of such a system is much more practical, argues NQA's Hockaday: "In today's economic climate, with costs needing to be kept down, energy prices soaring and sustainability high on the global agenda, adopting a structured approach to energy management is just good business sense."

50001 AND THE CABINET OFFICE

For organisations that are considering taking a more targeted approach to energy management, ETDE has recorded a short film with NQA detailing its experiences of implementing ISO 50001 through the different functions of the Cabinet Office.

"We want to show other organisations, both in the public and private sector, that they can employ a system such as this and gain better control over their energy management issues," says Ruth McKeown, environmental lead at ETDE. "It really looks at the nuts and bolts of the operations and in particular it showcases how important staff engagement is to successful energy management."

To view the video on 50001 produced by ETDE and NQA, and for more information on 50001 certification, visit NQA's website at lexisurl.com/50001.

Henrietta Anstey

Head of environment and sustainability,
BAE Systems

Why did you become an environment professional?

I wanted to study something that was important to me, rather than what would lead to a job, so it was natural to choose my degree in countryside management. At the time, cost-benefit analysis was a new concept, the Environmental Protection Act 1990 was just coming into force and environmental job opportunities were limited.

What was your first environment job? In 1999, I became an environmental manager for a construction company that was a subsidiary of Bristol Water. It needed ISO 14001 certification to remain on the prime contractor list for a major utility firm and I was given responsibility for managing the development and implementation of the 14001 system in just 18 months.

How did you get your first environment role? More by luck than design! Having gone into banking after university, I realised that, while I was gaining some excellent business skills, I didn't have much job satisfaction; I needed to do something that I was passionate about. After signing up with a temp agency and finding myself working in a construction company, I mentioned I had an environment degree and was keen to use it. Little did I know that I would soon be working to help the company certify against 14001.

How did you progress your environment career? Having achieved 14001 at the construction firm, I needed a new challenge and became aware of a consulting opportunity at a maritime design company whose main customer was the Ministry of Defence (MoD). My role was to provide contracted support to the MoD on activities including ensuring that ship designs were compliant with environmental legislation and developing an environment management system. I moved from this company to

BAE Systems and became involved in more significant maritime environmental projects with the MoD.

What does your current role involve? I am now the lead environmentalist at BAE Systems and responsible for shaping policy and for securing executive agreement. My role is to support the business in developing sustainability plans across our operations, supply chain and products.

How has your role changed over the past few years? A lot! Having initially worked in one part of business I had a good idea of what I wanted to improve once I was in head office. I set about making those changes and I am now looking to embed these through better education, ultimately strengthening our corporate environmental capability.

What's the best and hardest part of your work? Best – when an employee or a business has taken the principles of environmental sustainability, successfully applied them and enjoyed the benefits that follow. Hardest – in a global business, reaching agreement takes time. I have learned to be more patient and understanding of the concerns of the various businesses – this is essential as they are responsible for delivering the operational efficiencies and product innovation, and have the supply chain relationships.

What is/are the most important skill(s) for your role, and why? Environmental knowledge is a given, but communication is the most important. From the choice of words to the appropriate medium to send the message – I am still trying to get it right.

What was the last event you attended and what did you bring back to your job? The 2011 IEMA annual conference as a speaker. This brought new contacts, which helps to



CAREER FILE

Qualifications

FIEMA, CEnv, MSc Integrated Environmental Management, BSc (Hons) Countryside Management

Career history

2009–now: Head of environment and sustainability, BAE Systems

2005–2009: Senior principal environmental consultant, Surface Ships, BAE Systems

2001–2005: Principal environmental consultant, BMT Defence Services

1999–2001: Environmental manager, Bristol Water

1994–1998: Retail and corporate banker, NatWest Bank

extend my network and an opportunity to learn how they are driving change.

Where do you see the environment profession going? Becoming more mainstream and more significant, given the increasing population and our insatiable attitude to consumption.

Where would like to be in five years' time? A director with an environment-related remit.

What advice would you give to someone considering going into the environment profession? Qualifications are the start, and professional registration gives you extra credibility, but it is how you engage with people that will really determine your effectiveness. Understanding people, and tailoring your communications to their values, will help ensure they do the right things well.

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Asbestos Consultant £30,000 South East

Senior Ecologist £40,000 UK

Technical Support Renewables £30,000 Midlands

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The existing team work with clients to meet the increasingly stringent requirements of lending institutions including IFC, EBRD and ADB. With project resources and experience spanning the UK, Europe, the FSU, the Middle East and Africa, RSK has the track-record, geographic presence and legislative awareness to suit any worldwide ESIA requirement.

Responsibilities:

- Managing complex ESIA's with multiple contributors
- Preparation, delivery and auditing of environmental and/or social management plans for construction and operation phases of projects.

Person specification:

- Willingness to work overseas for short or medium term assignments
- Additional language skills (Russian, Arabic, French) would be advantageous

Salary – Remuneration package to match level of experience

These roles represent an excellent opportunity to join RSK, a leading provider of ESIA services internationally. As one of the fastest growing environmental consultancies in the UK, there are excellent opportunities for advancement and growth for the right individuals.

For further information contact Sarah Murphy on 0117 300 4295 or by email at smurphy@rsk.co.uk

To see further career opportunities with RSK Group plc, visit our website.

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Principal Marine Environmental Cons – UK Wide

RSK Environment Ltd, a member of RSK Group plc, is looking to recruit principal level marine environmental consultants. The successful candidates would join a team expanding to meet an increasing workload from both existing and new clients mainly in the renewables and oil and gas industries.

With project resources and experience spanning the UK, Europe, the FSU, the Middle East and Africa, RSK has the track-record, geographic presence and legislative awareness to suit any worldwide marine EIA requirement. We would like to hear from candidates with either EIA or SIA experience ideally within the marine renewables or oil and gas sectors.

Responsibilities:

- Preparation, delivery and review of reports to support marine consenting and the discharge of post-consent conditions.
- Designing and Managing marine surveys

Person specification:

- Excellent written and verbal communication skills
- Strong team player with ability to work independently
- Willingness to work overseas for short or medium term assignments

Salary – Remuneration package to match level of experience

These roles represent an excellent opportunity to join RSK, a leading provider of ESIA services internationally. As one of the fastest growing environmental consultancies in the UK, there are excellent opportunities for advancement and growth for the right individuals.

For further information contact Sarah Murphy on 0117 300 4295 or by email at smurphy@rsk.co.uk

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Sectors include transportation noise, renewables including wind farms, residential, commercial development, healthcare, education and waste.

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Senior Air Quality Consultant - Brighton - To £35k

The successful applicant will work within an established team to provide air quality consultancy advice to clients, generally related to new development and/or industrial processes requiring assessment under EIA, IPPC, or in support of new planning applications in Air Quality Management Areas or locations perceived to be at risk from poor air quality.

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