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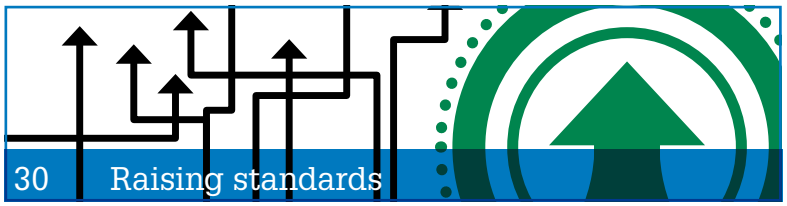

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Transparency is best policy

The latest figures for the Environment Agency reveal that water companies only self-reported serious pollution incidents on 66% of occasions last year (p.5). So, in a third of category 1, 2 or 3 pollution incidents, the nine utilities in England providing both water and sewage services did not inform the regulator of the problem. Performance ranges markedly, however, between 39% and 80%, and three companies saw a deterioration in their self-reporting in 2013.

There are numerous recent examples of water companies' failure to speedily self-report. In 2013, for example, Southern Water was fined £200,000 after a fault at a wastewater pumping station led to numerous discharges of untreated effluent into the sea near Margate. The agency said the company had failed to report the incident within 24 hours.

Swift self-reporting when things go wrong is important and can help to significantly diminish the environmental impact. Without a rapid response, relatively minor events can escalate and the opportunity for mitigation measures is often lost, says the agency. But, in addition to limiting the environmental harm, notifying the agency quickly when a pollution incident occurs can reduce damage to a firm's reputation and its bottom line.

In addition to limiting harm to the environment, notifying the agency quickly when a pollution incident occurs can reduce damage to a firm's reputation and bottom line

Self-reporting is one factor taken into account by the agency when deciding whether to prosecute. Its enforcement guidance states: "Where the offender provides us with the details of an offence voluntarily or through a self-reporting mechanism, we will take this into account when deciding on a sanction or whether advice and guidance will suffice."

Should an offence go to court, magistrates will take into account the conduct of the company. The revised sentencing guidelines for environment offences, which came into force on 1 July, highlight "self-reporting, cooperation and acceptance of responsibility" as mitigating factors. The guidelines include potentially higher financial penalties for breaches of environment regulation, including fines of up to £3 million per offence in the most extreme cases involving big companies. That figure is much higher than the previous "norm" for utility firms. The *Observer* reported last year the average fine imposed on water companies in England for a pollution offence between 2005 and 2013 was just £10,800.

So, self-reporting makes both environmental and financial sense. The agency is targeting 75% of all pollution incidents involving water companies to be self-reported by the end of the decade. That should be the minimum. It is likely that those companies that fail to achieve such heights will incur much higher penalties in the future, and they will have no one to blame but themselves.

Paul Suff, editor

The Institute of Environmental Management & Assessment (IEMA) is the professional home of more than 15,000 environment and sustainability practitioners from around the globe. We support individuals and organisations to set, recognise and achieve global sustainability standards and practice.

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Short cuts

Green is back

Senior executives in the UK believe "going green" is back on the business agenda after years of austerity, according to research by business automation specialist V1. The survey of 80 executives found that 98% of respondents felt the green agenda was once again important, with 51% stating it was "definitely important". Although more than two thirds of respondents (70%) believed the economic recession had a dampening effect on how much their organisations invested in green technologies, the outlook is now more positive. The correlation between going green and cutting costs was recognised by 89% of those surveyed; just 10% did not believe that green technologies could deliver financial rewards, with only 1% stating they were "unsure" about the business benefits. Janette Martin, V1's managing director, said the findings suggested that "organisations are once again feeling confident enough to invest in their green agendas".

Food security threat

Climate change could threaten food security in developing countries by 2050 through crop damage, a study published in the journal *Nature Climate Change* has concluded. But the research also suggests that ozone regulation can significantly offset climate impacts, which should help policymakers devise food production strategies. The study presents an integrated analysis of the individual and combined effects of climate change and ozone trends worldwide on four major crops – wheat, rice, maize and soybean – based on historical observations and model projections. This indicates that warming may reduce global crop production by more than 10% by 2050. Ozone trends can exacerbate or offset a substantial fraction of climate impacts, which highlights the importance of air quality management in agricultural planning. Depending on region, some crops are primarily sensitive to either ozone (wheat) or heat (maize) alone, which helps provide a measure of the relative benefits of climate adaptation versus ozone regulation for food security in different regions.

Future of work is 'green'

The need to use resources more smartly and efficiently, and the disillusion that followed the financial meltdown as well as public anger over some corporations' environmental, social and tax policies is forcing ever more companies to question the very nature and purpose of their business, says PwC in a new report on the future of work.

It sets out three "colour" visions for work as companies seek to respond to this crisis. The "blue" world consists of big, global companies, which are driven by profit, growth and market leadership. By contrast, small firms inhabit an "orange" world. They are flexible, minimising costs by hiring people and space on an ad hoc basis. In between these two extremes are the firms that occupy a "green" world. These companies recognise they have an impact beyond their financial one so they now quantify their total impact on society, the environment, the economy and tax, says PwC.

The driving goal for these companies is to make a positive social and environmental impact, says the report. It explains that such firms will exercise strong control over their supplier networks to ensure that their corporate ethical values are upheld across the supply chain, and they will have processes in place to troubleshoot when things go wrong.

Meanwhile, employees in green companies will be expected to uphold corporate values and targets around the environmental agenda. Working practices will also change, says PwC, with the need to travel to meet clients and colleagues replaced by technological solutions (see Ricoh example, pp.14–19). In this scenario, employees' carbon footprints will be carefully monitored and built into performance targets.

The report is underpinned by evidence from a survey of 10,000 people in China, Germany, India, the UK and the US. Sixty-five per cent of respondents want to work for an organisation with a powerful social and environmental conscience.

EU warming above average

The latest climate change indicators analysed by the European Environment Agency (EEA) show the annual average land temperature in Europe for the years 2004–13 was 1.3°C above pre-industrial levels, making it the warmest 10-year period on record.

The indicator for global and European temperature reveals the average temperature across European land areas increased more than the global average temperature for both land and ocean, and the global land temperature. Three independent long-term records of global average near-surface (land and ocean) annual temperature demonstrate that the 2004–13 period was 0.75°C to 0.81°C warmer than the pre-industrial average.

Figures suggest extremes of cold have become less frequent in Europe, while warm extremes are more frequent. Since 1880, the average length of summer heatwaves over western Europe has doubled and the frequency of "hot" days has almost tripled. The goal of limiting global average temperature rise to less than 2°C above the pre-industrial levels is projected to be exceeded between 2042 and 2050 by the three of the four scenarios outlined recently in reports from the IPCC .

The 13 updated indicators from the agency also cover issues such as sea levels, snow cover, ice sheets, ocean acidification, storms and glaciers. The projection for the global sea level, for example, has been revised upwards, based on new climate models that better represent the effects of melting ice sheets. Several indicators include projections of further snow and ice decline. The indicator on Arctic and Baltic sea ice shows that, in September 2013, ice cover was well below the average for 1981–2010, and predicts that, if greenhouse gases continue to be emitted at high levels, the Arctic Ocean will be nearly ice-free every September before 2050.

Water firms' performance 'disappointing', says EA

The performance of the nine companies in England supplying both water and sewerage services was disappointing in 2013, says the Environment Agency in its annual assessment. It reports that the number of serious – category one and two – pollution incidents was almost 50% higher last year than in 2012. "This is moving away from our expectation of a trend toward zero by 2020," says the agency.

The environmental performance assessment (EPA) tool was introduced by the agency in 2011 to compare performance between water companies. All firms are expected to achieve good performance against these indicators by 2015. The 2013 EPA scores for the serious pollution indicator show a decline in performance by six of the nine companies assessed.

Despite informing the companies last year that they should be working towards self-reporting of at least 75% of pollution incidents, the 2013 assessment reveals that only two, Southern Water (77%) and Yorkshire Water (80%), achieved this level of disclosure. By contrast, Northumbrian Water self-reported only 39% of pollution incidents in 2013. Overall, companies reported 66% of incidents last year.

Compliance with licences and permits also deteriorated in some areas in 2013. Although compliance with numeric wastewater discharge permits was 97.4% last year, this still means that around 90 sewage treatment works failed to comply with their permit conditions in 2013. Only two companies achieved better compliance with discharge permits in 2013 compared with 2012, says the agency. Compliance with other licences and permits in 2013 was generally high, however.

Overall, Severn Trent Water is described as having achieved "leading" company status, while Southern Water and South West Water are ranked as "poor" performing companies.

Leaders eye sustainability

New research by McKinsey reveals that business leaders are increasingly supporting sustainability initiatives, with many believing the issue is of growing importance to their company strategies.

The management consultancy polled more than 3,300 executives from around the world on the actions their companies are taking to address environmental, social, or governance issues, and the practices they use to manage sustainability. It found that sustainability is becoming a more strategic and integral part of respondents' businesses.

In past surveys, when McKinsey asked about companies' reasons for pursuing sustainability, respondents most often cited cost cutting or reputation management. Now 43% of respondents report that their companies are seeking to align sustainability with their overall business goals, mission or values – up from 30% in the previous survey, in 2012.

McKinsey also reports that chief executives are now twice as likely as they were in 2012 to say sustainability is their top priority. Of the 13 core sustainability activities that McKinsey asked about, executives most often say their companies are cutting energy use (64%), reducing waste (63%), and managing their corporate reputations for sustainability (59%).

However, the survey results suggest that, as sustainability rises up corporate agendas, companies are finding it harder to capture its full value. At companies already taking action, respondents most often cite challenges related to execution: the absence of performance incentives and the presence of short-term earnings pressure that is at odds with the longer-term nature of sustainability issues. Accountability is also an increasing concern, with more than a third (34%) of executives reporting that too few people in their companies are accountable for sustainability.

Short cuts

Uncertainty over 14001

Overwhelming uncertainty about the impact of the revisions to ISO 14001 has been revealed by a survey of environment professionals. Cedrec, which provides advice on environmental and safety legislation, polled just over 200 practitioners on the revised international standard for environment management systems (EMS), which is due to published next year, and found that nearly two-thirds (62%) of respondents were unsure how the changes will have an impact on their organisations. The results reveal that strategic management involvement, and leadership and lifecycle thinking are the two biggest areas of concern with 14001: 2015. The revised standard requires a better understanding of the context of the organisation when establishing the scope of the EMS, and a clearer definition of the role and responsibilities of top management. Other revisions include new requirements to determine environmental risks and opportunities. IEMA has launched a new course (p.36) to help practitioners implement the revised standard.

Powerful devices

The annual energy demand for network-enabled devices, such as smartphones and tablets, will soar to 1,140 terawatt hours (TWh) by 2025 if left unchecked, says the International Energy Agency (IEA) in a new report. That is equivalent to the combined annual electricity consumption of Canada and Germany. However, the IEA estimates that up to 80% of devices' electricity consumption is used just to maintain a network connection. It wants them to be able to manage their energy demand better so they do not have to remain fully on to maintain connectivity. Analysis by the agency reveals that implementing existing best available technologies and solutions could cut electricity demand from devices by more than 60%. It estimates that the global energy efficiency potential from powering down network enabled devices and reducing standby electricity consumption at almost 600 TWh annually by 2020.

Short cuts

Joined-up inspection

The government has established a combined Animal and Plant Health Agency to improve prevention of the spread of animal and plant diseases. Headed by Chris Hadkiss, chief executive of the Animal Health and Veterinary Laboratories Agency (AHVLA), the new combined body will start work on 1 October 2014. It brings together the AHVLA and four functions of the Food and Environment Research Agency: the bee inspectorate, the plant health and seeds inspectorate, the plant variety and seeds group, and the GM inspectorate. Environment minister Lord de Mauley said bringing together inspection functions would enable joined-up working on plant and animal diseases and pests, and increase resilience and flexibility in emergency responses. A decision on the future of the Centre for Environment, Fisheries and Aquaculture Science and whether it should form part of the new agency will be made this autumn.

Construction emissions

Restrictions on emissions from construction machinery being used on projects on London are to introduced to cut air pollution in the capital. Under plans announced by the London Mayor, Boris Johnson, emissions from bulldozers, dump trucks and excavators will be 40% lower by 2020 than in 2010. The new rules will require construction equipment to meet standards for particulates (PM10) and nitrogen oxide. Equipment over 10 years old will need to be either replaced or retrofitted to work on all developments in central London and major projects in outer London. *the environmentalist* reported in June that the Crossrail project, which is linking Heathrow and Reading to the west of London with Abbey Wood and Shenfield to the east, had introduced standards for contractors to limit emissions from construction equipment. They require contractors to use diesel-powered plant machinery with newer, cleaner engines (Euro IIIB standard) or retrofit diesel particulate filters on to existing engines.

Study counts cost of not acting

The estimated economic costs associated with delaying measures to reduce the pace and magnitude of climate change mean policy action is required today, a report from the US Council of Economic Advisers at the White House has concluded.

Although delaying action can reduce costs in the short run, the council argues the net effect of such a hold-up is ultimately costly. Because CO_2 accumulates in the atmosphere, delaying action will increase concentrations. The longer the delay, the greater the concentration of CO_2 will be and the greater the risk. Costs will take the form of either more damage from climate change or financial ones associated with implementing more urgent remedial action.

According to the report, immediate action will substantially reduce the long-term cost of achieving climate targets by sending a signal to the market that will spur development of new low-emission technologies. An analysis of the cost of delay in terms of hitting a specified climate target suggests net mitigation costs increase, on average, by about 40% for each decade of delay.

The report also concludes that climate change stemming from delayed action creates large estimated economic damages. For example, if delayed action causes the mean global temperature increase to stabilise at 3°C above pre-industrial levels, rather than 2°C, that delay will induce annual additional damages of 0.9% of global output. The next degree increase would incur greater additional annual costs of 1.2% of global output. And these costs will be incurred year after year.

President Obama talks to US citizens affected by Hurricane Sandy in 2012

Potential costs from abrupt, large-scale catastrophic changes in climate reinforce the need to act now, the report states. If an ice sheet melts, for example, it cannot be reconstituted on any societally relevant timescale and could result in massive global costs.

Climate justice will herald change

The emerging concept of climate justice could produce a radical change in policy approaches to climate change, according to attendees at a recent "dialogue" event in Glasgow. But the delegates also recognised the concept has yet to gain real traction with key stakeholders, such as politicians and businesses.

The second of three planned dialogues – hosted by Glasgow Caledonian University and the Joseph Rowntree Foundation (JRF) – considered the science behind climate justice and asked whether it is more than just a campaign slogan.

The concept, which brings together the physical science of climate change, the economics of development, the legal and ethical foundations of human rights and social justice, and the effects of social policy, is still relatively new to academic and policy circles. Its origins lie with non-governmental organisations and campaigners, who have highlighted the disproportionately damaging effects of climate change on the poor. The event included discussion of a recent review of climate change and social justice by the Centre for Sustainable Energy and the universities of Oxford and Manchester. It found climate change adaptation plans seldom address issues of social justice and little evidence of environmental risks being linked with assessments of social vulnerability in the UK.

On the question of what might encourage more environmentally "just" responses, the delegates in Glasgow felt little would change until politicians were faced with catastrophic circumstances. The issue of "climate refugees" was another area of debate, with many recognising that governments had responsibilities towards people displaced by climate change.

The final dialogue, to establish an evidence base to influence the UN climate summit in 2015, will be held on 9 October.

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Businessplans

Food retailer **Sainsbury's** and Dutch company **Schoeller Allibert** are working to recycle food crates. Two million "old" crates used by Sainsbury's are being ground down into plastic flakes, which are washed and dried and turned by Schoeller Allibert into new, 100% recycled food crates that meet European Food Safety Authority Standards. The retailer says the scheme is an sector first in the UK.

The latest corporate responsibility report from **Molson Coors**, the UK's largest brewer, reveals that it is pressing ahead with plans to invest in anaerobic digestion wastewater treatment technology to generate biogas to produce heat or electricity for its breweries. The AD technology is now operating in five breweries and Molson Coors, the firm behind Carling and Cobra beer brands, is investing $11.8 million this year to install it at two more sites.

New social and environmental commitments from **Kellogg's**, the world's leading cereal company, include expanding its use of low-carbon energy by half and implementing more water reuse projects – both by 2020. In addition, all packaging will be either from recycled content or certified sustainable sources, and 30% of its manufacturing plants will incorporate zero waste to landfill policies by 2016.

Boeing, **South African Airways** and "sustainable" jet fuel company **SkyNRG** have announced that they are collaborating to produce aviation biofuel from a new type of tobacco plant. Farmers in South Africa are trialling growing the hybrid plant. Initially oil from the seeds will be converted into jet fuel.

Logistics company **UPS** has revealed that it has already met its 2016 goal to reduce its air and ground fleet's carbon intensity by 10% and will therefore double the target and hope to achieve a 20% cut from transportation by 2020.

Philips is to install LED lighting throughout the properties of **Unite Students**, one of the largest providers of student accommodation in the UK, over the next two years. Unite has 130 properties in 23 UK cities. Under the £21 million contract more than 300,000 new light fittings and 85,000 sensors and dimmers will be installed. Payback is estimated at five years.

Asian economies at risk

South Asian economies are set to decline significantly if the international community fails to halt global temperature rise at 2°C, according to a report from the Asia Development Bank.

The bank predicts that the collective economy of Bangladesh, Bhutan, India, the Maldives, Nepal and Sri Lanka will lose on average 1.8% of its annual gross domestic product by 2050, rising to 8.8% by 2100. However, given the uncertainties of climate change, it warns that annual losses could be as high as 24%. The assessment, which is based on a temperature rise of 4.6°C, forecasts that Nepal and the Maldives will be the hardest hit, with their respective economies declining by 12.6% and 9.9% every year by 2100. On average, Bangladesh would lose 9.4%, India 8.7%, Bhutan 6.6%, and Sri Lanka 6.5%.

Economic losses are expected to be significant in key sectors, such as agriculture, which is described as extremely vulnerable to climate change. Higher temperatures will eventually reduce yields of desirable crops, explains the report. Bangladesh, Bhutan, India, and Sri Lanka are projected to experience a decline in rice yield of as much as 23% by 2080,

although it could increase by up to 16% in the colder hills and mountains of Nepal.

The region as a whole will need to spend at least $73 billion every year by 2100 to adapt to climate change, predicts the bank. "Countries must respond individually and collectively to cope with rising sea levels, disrupted water, food, and energy supply and increased disease," said Bindu Lohani, vice-president for knowledge management and sustainable development at the bank.

The impact of climate change in south Asia will depend largely on how the global community tackles the issue, however. Keeping the global temperature rise below 2°C would equate to reduction of 2.5% a year in the region's economy by 2100.

Bias alert for bee strategy

Defra's draft pollinator strategy, which will rely on significant research funded by pesticide manufacturers, risks losing public confidence if it does not include robust independent controls, the environmental audit committee (EAC) has warned.

"When it comes to research on pesticides, Defra is content to let the manufacturers fund the work," said committee chair Joan Walley. The EAC report noted this was "symptomatic of Defra's loss of capacity to deliver its environmental protection obligations" and "might result in greater susceptibility to commercial, rather than scientific, research priorities". Walley added that independent controls must be maintained at every step and studies must be peer reviewed and published in full.

The goal of the draft strategy, which went out to consultation in March, is to safeguard pollinators and their role in ecosystems. To that end, its research programme aims to gather more evidence about the value of pollinators, such as bees, hoverflies, butterflies, beetles, midges and moths, and find out why their numbers are falling. Factors thought to be behind the decline include habitat loss, climate change, parasites and use of pesticides, particularly neonicotinoids.

Plans for a national pollinator monitoring framework in the strategy drew support from the committee, which said that such an approach should produce a "clear and less disputed baseline understanding of the plight of pollinators". The EAC also welcomed the strategy's intention to involve the public in protecting pollinators.

Last year, the government rejected the EAC's recommendation for a ban on three neonicotinoid pesticides (clothianidin, imidacloprid and thiamethoxam), arguing there was a lack of evidence of their effect on colonies. The EU, nevertheless, has temporarily banned them. Walley called on Defra to use its finalised strategy to make clear that it now accepts that ban and will not seek to overturn it.

Making the Transition to ISO 14001:2015

Training delivery from EMS technical experts

CRA Europe is delivering the new IEMA STS training course, Making the Transition to ISO 14001:2015, in September and October, at locations throughout the UK and Ireland.

CRA has been instrumental in the development of this essential new course. Harnessing IEMA and CRA's combined expertise, Making the Transition to ISO 14001:2015 not only addresses the changes, but also emphasises that the revision is an excellent opportunity for organisations to make genuine improvements to their EMSs.

CRA's EMS lead specialist is one of the UK's technical experts participating in the international ISO 14001 revision process, and all of CRA's trainers have over 20 years EMS experience. CRA is uniquely placed to deliver this course and guide your organisation through the successful planning and development of an updated EMS.

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In court

Drax biomass 'victory' is short-lived

The court of appeal has overturned the high court's decision to allow a second unit at the Drax power station in Yorkshire to qualify for subsidies under the long-term contracts for difference (CfDs) scheme, which guarantee a level of payment for electricity generated from low-carbon sources.

Decc shortlisted two Drax biomass conversion units for subsidies in December 2013, but said in April 2014 that only one would be eligible for an investment contract, an early form of CfD to support low-carbon energy projects ahead of the full rollout of the scheme under the electricity market reform. The energy department said that the second unit would instead receive support under the existing Renewable Obligation (RO) subsidy regime, which will be replaced by the CfD scheme.

The award of an investment contract was the subject of a competitive process run by the energy department. In a letter to Drax on 22 April, Decc said the unit in question did not qualify for a contract because it failed to meet the "key criterion", namely that "without the contract there is a significant risk that the electricity generation to which the contract relates will not occur or will be significantly delayed".

Drax sought a judicial review and in July the high court quashed Decc's decision. It ruled that Drax had met the criteria set by the government for the second unit to be eligible for an investment contract. In response, Decc said in statement that it had run a "fair and robust bidding process for renewable generators seeking early contracts for difference" and that it would appeal.

Drax argued that it could secure supplies of biomass to operate the unit at full capacity only if it received support from the new subsidy regime. Decc, however, said the company had failed to make an adequate case that output would be significantly delayed if it relied on RO funding for conversion.

At the court of appeal, Lord Justice Richards sided with Decc and overruled the high court decision. Lords Gloster and Laws concurred.

After the ruling, Drax conceded defeat. "Having taken legal advice, Drax will not appeal against this decision," said the company.

UK and EU 'breach' Aarhus convention

Preliminary findings by the compliance committee of the UNECE Aarhus convention allege that the UK government failed to provide sufficient environmental information about HS2 and its reasonable alternatives, and amounts to a breach of article 7 of the convention, which requires effective public participation in plans relating to the environment.

The case relates to the supreme court judgment in *R (HS2 Action Alliance Limited) v Secretary of state for transport* [2014] UKSC 3 and centres on a document entitled *High-speed rail: investing in Britain's future – decisions and next steps* (DNS),which set out the government's strategy for HS2. The court held that the consultation on the DNS had not provided sufficient information for the public about the environmental impacts of HS2 and the reasonable alternatives to the line. However, it also said the document did not set the framework for development consent, so did not come within the scope of the SEA Directive (2001/42/EC). The Aarhus compliance committee said the lack of information was a breach of article 7.

The committee also found against the EU, saying that the interpretation of the term "set the framework for development consent" in the Directive by the UK supreme court meant the original EU legislation failed to comply with article 7 of the convention. The matter will now proceed to a full hearing.

Chlorine fish kill costs £6,500

Allowing chlorinated water to be discharged into a burn during repair work at the Alva Service Reservoir near Stirling has cost Scottish Water £6,500. The discharge killed more than 1,000 fish. Scottish Water staff carrying out work at the reservoir admitted to officers from the Scottish Environment Protection Agency (Sepa) who were investigating the fish deaths that the chlorinated water had been discharged when an inlet valve failed to shut. Sepa said the response of Scottish Water had been inadequate.

Case law

Court rejects transboundary consultation on nuclear plant

The court of appeal has rejected an application for a judicial review of the energy secretary's decision to permit construction of a new nuclear power station at Hinkley Point C (HPC) in Somerset. The construction of HPC fell within the scope of annex I to the Directive (2011/92/EU) on environmental impact assessment (EIA), and an EIA and a public consultation was undertaken in the UK in accordance with articles 4–6 of the Directive. The plaintiffs argued that the energy secretary had failed to comply with Regulation 24 of the Infrastructure Planning (EIA) Regulations 2009, which implement the Directive in the UK, and/or article 7, which relates to whether a project is likely to have significant environmental effects in another member state. Decc did not undertake transboundary consultation in Ireland because it considered that the project was unlikely to have a significant impact there.

The court said the energy secretary had acted lawfully in deciding not to undertake transboundary consultation in Ireland on the basis of the very low risk of severe nuclear accidents – said by one expert to be one every 10 million years. The decision centred on the meaning of the phrase "likely to have significant effects on the environment" in the EIA Regulations. The court held that, no matter how low the threshold for a likely significant effect on the environment, the secretary of state's decision would still be lawful. Lord Justice Sullivan admitted that there may be an issue as to exactly how low the probability was, but said: "There is no doubt that the defendant was entitled to describe it in his decision as a 'very low probability'."

Jen Hawkins

Lexis®PSL

New regulations

In force	Subject	Details
2 Jul 2014	Natural environment	The Plant Health (Amendment) Order (Northern Ireland) 2014 removes provisions concerning western corn rootworm (*diabrotica virgifera virgifera*) from the 2006 Order following the implementation of EU legislation. lexisurl.com/iema23859
14 Jul 2014	Energy	The Feed-in Tariffs (Amendment) Order 2014 allows for preliminary feed-in tariff accreditations to be withdrawn for prospective hydro generators with a total installed capacity between 100 and 500kW under certain conditions. Preliminary accreditation will be withdrawn where it was applied for during December 2012. These changes are to provide such installations with tariffs at the current rate. lexisurl.com/iema24741
14 Jul 2014 1 Oct 2014	Water	The Water Act 2014 (Commencement No. 1) Order 2014 brings into force two sections and one schedule of the Act. From 14 July, water companies may be charged for regulatory operations by the Drinking Water Inspectorate, extending a previously temporary power. From 1 October 2014, the Environment Agency and Natural Resources Wales will become responsible for maintaining main river maps, which must be kept electronically. Fees may be charged to access these maps. lexisurl.com/iema26209
15 Jul 2014	Energy	The Financial Services and Markets Act 2000 (Regulated Activities) (Green Deal) (Amendment) Order 2014 amends the 2001 Order on green deal plans. The amendments reflect changes made to the Consumer Credit Act 1974 in February 2014. The Financial Services and Markets Act 2000 (Regulated Activities) (Green Deal) (Amendment) Order 2014 further amends the 2001 Order by clarifying the "borrower" and "lender" under green deal plans. This Order applies retrospectively to all plans made on or after 28 February 2014. lexisurl.com/iema26212; lexisurl.com/iema26226
18 Jul 2014	Waste	EU Regulation 733/2014 revises the list of wastes that may or may not be exported for recovery in certain non-OECD countries, and the level of notification and consent required. lexisurl.com/iema26205
25 Jul 2014	Energy	The Energy Efficiency Regulations (Northern Ireland) 2014 implement five articles and three annexes of the EU Energy Efficiency Directive (2012/27/EU). Changes include requiring electricity transmission and distribution system operators to give priority to renewable energy sources when dispatching electricity generation and setting minimum requirements for smart meters. lexisurl.com/iema26208
25 Jul 2014	Waste Hazardous substances	The Waste Electrical and Electronic Equipment and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (Amendment) Regulations 2014 amend existing WEEE and RoHS legislation to correct a number of errors. lexisurl.com/iema26207
25 Jul 2014	Waste Hazardous substances	The Waste Electrical and Electronic Equipment (Charges) Regulations (Northern Ireland) 2014 set fees payable under the 2013 Regulations. Fees are either maintained at the previous level or reduced. lexisurl.com/iema26227
30 Jul 2014	Emissions trading	EU Regulation 743/2014 replaces annex VII to Regulation 601/2012, which imposes minimum analysis frequencies for fuels and materials subject to the EU emissions trading system. lexisurl.com/iema26216
30 Jul 2014	Energy	The Green Deal (Qualifying Energy Improvements) (Amendment) Order 2014 makes two further energy-efficiency improvements eligible for green deal plans: storage waste water heat recovery devices attached to showers and baths, and circulator pumps in central heating systems. lexisurl.com/iema26229

This legislative update has been provided by Waterman's Legal Register available at legalregister.co.uk

Latest consultations

21 September 2014
Environmental liability

Proposals to amend the Environmental Damage (Prevention and Remediation) Regulations 2009 to transpose article 38 of EU Directive 2013/30/EU on the safety of offshore oil and gas operations have been published for consultation by Defra and the Welsh government. The draft Environmental Damage (Prevention and Remediation) (Amendment) Regulations 2015 would extend the offshore scope of the EU Environmental Liability Directive (2004/35/EC) in English waters and the Welsh offshore area.
lexisurl.com/iema27142

26 September 2014
Environmental impact assessment

The communities and local government department is consulting on plans to raise the environmental impact assessment (EIA) screening thresholds for industrial estates and urban development projects from 0.5 hectare to 5 hectares. IEMA is running a number of member workshops in September to gather opinion before it submits a formal response.
lexisurl.com/iema27136

17 October 2014
Biodiversity and ecosystem services

The EU biodiversity strategy to 2020 contains six operational targets and 20 associated actions to halt biodiversity loss across Europe and conserve ecosystem services. One, action seven, is to ensure no net loss of biodiversity and ecosystem services. This requires the European commission to implement an initiative on no net loss next year. The commission is seeking views on the makeup of that initiative.
lexisurl.com/iema23872

23 October 2014
Energy-intensive industries

The government is consulting on eligibility for schemes designed to provide relief to electricity-intensive industries from the indirect costs of renewables. It follows the publication by the European commission in April of new energy and environmental aid guidelines (EEAG). These outline the legal basis for member states to provide relief for energy-intensive businesses from the indirect costs of renewable energy subsidies and carbon taxes. The scope of coverage in the revised EEAG differs from that assumed by the government in July 2013 when it drafted exemptions from the contract for differences (CfD) arrangements under the electricity market reform (EMR). The government is now proposing the same eligibility criteria for both the EMR CfD exemption and the Renewables Obligation and the small-scale feed-in tariff compensation scheme.
lexisurl.com/iema27138

5 November 2014
Batteries Directive

EU Directive 2013/56/EU amends the Batteries and Accumulators and Waste Batteries and Accumulators Directive 2006/66/EC. Legislation transposing it must be implemented by 1 July 2015. The business department, Defra and the Scottish and Welsh governments are now consulting on implementation, the draft regulations and the proposed impact assessment. Directive 2013/56/EU removes the exemption in 2006/66/EC for cadmium in batteries intended for use in cordless power tools (from 1 January 2017) as well as for button cells with a mercury content of less than 2% by weight (from 1 October 2015).
lexisurl.com/iema27140

New guidance

Energy-intensive industries	The business department has published revised guidance (lexisurl.com/iema27153) for UK companies in energy-intensive sectors on applying for compensation for the indirect costs of the EU emissions trading system (ETS) and the domestic carbon price support (CPS) mechanism. It updates previous guidance published in 2013 and relates to compensation for the indirect costs of the ETS and CPS incurred since 2014. The guidance covers eligibility (NACE code and 5% filter test), how compensation is calculated and scheme administration.
Enhanced capital allowances	Defra has issued the annual update to the two-part water-efficient technology list, which comprises the technologies (lexisurl.com/iema27157) that qualify for the enhanced capital allowance (ECA) scheme and their water-saving eligibility criteria (lexisurl.com/iema27158). Meanwhile, changes to the ECA scheme for energy-saving technologies came into force on 7 August 2014, adding active chilled beams and desiccant air dryers with energy-saving controls to the energy technology product list. In addition, Decc has published guidance (lexisurl.com/iema27154) on how to claim ECA for "good quality" combined heat and power (CHP) schemes. A CHP scheme will be eligible for an ECA if it has a Decc certificate of energy efficiency.
Energy saving for local authorities	A new online tool to help local authorities better plan energy-saving initiatives is now live (coopenergy.eu). Developed by Kent county council and partners with funding from the EU, the COOPENERGY initiative consists of two resources for public authorities: a database of 60 case studies to showcase how regional and local authorities are already collaborating effectively on sustainable energy plans and initiatives across Europe; and an online guidebook to help regional and local public authorities set up their own collaborative approaches to energy planning. The resource contains material on, for example: developing sustainable energy action plans; implementing joint financial mechanisms; modelling, monitoring and planning tools; energy efficiency; renewable energy production; and greenhouse-gas reduction.

Laying down the law

‘Technical’ changes to EIA

Stephen Tromans considers proposals from the communities department to raise screening thresholds in England

There is a natural tendency when faced with a 98-page document from the communities and local government department (Dclg), enticingly entitled *Technical consultation on planning*, to file it at the bottom of a very high “to read” pile. A consultation paper under that name was issued in July and requires responses by 26 September 2014 (p.12). To ignore it would be misguided because it contains some important and far-reaching proposals on issues such as: neighbourhood planning; permitted development rights; planning conditions and their discharge; statutory consultation procedures; major infrastructure projects; and, importantly, environmental impact assessments (EIAs).

As the foreword by the new Dclg minister, Brandon Lewis, makes clear, it is all about unlocking economic and housing growth, while maintaining environmental protection, in a planning system perceived as “convoluted, confusing, expensive and in many cases ineffective”.

“Unnecessary” screening

Section 5 of the document deals with EIA thresholds. Dclg proposes to raise these for some project categories listed in schedule 2 to the Town and Country Planning (EIA) Regulations 2011 to reduce the number of schemes that would be subject to what it describes as “unnecessary” screening. EIA procedures are described in *Technical consultation on planning* as going beyond those normally required for planning applications, increasing the workload of planning authorities and developers, and adding to the cost of making an application.

The government believes – probably not unreasonably – that, fearing a possible legal challenge, some local authorities have required EIAs for projects that are not likely to give rise to significant effects on the environment. Equally, the document notes that some developers undertake assessments voluntarily to avoid the risks of legal challenge, and that “developers are carrying out increasingly large and overly complex environmental assessments”. It is certainly difficult to argue with that last assertion.

The government finds support for its argument that the EU EIA Directive (2011/92/EU) is being “over-implemented” by referring to the number of requests for screening directions made to the secretary of state between 2011 and 2014. It says that, of the 160 “urban development projects” screened by the secretary, only 20% needed an EIA.

Raising thresholds

Dclg’s focus for change to thresholds is on two types of development: urban projects and industrial estate schemes. Collectively, these represent the most common project type subject to EIA in England and fall within annex II of the EIA Directive. The consultation paper recognises that, although member states have some discretion in determining whether annex II projects should or should not be subject to EIA, there are several overriding principles that arise from European court case law.

In deference to those, no change is proposed to projects in defined sensitive areas, which require screening in all cases, irrespective of size. Further, the new and higher screening thresholds have been set so as to remain significantly lower than existing indicative thresholds provided as guidance for use in screening, and account has been taken of the possible cumulative effects of a number of similar-sized projects coming forward at the same time.

For industrial estate projects, the proposed increase in the threshold is from 0.5 hectares to 5 hectares – compared with an indicative threshold of 20 hectares. Urban development projects are an extremely diverse category, and the current threshold is 0.5 hectares. The existing guidance for use in screening for sites that have not previously been developed refers to a site area of more than 5 hectares; or providing more than 10,000 square metres of new commercial floor space; or having “significant urbanising effects” – for example, a new development of more than 1,000 dwellings.

Dclg is proposing to raise the screening threshold for development of housing over 5 hectares of land, including up to 1 hectare of non-residential development to cater for mixed-use schemes. This equates to developments of around 150 units, allowing for the average housing density of 30 dwellings per hectare.

The view is that housing schemes of this scale, outside sensitive areas, are unlikely to give rise to significant environmental effects. Dclg hopes this will reduce the number of screening decisions for residential development from around 1,600 a year to 300. Ideally, it would like a threshold closer to the 1,000 dwellings (about 30 hectares) indicative threshold, but is unsure that this would be consistent with the requirements of the EIA Directive.

Dclg did consider raising thresholds for other types of annex II projects – such as quarries and wind energy projects – but concluded that the existing thresholds should be retained.

Controversial plan?

Although the proposal to raise the threshold, especially for residential development, will be popular with developers, it is undoubtedly likely to give rise to controversy in practice. It takes little imagination to see how the residents of a rural community might regard a 150-home development as having a detrimental effect on their local environment. Even outside a sensitive area, there could be significant effects on views, highways and local services, for example.

So, although the proposals may result in a reduction in screening and in projects being held to require an EIA, they might also lead to challenges, potentially on incompatibility with EU law.

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21ST CENTU

Paul Suff visits two Ricoh sites to discover how the firm is creating working environments for the future

Ricoh UK's Northampton head office and the Telford factory of Ricoh UK Products may be two very contrasting facilities, but they both place sustainability at the heart of how they function. The forward-thinking approach of the managed-document services and IT solutions business recognises that business-as-usual is not an option, both in how Ricoh's organisations operate and in how the people they employ work. It is a way of operating that implements the sustainable environmental management (SEM) practices that the business has largely embraced since its foundation in 1936.

SEM at Ricoh focuses on developing energy-efficient products, reducing costs and minimising Ricoh's own environment footprint through the economical use of resources and supporting work styles that enhance operational and energy efficiency. It is a holistic approach that is continually changing. As Ricoh UK and Ireland marketing director Chas Moloney told a gathering of IEMA members in December 2013: "Ricoh views sustainability as developing a business model that will deliver lasting value for all our stakeholders into the future, and look beyond managing our impact on the environment."

Ricoh had previously occupied one floor of the Northampton office building. When the other tenants moved out, Ricoh took the opportunity to refurbish the building and bring together workers from four sites into one. Its goal, when designing the space, was to radically alter how its office staff work. Meanwhile, the Telford plant, which opened in 1984, continues to evolve, creating the kind of manufacturing facility that is likely to become the norm as companies seek to minimise resource use and reduce their environmental impacts. Both sites illustrate why this year Ricoh celebrates 10 years in the list of the top 100 sustainable businesses worldwide.

The world of work

The Ricoh logo is accompanied by the words "imagine" and "change" to describe how the company is committed to supporting creative thinking. Mike Baddeley, head of business excellence at Ricoh UK, certainly embraces that philosophy. He was charged with leading a project to create an environment at the expanded Northampton head office which would support the changing nature of work and showcase Ricoh solutions, enabling people to interact and share knowledge. "We needed to create a space that supports workers now and in the future," Baddeley says. "There is no point designing an office space for how we work today or may work next year. You need to think longer term, say 10 or 15 years."

The first step on Ricoh's journey to a new way of working was to understand how work was changing. Baddeley cites the work of Dutch organisational psychologist Dirk Bijl as being particularly inspirational. Bijl's book, *New ways of working*, describes a post-industrial society in which email boxes are overflowing and there is an increasing administrative rigmarole, more rules and procedures, and more controls for measuring whether employees are sticking to the rules.

Most workers, at least in the developed world, can now be described as "thought" or "knowledge" workers, employed in services and professions rather than factories. Yet, argues Baddeley, the way work is organised and managed has not really altered. "Despite the revolution in technology speeding up how people communicate and access information, the way we work actually feels like it's slowing us down," he says, citing the example of organisations still preferring to hold face-to-face meetings even when they are not necessary. "They are often arranged several weeks in advance and require people to travel. And the outcome is too often: 'let's arrange another meeting'."

Baddeley believes that businesses need to become more agile, providing staff with the tools to move quickly and easily. He also points out that the separation between people's work and social lives is disappearing. "The two are converging. There is an expectation among people in an office environment that they will have access to their social contacts. Equally, many will also catch up on work emails at home."

The pace at which technology is changing will further accelerate changes in how people work and how organisations function, says Baddeley. "Digitisation has transformed how people consume music and films and, with 3D printing, that is now moving to physical products. Technology is continually disrupting existing business models."

RY WORKING

He says these shifting social and business conditions demonstrate why Ricoh has had to change, and accelerate the pace at which it evolves. "How we operate now is simply not sustainable. And it will be the same for most organisations," he says.

The four "Cs"

The next step for Baddeley was to better align Ricoh's working patterns with the way the world was changing. "There's a view that 'thought' workers continuously transform, so you need to provide automated processes to allow them to focus on their strengths, which are about being creative, building relationships and developing knowledge," he says. "You have to construct an environment that supports and enables their ability to problem-solve and innovate."

The expanded physical space at the Northampton head office has been designed for such working, with designated areas for contemplation, communication, concentration and collaboration – a theory developed from the three "Cs" concept outlined by designer Jeremy Myerson. Baddeley describes the building as a meeting and project place, designed and equipped to discourage people from making unnecessary journeys.

"We did some research and discovered that people only spend 55–60% of their time on what they are good at, with the rest spent travelling. We've provided technology for people to work when and where they want to work," he says. Video conferencing, electronic whiteboards, instant messaging, laptops and softphones are just some of the tools available to support mobility. Baddeley explains that Ricoh's approach is not about encouraging people to work from home, but enabling them to work in the best environment for whatever they are engaged in doing. "If they need to concentrate, then they might well work from home or in a quiet area of the office. But if they need to collaborate, for example, they need a different kind of space and different tools."

Account manager Ben Curtis reveals how video conferencing, for example, is reducing the number of face-to-face meetings among Ricoh sales staff. "Previously, the head of sales held monthly meetings, with staff from 35 offices across the UK converging on one site. Now we have only one physical meeting a quarter and the other two are via video conferencing – that's a huge reduction in travel." Similarly, virtual board meetings are now common, with even guests giving online presentations.

Occupying force

Occupancy levels at Northampton are in line with current employee numbers, so there are enough desks for all of the 450 people moving into the refurbished building but no room for expansion. That is deliberate, reflecting the company's thinking on future mobility and how often employees use desks. "We did a survey and found desks were occupied for just 66% of the time, on average," says Baddeley.

Cutting travelling is one thing, but the decision to minimise paper at Northampton is an interesting message from a company best known for manufacturing photocopiers. "Paper ties an organisation to a building and ties an employee to a desk, which is a barrier to the mobile and agile organisation we're creating," says Baddeley. "Also, we sell document digitisation solutions, so a paperless environment is compatible with our business model."

Paper has not vanished entirely at Northampton, but the volume has declined drastically. Customers now receive electronic invoices, for example, while a "Follow Me" print and scan system enables print jobs to follow the user to their choice of printer. The system automatically deletes unprinted documents after 18 hours. Ricoh has also implemented a scanning and archiving project to reduce stored paper copies of documents, freeing up space and contributing to a sevenfold reduction in filing and storage. Meanwhile, an e-post system scans incoming paper documents and sends them directly to the recipient's laptop or smart device.

Manufacturing the future

About 130km from Northampton, at the Telford site of Ricoh Products UK (RPL), another vision of the future of working is taking shape. Zero waste, energy reduction, remanufacturing (see panel, p.16), biodiversity and harmonising operations with the environment are some of the initiatives on which environment officer Andy Whyle and his colleagues are focused at Telford. Whyle points out that the "Ricoh Way", the company's production system, contains 12 key fundamentals; one of these is being environmentally responsible.

SEM is regarded as the growth engine for the business, and Ricoh set mid- and long-term targets in 2000 to minimise its environmental impacts. For example, all Ricoh manufacturing sites had to achieve zero waste to landfill by 2002 – Telford achieved this in 2001 – and to integrate conservation into their business

Remanufacturing at Ricoh

Ricoh is aiming for recycled or reused materials to make up half of incoming materials by 2050. Its increasing focus on remanufacturing is one way of achieving that resource conservation objective. The Telford site of Ricoh Products UK (RPL) produces 180 remanufactured Eco-Line multifunction printers each month. These machines, which typically contain 80% of the original parts, are remanufactured in accordance with BS 8887.

Chris Rymer, senior recycling design and development engineer at RPL, explains that "used" machines arrive at Telford in a variety of conditions and only those that meet certain criteria – such as how much of their typical 3 million copier capacity is unused – are accepted for remanufacturing. Machines that are too near their end-of-life are sent for recycling. He says machines are completely stripped and all the parts evaluated against their original standard to ensure they remain fit for purpose. Broken and mandatory service parts are replaced, either with new parts or ones harvested from machines that are not serviceable. Rymer also reports that Ricoh is increasingly replacing only moving parts rather whole assemblies. "We strip an assembly down completely and replace the worn parts, such as bearings, reusing as much as possible," he says.

Ricoh's Eco-Line machines cost around 40% less than a comparable "new" model, but are considered by Ricoh to be of a higher standard than when they were first produced. "If it's a machine dating from 2008, the remanufactured one will have all the latest firmware and soffits, and will be better than when it was 'new'," says Rymer.

Account manager Ben Curtis agrees: "The perception is that a remanufactured product is secondhand, but in reality the quality is higher than when it was first manufactured." The Eco-Line machines are shipped under the same warranty conditions as new products.

activities by 2009. Overall, Ricoh aims to reduce its environmental impacts by 2050 to one-eighth of the level recorded at the start of the millennium.

"Ricoh's ambition is to help to build a more sustainable society," says Whyle. He explains that this is not only about reducing the company's impact by saving energy, conserving resources and preventing pollution, but also about helping to increase the Earth's regenerative capacity and maintaining or enhancing ecosystems. Whyle describes Ricoh's approach as "eco-centric" culture change coupled with "techno-centric" development. "We involve staff in environment initiatives and apply technological solutions where possible to help achieve our objectives," he says. He explains that sustainability is embedded into the management culture at Ricoh through organisation and individual performance targets.

Targets are set by "backcasting", a concept used to identify what an organisation needs to do to reach its vision of success. For Ricoh, this is its 2050 objective. "We begin with the end in mind to set three-year or staged management objectives – where we expect to be in, say 2017, then 2020," says Whyle.

Waste as a resource

Resource conservation is a priority at Ricoh. Its 2002 zero waste to landfill goal for all its manufacturing operations was set in 2000, but Whyle says Telford has gone way beyond that, regarding waste as a resource and part of the production process. "Our 'waste-2-product' approach recognises waste as a resource for sale and a cost saving, while reducing our environmental impact," he explains.

"Waste" is segregated at source and taken to the recycling centre at the site, where it is prepared for the customer who is paying for it. "Segregate at source" is included in the staff induction. "Segregation is part of the production process, not an afterthought. It is in employees' work instructions and people follow

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these," says Whyle. "Segregation points are located in manufacturing areas. People do not come round clearing up, and recycling staff act as quality control."

Whyle says that, before waste was treated as a resource and sold, it cost RPL around £46,000 a year to divert it from landfill. In 2011, selling on its cardboard and plastics, for example, generated £59,000. And although a company reorganisation transferred some photocopier manufacturing to France, substantially reducing the amount of cardboard at the site, "waste" still brought in £35,000 in 2013.

Securing the highest financial return for the waste depends on quality and demand, so the Telford site has revisited its segregation of plastic to ensure it can gain the best price. This was partly a consequence of China's policy in 2013 of restricting the import of poor quality scrap plastic – so-called "green fencing". "Some of our plastics are highly engineered and many contain fire retardants, so we've created a plastics hierarchy to ensure high-quality materials are separated from poorer quality ones," says Whyle.

He reports that, in 2012/13, 95% of all manufacturing "waste" at Telford was recovered, with only 5% sent for incineration with energy recovery.

RPL is also keen to reuse materials itself. Maintenance manager Mark Anderson explains how he modified the system for reprocessing ink toner, increasing efficiency from 60% to 95%. "We can now put more back into the process to substitute for raw materials, saving the company almost £300,000 a year," he says.

In a further example of reuse, engineers at the site designed extensions to the corner packaging posts for photocopiers arriving and leaving the plant. Whyle explains that the height of the crates containing the partly-finished machines delivered to Telford was lower than that of the crates for the finished products, so the corner posts were simply discarded. Now, a plastic extension is fitted to the posts, enabling them to be reused for finished products. This has reduced waste at Telford by 83 tonnes a year and the returnable packaging has cut waste for the end user.

Powering the plant

Reducing energy use is another key objective at Telford and Anderson says it often provides a bigger opportunity in terms of financial savings than dealing with waste. He reports lots of activity at the plant to reduce electricity consumption.

Switching from sodium lighting to high-frequency fluorescent lighting in its toner plant warehouse is one example. As a result, annual energy costs are £25,000 lower and CO_2 emissions have fallen by 150 tonnes. "Return-on-investment is 1.6 years and light quality has improved by around 60%," says Anderson.

Even bigger savings have been achieved by installing variable speed drives (VSDs) on motors and pumps. Fitting 110 VSDs has saved the plant £85,000 a year, which means the investment has been paid back in just eight months. The drives have also reduced annual CO_2 emissions by 520 tonnes.

Anderson reports that he investigated installing solar photovoltaics on the roof of the plant's buildings and in the fields around the site, but says the figures did not add up. "They would have cost £25,000 to install, taken 10 years to pay back, and saved just 50 tonnes of carbon, so not very efficient," he says. Overall, Telford reduced its energy consumption in 2013 by 40% since 2002, despite site turnover doubling during that period. It has saved around £500,000 a year and reduced annual CO_2 emissions by 4,000 tonnes.

Eco Ninjas

Ricoh connects environmental conservation activities and business management, and its 2009 biodiversity strategy aims to reduce the impact of the company's operations on biodiversity and engage proactively in its protection. "With increasing loss of biodiversity, there is an increase in risk for both society and business," says Whyle. "The scope of the business risk is broad, ranging from higher procurement costs to restrictions through regulation and customer defection."

Each Ricoh site is required to preserve and develop its local biodiversity. RPL is working with local non-government organisations, such as the Shropshire Wildlife Trust (SWT), to help conserve and enhance biodiversity. Staff volunteers, known as Ricoh Eco Ninjas, have worked with the SWT since 2009. Whyle says many "ninjas" have undertaken specialist biodiversity training and have carried out conservation activities both at the Telford plant and in the local community.

One example of their work at the Telford site is the creation of biodiversity buffer zones to establish open glades and hibernacula environments. The boundary hedge between the plant and nearby University of Wolverhampton buildings can be traced back to 1889 and is a species-rich ecosystem. It is included in the buffer zones, allowing wild flowers and grasses to flourish, and providing an undisturbed habitat for small mammals, birds and invertebrates.

Whyle says the strategy also helps the site's compliance with regulations. He cites the EU Water Framework Directive (2000/60/EC) as an illustration of how RPL's approach to biodiversity will assist it in ensuring it does not fall foul of requirements on diffuse pollution, which includes runoff from roads and commercial areas, and can affect water quality. "Priorslee lake is an important source of drinking water and sits behind the plant, so we need to minimise the pollution risk," says Whyle. After discussions with the SWT, RPL is proposing to build a sustainable urban drainage scheme (reed bed) to remove pollutants from runoff from the site.

Open door

Ricoh's Northampton and Telford sites offer a glimpse of how businesses are changing to be sustainable. The company is keen that other organisations learn from what it is doing. Curtis acknowledges that other companies cannot necessarily replicate everything that Ricoh is doing, but he believes there is much that is transferable. "If businesses are to be truly sustainable, they need to learn from each other what works and what doesn't," he says. "Ricoh is changing and we invite others to come and see what we're doing."

Become a more sustainable business

Ricoh has recently created a sustainable business services (SBS) team. Its focus is to engage with UK businesses, developing and encouraging new and sustainable business practices based on Ricoh's own proven methods and successes. Initially, Ricoh's SBS team will be working with existing clients, but the board has announced that IEMA members can also take advantage of consultancy packages, a number of which are to be made available at no cost. To find out more please contact sbs@ricoh.co.uk

Going underground

Peter Brown looks at developments in the UK to realise the potential of carbon capture and storage

After years of fitful development and uncertainty over its commercial viability, there are signs that, in the UK at least, carbon capture and storage (CCS) is finally making significant progress, with financial support given to two projects. CCS involves capturing carbon emissions from polluting operations, such as power stations and industrial facilities, transporting the gases in pipelines and storing them in deep underground rock formations.

Its rollout cannot come too soon. CCS was identified recently by the Intergovernmental Panel on Climate Change as a key element of global decarbonisation efforts. Its latest assessment warned that any fossil fuel power plants operating after 2050 must be fitted with carbon capture mechanisms to prevent emissions to air.

Powering the UK economy

A joint report published by the TUC and the Carbon Capture and Storage Association (CCSA) in February put the environmental and economic case for CCS. The report argues that CCS has a major role to play in climate change mitigation, quoting 2012 research by the International Energy Agency that the technology could help reduce global emissions by 17% come 2050. The TUC/CCSA report also emphasises the economic benefits – such as the creation of a new energy market and employment opportunities – which could bring annual economic benefits to the UK of £2-4 billion by 2030.

Each part of the CCS process – the capture, transport and storage of CO_2 – has already been successfully demonstrated in trials around the world. The Global CCS Institute calculated in 2013 that operational CCS projects were already preventing 23 million tonnes of carbon a year reaching the atmosphere. And, although there has as yet been no successful large-scale commercial demonstration of the technology, it may not be far off. The Boundary Dam project in Saskatchewan, Canada, is next year due to become the world's first commercial-scale, coal-fired CCS power station, and the UK is also at the forefront of CCS development.

With more than 70 billion tonnes of offshore capacity in the North Sea and Irish Sea – mainly depleted oil and

gas fields – the UK has the largest carbon storage resources in Europe. Decc estimates that the UK could benefit from up to 13GW of CCS power by 2030. Significantly, the government's £1 billion capital funding competition for CCS projects is described as a commercialisation, not merely a demonstration, programme: the objective is to prove the technology's commercial viability.

With that in mind, in recent months two full-chain projects (capture, transport and storage), Peterhead in Aberdeenshire and White Rose in North Yorkshire, have been awarded contracts to begin "front-end engineering and design" (FEED) studies, with the expectation that final investment decisions would be taken in late 2015. White Rose was also recently awarded up to €300 million under the European commission's NER300 programme, which allocates money generated by the sale of allowances under the EU emissions trading system. White Rose, a collaboration between Alstom, Drax Power, BOC and National Grid, involves capturing around 90% of emissions from a new coal-fired power station and transporting it offshore to a North Sea saline rock formation storage site.

Peterhead, a joint venture by Shell and SSE, aims to capture 85% of the CO_2 from a combined-cycle gas turbine power station and transport it to a storage site in depleted gas fields 2.5km under the North Sea.

In its recently published scoping document, Decc says one or both projects could form the first phase of CCS deployment in the UK. "They would help prove the concept, create important infrastructure that may be used for subsequent projects, create commercial relationships between the different elements of the CCS chain, and begin to build interest from competing businesses and their supply chains," says Decc.

Industrial emissions

Power stations are not the only major source of emissions, and many of the potential applications of CCS are in energy-intensive industries, such as iron, steel, chemicals and cement. In a conclusion supported by Decc, the TUC/CCSA report states that CCS represents the only possibility of further significant decarbonisation in such industries. While the two competition projects point the way forward for CCS in the power sector in the UK, industrial CCS presents another set of highly complex challenges.

"The policy framework in the UK is very much focused on CO_2 reduction in the power sector first, which is right enough since that's the biggest single source of emissions," says CCSA spokesperson Judith Shapiro. "With industrial sectors it's difficult because it's not as clear-cut; it's many different types of industry, and they all have different requirements and are at different stages of development."

Among developments in industrial CCS applications is the government's recent £28 million "City deal" for the Tees Valley, which included a £1 million grant to explore feasibility for industrial CCS. The area produces about 4.8% of UK industrial emissions and five of the top 25 single industrial emitters are situated on Teesside. The money will go to completing a pre-FEED study for a Tees Valley industrial carbon capture and storage network, identifying the best option for the full-chain network. Decc estimates that, when completed, the network will reduce CO_2 emissions in the area by 7 million tonnes a year, based on the current rates.

Ongoing research and development also has an important role to play in optimising CCS technology to improve efficiency and cut costs. Decc has earmarked £125 million in a four-year research and development programme to investigate next-generation CCS technologies, including new solvents used in the CO_2 capture process. In the March budget, the programme received an extra £60 million injection.

Meeting the challenges

But across the power and industrial sectors, CCS experts agree that one of the major challenges facing the wider rollout of the technology in the UK is the development of high-capacity infrastructure, and in particular of the transport and storage facilities to serve the envisioned "clusters" of emitters. Although there is widespread optimism that the Peterhead and White Rose projects will be a big step forward for the sector, they do not tell the whole story.

"Those two projects are critical to developing the CCS sector, but there are real risks if we just sit and wait for them without progressing all the other things that need to happen in parallel," says George Day, head of economic strategy at the Energy Technologies Institute. "We want to be ready with the next wave of projects, which will piggyback on the infrastructure that they create."

If there is any chance of CCS delivering the benefits identified by Decc in the next few decades, Day argues, investment in infrastructure needs to happen soon. "For new projects to take a final investment decision they need to be sure that there is a safe storage site available to take the CO_2 that they capture," he says. "Because of the lead times involved we need to be investing in and proving storage sites now to enable those projects that want to get started in the next three, five, or 10 years."

But investing in CCS storage infrastructure remains a challenge. Beyond the £1 billion capital grant available from the UK commercialisation competition, policymakers need to find ways to make the sector more attractive to private finance. According to Day, the incentives are not yet in place. "We would say there are a number of market failures that mean people aren't investing in prospecting for storage sites in the same way that they might be investing in prospecting for new oil and gas fields," he says. "We need to look at what the market failures are and come up with solutions to them."

The overall incentive structure for CCS will involve the award of fixed-price contracts for difference (CfDs) under the government's electricity market reform framework, but the details of how those awards will be made available to a company owning and operating a storage site remain unclear. "Having greater clarity around those rewards and what they'd look like and who would bear what risks will help to clarify how attractive an investment [storage] is," says Day. Decc says it has already started discussions with developers about how to design a CfD appropriate for storage site appraisal.

However, as Day points out, the CfD mechanism is designed to generate maximum value by encouraging

competition on cost. In a developing sector, such as CCS, where huge investment is necessary in shared infrastructure, the incentive structure may need to be different. In particular, it may need to reflect the fact that the strategic benefits of that infrastructure will only be realised over the long term.

"The costs of the early projects that build infrastructure are bound to be higher than the costs of projects that come along and use that infrastructure in later stages," says Day. "So those projects that develop the strategic aspects of the CCS sector as a whole would be worth paying more for than projects which may in narrow terms deliver a lower cost of electricity but which wouldn't give you any of that strategic development and creation of opportunities for later projects."

Shapiro agrees that the need to reward investment in the shared CCS infrastructure is a major issue for the sector, not least because it is essential to the development of the cluster formations of power and industrial emitters that will, over time, cut the cost of the technology. "We've repeatedly made the case for building additional capacity into infrastructure so that pipelines and stores can accommodate more than one project, and economies of scale can be realised," she says. "Individual industries will not be able to fund the full cost of their own CCS, so the only way that sectors like steel and cement and ammonia can make carbon capture a reality is if there's already transport and storage infrastructure available."

The allocation of part of the White Rose FEED contract funds to the development of the so-called Yorkshire-Humber CCS trunkline, an oversized pipeline that will be able to transport CO_2 from a large number of emitters, is a positive step in this direction, believes Shapiro.

The chicken and the egg

All of the challenges around the commercialisation of CCS form a "chicken and egg" scenario, in which significant investment is needed to demonstrate that CCS is viable but, until that demonstration has been made, investment is hard to attract. While this investment challenge is not unusual for low-carbon technologies, the as yet unproven large-scale commercial viability of CCS makes it a particularly acute problem for the sector, says Professor Jim Watson at the UK Energy Research Centre (UKERC).

"You need to take those investment risks in order to get the plants built, in order to learn how to reduce those risks, so there is a hump to be got over," he says. "This is why there is such a need for public-private partnership investment, and why things like the competition are so important because without it we just wouldn't get to the point of knowing how big the risks are or how to reduce them."

Ultimately, Decc wants CCS to compete with other low-carbon technologies on a cost basis by the 2020s. The CCS cost reduction taskforce was created in 2012 partly to address these financing challenges. "At the moment I don't think you can have head-on competition between nuclear, offshore wind and CCS because they're at very different stages," says Watson. "I can see the argument for having that competition, but we're going through a transitional stage where we're trying to support deployment of all those technologies, but for CCS we also need to support it through an innovation process."

Again, it may be that the CfD mechanism that has been used to reward investment in other low-carbon technologies may need to be tweaked for CCS, which, unlike nuclear or renewable energy, still relies on fossil fuel and therefore has a cost structure dependent on the price of carbon. "A CfD for a CCS plant may well need to be structured differently," says Watson, "because you've got that fuel price risk in there. It may not make sense to treat it just like a nuclear or renewable plant."

Political will

Behind these practical questions of investment and infrastructure, a more general problem facing CCS in the UK is, believes Day, one of perception. "There's a lot of public discussion and debate around nuclear and renewables," he says, "but from our work CCS looks to be, if anything, potentially more valuable than those technologies in terms of what it might save the UK when it comes to hitting carbon targets. And yet it seems to be a poor relation in terms of the focus and intellectual energy expended on how to make it work in the UK."

But, as Watson points out, increased public awareness of CCS – dependent as it is on continued fossil-fuel use – might be a double-edged sword. He refers to the result of a recent UKERC survey, which divided non-governmental organisations. "Some were pretty sceptical if not outright opposed to CCS because of the association with continuing fossil fuel use, but others saw it as primarily a low-carbon technology," he says.

Watson also raises the possibility that, unlike nuclear or renewable energy, CCS may be uniquely politically vulnerable to changes in overall policy priorities. "CCS, compared with other power-generation technologies, is very dependent on climate change being a major driver of policy," he says. "In the UK there is still discussion about what those key drivers are, and some government ministers have emphasised affordability or security over climate change. If you were just worried about affordability or security, you might not invest in CCS over some of those other technologies."

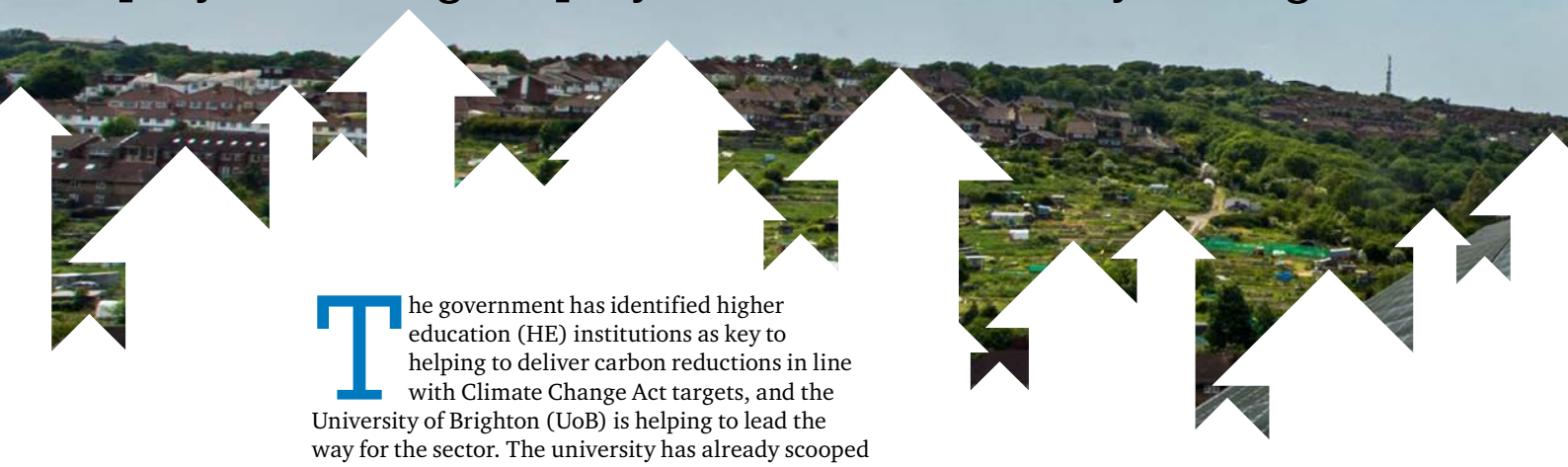
With a general election in May 2015, it remains to be seen whether any such changes are made to the agenda. Meanwhile, there is a sense of urgency among those who want CCS to demonstrate its commercial viability in the UK. "All of the components and the fundamental parts of the technology have been proven," says Day. "There will no doubt be a whole second order of technical challenges that will need to be addressed to make CCS efficient, but they will be best addressed in the context of real projects working under real world conditions."

Watson agrees, viewing the two competition projects at Peterhead and White Rose as crucial opportunities to demonstrate the feasibility of full-chain CCS at scale. "Most of the components have been tested at the right scale already," he says. "It's now really about the integration, bringing things together in a full-scale or full-chain CCS system from power generation all the way to storage. That's the big challenge."

Peter Brown is a freelance journalist.

Aiming high

the environmentalist reports on the energy-efficiency projects being employed at the University of Brighton



The government has identified higher education (HE) institutions as key to helping to deliver carbon reductions in line with Climate Change Act targets, and the University of Brighton (UoB) is helping to lead the way for the sector. The university has already scooped several awards for its environmental work. In 2013, UoB was ranked fifth out of 143 HE institutions in the annual People & Planet green league.

The university's vision for influencing the climate change agenda goes beyond reducing its own carbon footprint as an organisation. As an HE institution, the university recognises that it can have a much broader reach, aiming to become a centre of excellence by building sustainability into its research and learning practices, and engaging the hearts and minds of its 23,000 students.

UoB has attracted national recognition for "c-change", its cultural change programme to engage and inspire staff and students to reduce their own carbon emissions. Sustainability is integral to the university's strategic plan and its carbon management plan outlines a plethora of technical projects to reduce emissions across its infrastructure.

Halving emissions

The university's carbon management plan sets a target of reducing its residential and non-residential CO_2 emissions by 50% by the end of the 2015/16 academic year. The target is set against a 2009/10 baseline, which amounted to 12,111 tonnes of CO_2. "Aiming for a 50% reduction is an ambitious, even aspirational target. We believe in aiming high to try to get the best out of everyone," says Abigail Dombey, environment manager at UoB and IEMA member. "As far as we know, our target is the highest of any HE institution in the UK."

UoB faces a number of challenges to achieving its carbon-reduction goals, some of which are peculiar to its history and development as an HE institution. Rather than being conveniently situated on one campus – making communication and project management activities easier to control – the university's 100 buildings are scattered over five campuses located as far away as Hastings and Eastbourne as well as in Brighton. Further, the university is doubling its provision of university-managed residential accommodation in the same five-year period covered by the carbon management plan – prompting an unavoidable increase in emissions. To overcome this, the university has set a relative target for its residential sites to halve their carbon footprint by bed space.

A strong factor that helps to counteract the challenges faced by the university is the strong and active support for sustainability on the part of senior management. Carbon management is embedded into decision-making across throughout UoB. A multidisciplinary carbon management team, led by chief operating officer Sue McHugh, meets every eight weeks to monitor all significant carbon-related projects.

"Top-level commitment to achieving the 50% target is ingrained at an operational level but it goes beyond governance," says Dombey. "Support from senior managers is very visible on campus, with directors taking an active part in awareness-raising events as part of our c-change campaign – even going as far as wearing our c-change t-shirts and riding our 'smoothie' bike."

Image credit: Sue Kwiatowska

Cultural change programme called "c-change" aims to inspire staff and students to cut their own CO_2 emissions

Image credit: Andy Weekes

Plan of action

UoB's five-year carbon management plan is the blueprint for its CO2-reduction programme. The plan aims to be broadly self-financing, with any initial investment due to be repaid over a maximum period of 10 years – although some renewable energy and new technology projects may have an individual payback period of more than this.

"The university is committed to using the savings arising from the efficiencies we make, against a 'business as usual' profile, to fund further carbon reduction projects," says Ed Bending, environmental communications officer.

The UoB plan identifies a wide range of projects across the university, both large and small, that will contribute to reducing carbon emissions. The sustainability team held carbon-saving workshops across its sites, as well as a number of in-depth engineering and building fabric surveys, to help identify projects from across the university that could reduce emissions. Feasibility studies and cost-saving analyses were carried out to determine which projects should be included.

The plan identifies more than 30 projects, for which the capital investment, projected efficiency and estimated cost savings vary considerably. Some key achievements so far include the installation of an automatic meter reading system across the university estate, and combined heat and power and district heating in one of its halls of residence. A large-scale LED refurbishment project is also planned, and a newly recruited energy management engineer is now instrumental in optimising the estate-wide building management system.

Dombey points out that some of the greatest energy efficiencies can be realised from the more basic programmes, such as better insulation, rather than the more attention-grabbing enterprises such as renewable energy. She quotes the energy hierarchy from the London plan, the capital's energy strategy: "First, be lean: use less energy. Then be clean: supply energy efficiently; finally, be green: use renewable energy." That said, the university's Moulsecoomb site has the largest photovoltaic (PV) array in Brighton and Hove.

One of the largest-scale projects at UoB is the £25 million refurbishment of its biggest structure, the 10-storey Cockcroft building in Brighton. The project aims to reduce the building's carbon emissions by 240.7 tonnes of CO2 a year, contributing 4.8% of the university's overall reduction target. As well as featuring the installation of the PV array, the refurbishment of the 1960s building includes a groundbreaking low-carbon aquifer thermal energy storage (ATES) system to heat and cool the building.

ATES is based on energy conservation rather than energy production, through the seasonal storage of cold and warm groundwater in an aquifer. Installing the ATES system in the Cockcroft building – probably the first of its kind in such a large-scale retrofit project in the UK, according to Dombey – involved boring two 50-metre thermal wells. The pioneering system, far more common in the Netherlands, will keep the building warm in winter and cool in summer, radically improving energy efficiency and reducing energy costs.

Energy-saving technology

Two projects outlined in the carbon management plan relate to optimising the energy efficiency of the university's computer network. The first, completed in 2011, involved replacing UoB's inefficient datacentre in its Watts building. The additional capital cost for the project to deliver an extremely low-carbon datacentre

Image credit: Andy Weekes

was around £150,000; it saves the university just over £100,000 in energy costs and around 800 tonnes of CO_2 a year. This means the payback on the project was realised in less than two years.

The new centre has modern, power-efficient cooling equipment, resulting in an impressive power utilisation effectiveness (PUE) score of 1.2. PUE is the ratio of the total energy used by a computer datacentre facility to the energy delivered to the computing equipment. An ideal PUE is 1.0. Anything that is not considered a computing device in a datacentre – for example, lighting and cooling – falls into the category of facility energy consumption.

Dombey says UoB is extremely pleased with how the project has contributed to a significant reduction in its carbon footprint. Rather than cooling the entire room as the previous air conditioning system did, the new water-cooled system only cools the racks, monitoring each one individually to determine how much cooling is necessary.

Another ongoing project is the installation of power management software on every one of the university's 5,000-plus computers. The capital investment for the initiative is around £70,000 but the payback period is estimated at between 12 and 18 months. The information services department worked with members from the environment team and finance in a four-month pilot to help inform the project and procure the best software.

All change

By implementing its carbon management plan, the university aims to embed cutting-edge reduction practices into its culture and daily life. Engaging staff and students is central to this vision and, in October 2012, UoB launched its c-change project. As Dombey says: "The goal of the project is to raise awareness and change behaviours around sustainability issues on campus and in staff and students' personal lives."

The project is estimated to cost the university around £100,000 over three years, with an annual payback of just over £60,000 every year.

A great deal of thought and attention to detail went into designing and launching the c-change awareness-raising programme at the university. The environment team, in collaboration with external agency 7creative, decided to brand the campaign and its supporting material with a bright red colour, instead of the more traditional green associated with sustainability. The campaign material is peppered with distinctive and simple icons representing key sustainability areas such as heating, lighting and water use.

Aiming to shift the entire culture of the university by recruiting teams of champions to lead on carbon reduction projects, the launch events across all campuses in November 2012 attracted more than 1,000 students and staff.

The launch kicked off with an innovative "teaser" campaign, taking a less traditional approach to university awareness-raising initiatives by the use of window stickers, floor mats and ceiling hangers. "The teaser element of the campaign was reflected in the half-hidden c-change text and graphics, prompting staff and students to wonder what the bright red posters and signs signified," says Bending. "We wanted to entice and engage people as a prerequisite for changing their attitudes and habits around carbon reduction."

The teaser campaign was followed by a series of campus events, with the environment team making a big investment of time and resources by travelling around every one of the five sites to interact with staff and students. Rather than adopting the more mainstream approach of having stands offering leaflets, the team orchestrated a more interactive, fun-based campaign. Promotional material was very much in evidence – including bright red t-shirts worn by senior managers sporting amusing slogans such as "huge turn off" – with the emphasis always on new ways of engaging staff and students. Events included a smoothie bike that people could ride to make their own low-carbon drinks and a "play your carbon right" card game.

The campaign is ongoing, and interested parties can download c-change stickers and posters from the university's website and become involved in a number of different sustainability initiatives across the five campuses, including the NUS initiative "green impact".

"There are three principles that every campaign must adhere to," says Bending. "It must be fun, be supported by staff time and have the necessary resourcing."

On track?

Having set such an ambitious carbon-reduction target, the university is managing a myriad of projects and initiatives to achieve its 50% cut in emissions by the end of the 2015/16 academic year. "I think we are brave in setting such an aspirational target and it is not going to be easy," says Dombey.

While the contributions that some projects will make to the overall target have already been achieved or exceeded, inevitably with a programme of this scale others will face unforeseen challenges and encounter some slippage. As Dombey comments: "We are doing very well but are not quite on target at this point; some of the larger-scale projects are taking a bit longer but we have already raised a huge amount of awareness across the university, which will help to boost momentum on other projects."

She continues: "We're really excited here at the university. We have the opportunity to make a real and lasting change and put Brighton at the forefront of cutting carbon in the UK. We're aiming to enable and inspire everyone, staff and students alike, and give them the chance to make a difference."

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Show you're worth it

Seb Beloe and **Hyewon Kong** on getting a financial bang for your environmental buck

Have you ever questioned whether your chief executive or clients really understand and appreciate the value of the work that you, as an environment professional, do? Salary and benefits surveys of practitioners routinely show a profession that is reasonably well remunerated, but still punching well below its weight compared with other business services, such as the accounting and legal professions. Why is this?

A big part of that disconnect is the lack of understanding of the true value that environment professionals create. This, in turn, is caused by an inability among practitioners to translate value into the measures, ratios and indices used by chief financial officers (CFOs) and investment analysts, who help to decide what a business is worth. Understanding the investment community and the type of company information it requires – when assessing whether to invest in either a company or in a particular sustainability project – can improve the chances of receiving financial backing.

Spivs and gamblers

The business secretary, Vince Cable, is fond of labelling the financial community a collection of "spivs and gamblers". In reality, though, there are many types of investor, varying by asset class – fixed income (bonds), listed equities (traded stocks), private equities (direct investments or buyouts) and property, to name a few – and by investment approach.

Some investors adopt long or short-term investment strategies. Some will invest in passive indices (tracking a stock market), while others will use high-frequency trading algorithms to rapidly trade shares.

In all honesty, many of these investment strategies are never going to recognise the valuable work of the environment professional. For several of them, even the core activity of a particular company can be an irrelevance because their focus is entirely on whether a given security is undervalued or overvalued, relative to the calculation made by the investment algorithm.

There is, nonetheless, a growing group of investors – including many of the world's largest institutional investors – who are very interested in understanding how a company is positioned so as to create value over a number of years. These longer-term investors are often more valuable to companies. By definition, they tend to remain committed to a company and its management team for longer, supporting the share price and allowing management to invest and pursue strategies that generate value over many years.

As Paul Polman, chief executive at Unilever, memorably put it: "If you buy into [Unilever's] long-term value-creation model, which is equitable, which is shared, which is sustainable, then come and invest with us. If you don't buy into this, I respect you as a human being, but don't put your money in our company."

Longer-term investors are also likely to be most interested in the work of environment professionals, but there is an important caveat. The information that practitioners provide needs to be framed in a way that makes it clear how environment work supports the business model and enables the company to create value.

Sustainable growth at the right price

We are convinced that firms taking account of their key environmental, social and governance issues are better-managed, higher-quality companies that will outperform their peers over the longer term. So what should investors be looking for from environment practitioners? We believe the best approach is to identify high-quality companies that are delivering sustainable growth at relatively cheap valuations. That means assessing the quality of a business in the following five areas:

- the quality of the markets in which it operates;
- its competitive strengths;
- the quality of its operations and value chain;

- the strength of the management team; and
- the underlying governance and its strategy for growth.

The table (right) provides further detail on the key areas for an investor's analysis of a company, including the financial and non-financial metrics. The precise selection of metrics will depend, however, on the nature of the business.

This framework is just one of the vast range of analytical tools used by investors, but many of the underpinning principles and areas of focus are widely shared by others with a long-term investment strategy.

Financial ratios

In order for environment professionals to extract maximum value for the work that they do, it is critical that their initiatives feed into the high-level categories identified in the type of analytical frameworks used by investors. Ideally too, the impacts of this work, typically measured using basic environment data, should be translated into key financial ratios.

Some companies are beginning to do this. For example, US industrial gases company Praxair has reported on how energy efficiency projects have fed through into reductions in operating expenditure and helped with the expansion of the company's margins. Meanwhile, another US company, rail business Kansas City Southern, has seen improved health and safety performance, which in turn has reduced downtime for its assets and helped to drive productivity improvements. And eco-innovation initiatives are increasingly widely reported to help drive top-line growth in revenues including, for example, the work done by Marks & Spencer, Kingfisher and Royal DSM, the Dutch-based life sciences company.

The financial community has been enormously influential in driving the behaviour and priorities of many senior leaders in businesses. Too often, though, companies undertake environment and wider sustainability programmes in spite of, rather than because of, the influence of the financial community.

Leaders need to present their own financial case for investments in these programmes to help convince investors that they do create long-term value for the business. To do this they need the "right" numbers (see table). In their absence, a significant constituency in the business, such as CFOs, and the investment community will continue to resist greater investment in this area.

Investor analysis of companies

Category	Factor/metrics
Market attractiveness	Market size, growth rates, regulatory support, etc
Competitive position	**Market share** – revenues/volumes compared with peers **Competitive advantage from economic "moats"** – high switching costs, wide use of network and service, strong brand, pricing and cost leadership **Profitability and margin** – shows how effectively the company turns sales into profits **Gross margin** – profit made on cost of goods sold **Operating margin** – earnings before interest and taxes (EBIT) **Net margin** – after-tax earnings to sales **Balance sheet strength** – liquidity, leverage. Balance sheet is a snapshot of a company's financial health. Debt-to-equity indicates the relative proportion of equity and debt to finance company assets
Value-chain analysis	Operational performance, including supply chain, customer relationships, employee productivity, environmental performance and levels of working capital
Management quality	**Corporate governance** – organisational checks and balances, and shareholder rights and control **Business ethics** – generally assessed through media monitoring and level of risk **Risk management** – policy and systems to manage key operational risks **Sustainability leadership** – board and executive-level responsibility to address sustainability issues **Profitability** – return-on-assets (ROA) shows how well management is employing the company's total assets to make a profit. Higher ROA means management is using its asset more efficiently
Growth strategy	New product development, market opportunities, capacity expansion, mergers and acquisitions

That is not only a great shame for the sustainability professionals leading these programmes, but also for all those with a long-term interest in the business, investors and employees alike.

Seb Beloe, MIEMA CEnv, is head of sustainability research and **Hyewon Kong** is a senior analyst at WHEB Asset Management, a specialist investment business focused on investing in companies that are providing solutions to the most pressing social and environment problems. It believes these businesses will grow more quickly than the market as a whole and therefore give investors a better return.

Raising standards

Environment and sustainability guidance

Standards tend to improve organisational performance. The results of an ISO survey published earlier this year reveal the benefits of the 14001 standard for environment management systems (EMS). It found that organisations implementing 14001 realised significant value for their businesses. It also helped them to meet their legal obligations, improve environmental performance, and enhance management commitment and employee engagement on the environment. There were almost 286,000 14001 certifications in 2012, and the popularity of the global EMS standard has soared since it was introduced in 1996. The current 2004 version of 14001 is being revised, and a third edition is due next year. 14001 might be the most widely used environment and sustainability standard, but there are plenty of others to assist organisations in managing environment and sustainability issues.

Over the next few months, *the environmentalist* will summarise the standards and guidance that are now available. Part one in the series focuses on some of those related to ISO 14001.

Standard/guidance	Details
Eco-management and audit scheme (EMAS)	A management instrument developed by the European commission for organisations to evaluate, report and improve their environmental performance. The requirements of 14001 are an integral part of EMAS, but the scheme differs from the current ISO standard in several ways, including a requirement to publish a verified public environmental statement. The third version of EMAS (Regulation 1221/2009) was introduced on 1 January 2010. More than 4,500 organisations and about 8,150 sites are EMAS-registered across the EU.
14004: 2004 – general guidelines on principles, systems and support techniques	14004 provides guidance on the establishment, implementation, maintenance and improvement of an EMS, as well as its coordination with other management systems. Whereas 14001 outlines the requirements for establishing an EMS, 14004 provides guidance to organisations that are implementing or are trying to improve their EMS. Work on a revised version of 14004 is also ongoing, running roughly six months behind the revision to 14001.
14005: 2010 – guidelines for the phased implementation of an EMS, including the use of environmental performance evaluation	Released in 2011, 14005 provides guidance for all organisations, particularly small and medium-sized enterprises, on the phased development, implementation, maintenance and improvement of an EMS. It also includes advice on the integration and use of environmental performance evaluation techniques.
BS8555: 2003 – guide to the phased implementation of an EMS, including the use of environmental performance evaluation	A British standard providing guidance on the phased implementation of an EMS. It outlines an implementation process that can be undertaken in up to six separate phases and allows for phased acknowledgement of progress towards full EMS implementation. 8555 forms the basis of IEMA's Acorn scheme, which provides a step-by-step approach to environment management. It can be used as a route towards 14001 and EMAS.
14006: 2011 – guidelines for incorporating ecodesign	14006 is designed to help organisations reduce the adverse environmental impact of their products and services. It provides guidance on how to incorporate ecodesign into any environmental, quality or similar management system.

Standard/guidance	Details
14015: 2001 – environmental assessment of sites and organisations	The environmental assessment of sites and organisations aims to establish the relationship between the environmental aspects of an enterprise or location, and the environmental issues (risks/opportunities) and their ensuing business consequences (financial or other) as part of the preparations for a proposed business transaction. 14015 includes tools and references to information sources to assist in the identification of environmental issues, for example gas emissions or waste generation.
14020: 2000 – environmental labels and declarations (general principles)	■ 14020: 2000 revised the 1998 version. It consists of a series of standards – 14021, 14024 and 14025 – aimed at providing businesses with a globally recognised set of international benchmarks against which they can prepare their environmental labelling. ■ 14020 is an introduction to environmental labelling. ■ 14021: 1999 focuses on self-declared environmental claims or type II environmental labelling, which are claims made by businesses. A second edition of 14021 is being developed. ■ 14024: 1999 type I environmental labelling (principles and procedures) is concerned with so-called "classic" ecolabelling schemes, which award a mark or a logo based on fulfilling a set of criteria. ■ 14025: 2006 type III environmental declarations (principles and procedures) focuses on labels derived from a formal set of environmental data describing the environmental aspects of a product.
14031: 2013 – environmental performance evaluation (guidelines)	14031 provides guidance on the design and use of environmental performance evaluation (EPE) in an organisation. It can be used to support an organisation's approach to EPE, including its commitments to legal compliance, the prevention of pollution and continual improvement. The 2013 version updated the original 1999 edition.
14033: 2012 – quantitative environmental evaluation (guidelines and examples)	14033 supports the application of standards and reports on environmental management, addressing issues related to defining, collecting, processing, interpreting and presenting quantitative environmental information. It provides guidelines on how to establish the accuracy, verifiability and reliability of quantitative data.
14040: 2006 – lifecycle assessment (principles and framework)	■ 14040 is part of a series of standards related to lifecycle assessment (LCA). It provides an overview of the practice, applications and limitations of LCA. ■ 14044: 2006 – LCA (requirements and guidelines) is designed for the preparation, conduct and critical review of lifecycle inventory analysis. It also provides guidance on the impact assessment phase of LCA and on the interpretation of LCA results, as well as the nature and quality of the data. ■ 14047: 2012 – provides examples of how to apply 14044 to impact assessment situations. ■ 14048: 2002 – details the LCA data documentation format. ■ 14049: 2012 – provides examples on how to apply 14044 to goal and scope definition and inventory analysis.
14045: 2012 – eco-efficiency assessment of product systems (principles, requirements and guidelines)	14045 covers the goal and scope definition of the eco-efficiency assessment; the environmental assessment; the product-system-value assessment; the quantification of eco-efficiency; interpretation (including quality assurance); reporting; and critical review of the eco-efficiency assessment.
14046: 2014 – water footprint (principles, requirements and guidance)	14046 specifies the principles, requirements and guidelines related to water footprint assessment of products, processes and organisations based on lifecycle assessment. Only air and soil emissions that affect water quality are included in the assessment.
14050: 2009 – environmental management (vocabulary)	14050 establishes a common vocabulary to ensure the effectiveness of communication, which is key for the implementation and operation of an EMS. It compiles the terms in all the standards in the 14000 series in one practical document. The 2009 edition of 14050 is the third version.

No net loss

Richard Sobey considers how biodiversity performance standards are influencing decisions to finance projects

The eight performance standards on environmental and social sustainability from the International Finance Corporation (IFC), the global development arm of the World Bank group, came into force on 1 January 2012. The sixth standard (IFC6) focuses on biodiversity conservation and the sustainable management of living natural resources. It recognises that protecting and conserving biodiversity, maintaining ecosystem services and sustainably managing living natural resources are fundamental to sustainable development. Since its introduction, IFC6 has become the de facto industry standard to which major international projects requiring credit are being designed.

However, the EU is considering a new "no net loss" (NNL) initiative to help achieve its Aichi biodiversity targets. This could introduce a mandatory element into what is currently a voluntary approach.

A common approach?

Lenders, especially export credit agencies, such as UK Export Finance, typically apply IFC6 when deciding on whether to fund projects. The "common approaches" adopted by the OECD in June 2012 recommend the application of IFC6 by such agencies. Similarly, on the commercial side, IFC standards are included in the Equator principles III, to which most major banks are signatories.

Both require conformance checks – known as environmental and social due diligence (ESDD) – to be undertaken on behalf of the lenders. These checks are usually applied to a project's environmental and social impact assessment and its environmental and social management system or plan.

There are, however, still some projects that do not use IFC6. For example, UK Export Finance responded to an OECD survey in 2013, stating that it did not fund a refinery in India because it could not meet IFC standards.

When it comes to applying IFC6, environmental consultancy URS has found the required level of conformance depends on points of interpretation, technical understanding and the client's perspective. These all need to be considered and underpinned by robust ecological evidence. Often, a bespoke approach works best; this can be a combination of international, regional and local level standards and legislation – not just IFC, but EU and national regulations. For example, in determining receptor sensitivities on habitat and species levels, a report may need to be consistent with a combination of these for permitting consents.

Difficulties arise

There is evidence that a full description of, and follow-up on, biodiversity commitments can be limited under IFC6. For example, if a mine in a desert is going to have a significant drawdown on aquifers and groundwater, one would expect the environmental and social impact assessment to have reported on likely impact; and not, as was the case on this occasion, to simply make a commitment to "count the number of palm trees and regularly monitor them".

A situation may also exist where the biodiversity "value", particularly the indirect benefits to human beings, is not well known by local stakeholders. Although it can be acknowledged in the assessments that local stakeholders have been consulted, the more important point should be a commitment to engage with them so that they can increase their ownership of the project.

Good practice does exist in following a precautionary approach – both IFC and EU standards recommend this. Difficulties arise, however, when the compliance with a commitment can only be measured over time or cannot be assessed until the net gain has been reached. In the case of biodiversity offsets, this time period may be significant.

Although good practice may be presented in the environmental and social impact assessment and the environmental and social management plan, the lender's monitoring audits may reveal that commitments are not being kept. One report on a mine in pastureland, for example, disclosed that the impacts on water, vegetation and pasture quality were not being measured. This illustrates not only the importance of monitoring ecological functioning, but also the impacts on ecosystem services.

For locally prepared environmental and social impact assessments, another issue can be understanding relevant standards with regard to the International Union for Conservation of Nature (IUCN) red list of threatened species, as well as follow-up biodiversity actions. A lack of ongoing audits is also a problem.

EU plans

While international lenders and developers have become familiar with following the Equator principles and voluntary IFC performance standards, EU countries are likely to soon find themselves following a new NNL framework Directive. This is likely to combine compliance not only with the directives on environmental impact assessment (EIA – 2014/52/EU), environmental liability (2004/35/EC), wild birds (2009/147/EC) and habitats (92/43/EEC), but also to require mandatory biodiversity offsets to compensate for residual impacts. This would be more in line with the voluntary IFC6, but with regulatory clout.

In 2011, the European commission adopted its biodiversity strategy 2020. It has set NNL targets for biodiversity and ecosystem services. As part of the agreement on strategy, the European parliament passed a resolution in 2012 requiring mainstream biodiversity protection to be applied for all other EU policies, resulting in greater use of environmental impact assessments and sustainability impact assessments.

As part of the 2020 strategy, the commission is also reviewing its commitments under the convention on biological diversity (CBD) and directives 2009/147/EC and 92/43/EEC.

In early 2014, the commission reported on its policy options for an EU NNL initiative (a consultation is open until 17 October at lexisurl.com/iema25908). Two of the four options recommend a new NNL Directive; the others focus on voluntary offsetting and amendments to existing legislation to achieve no net loss. As amendments to the EIA Directive were only agreed after a lengthy process, there may be limited political willpower for an NNL Directive.

COP 12 in Korea in October will be the mid-term assessment towards achieving the Aichi targets, the international biodiversity goals agreed in 2010 and set out in the CBD. The EU agreed at Aichi to restore at least 40% of habitats and species to a favourable conservation status by 2020 (100% by 2050). Yet, in 2012, the commission conceded that only 17% of habitats and species protected under EU legislation were in a favourable state. This gap is one reason why the commission is reviewing its systems.

In combination

Almost three years on, IFC performance standards have been shown to be robust and relatively effective at the front-end design stages of projects. There is too little evidence so far, however, to determine whether the standards will be successful over a project's lifecycle.

For developers and the finance sector, IFC standards will remain at the forefront of preferred standards. However, the European commission is likely to press ahead with its NNL initiative, including developing framework legislation, not least because the EU wishes to realise its 2020 biodiversity conservation targets. That will mean that firms conducting the necessary assessments, plans and reviews will be required to comply with both approaches.

Richard Sobey is principal ecologist at URS.

Practitioners discuss HS2 environment and sustainability

Alison Munro, chief executive at HS2 Limited, speaking at the event

The company behind the HS2 rail project to link London, the Midlands, north-west England and Yorkshire organised a joint event with IEMA and Mott Macdonald to discuss environment and sustainability matters that prospective contractors will need to be aware of.

Around 150 environment and sustainability professionals attended the conference in London on 7 August. Lessons learned from developing the environmental statement for phase I – London to the West Midlands – were shared to inform the next steps in the first stage of the project as well as phase II, from Birmingham to Leeds and Manchester.

Professor Andrew McNaughton, technical director at HS2 Limited, opened the event with a keynote address. He set out a vision for a 21st century railway that, he said, would place people at its heart. Nick Blyth and Josh Fothergill, policy and engagement leads at IEMA, outlined emerging trends in environmental impact assessment and climate change resilience that phase II of the project would need to take into account.

Alison Munro, chief executive at HS2 Limited, closed the day with a call to arms for the environment and sustainability industry. She said that the project was without precedent and provided a once-in-a-century opportunity to build a truly sustainable railway.

The theme of the day was collaboration. Delegates also heard from organisations that are working closely with HS2 Limited, including consultancy Mott Macdonald, Network Rail, the Environment Agency and the infrastructure working group at the Green Construction Board. Keith Howells, chair of Mott Macdonald, facilitated the event.

Peter Miller, head of environment and planning at HS2 Limited, said of the conference: "The environment industry is relatively young and small but HS2 is a mega project that is going to draw on all of this resource and more. It was encouraging to see so many companies engaging with us to understand their role in the project and begin to upskill their organisations in order to win work and help deliver this much-needed sustainable infrastructure."

IEMA confirms sustainability conference programme

The line-up for IEMA's Leading in sustainability conference on 24 September has been confirmed.

The conference – the first of three taking place before the end of the year – will be held in Cambridge. It will provide delegates with the opportunity to learn about critical challenges in sustainability through an economic lens, with a focus on climate change and energy economics, natural resource dependencies, risks, externalities and the economic mega-trends.

IEMA has secured a number of leading sustainability professionals to speak at the event, which has been planned with the regional steering groups of the Institute's East of England and South East members.

As well as choosing from a workshop programme, delegates will be able to participate in a "World café" session, facilitated by Penny Walker, to share and learn with fellow professionals.

Remaining spaces are limited, so book your place now at iema.net/conference-sustainable-growth.

Alan Knight
ArcelorMittal
(GACSO founder)

GACSO and IEMA – A new era for GACSO with IEMA and the sustainability challenge for us all


Paul Toyne
Balfour Beatty
Mat Roberts
Landmarc

The growing importance of delivering social sustainability

Jae Mather
Newform Energy

Is sustainability an option or necessity for a successful business? – Economic factors and megatrends


Colin Braidwood
National Grid
Ian Heptonstall
Supply Chain Sustainability School

How do large organisations engage with their supply chain to deliver their sustainability objectives?

David Symons
WSP

Leading corporate approaches on sustainability and business transformation – an overview


James Montgomery
Mott MacDonald
Nick Blyth
IEMA

Climate risks and dependencies – IPCC report and guidance developments in climate change adaptation

Dr Julia Baker
Parsons Brinckerhoff

How numbers (not offsetting) can help achieve the ideal: development with a net gain in biodiversity


Bekir Andrews
Balfour Beatty
David Symons
WSP

Non-financial reporting – making connections to corporate strategy; reaping business value from the numbers

Penny Walker

Engaging stakeholders – from fire fighting to a strategic approach

Dr Miles Watkins

Sustainability standards for organisations – the current landscape and future solutions

Policy update

Understanding sustainability

Members of IEMA and GACSO are working on building a shared understanding of the challenge of sustainability. This work started in June with a workshop and, in July, we produced our white paper, *Defining corporate sustainability*, setting out proposed directions for IEMA and GACSO in defining sustainability and also related key terms for our developing sustainability lexicon.

This process is an important exercise for IEMA and GACSO, helping us to engage members and to build common ground and understanding. Members are now contributing further through workshops in London, Edinburgh, Sheffield, Bristol and Liverpool, and can provide direct feedback and comment to gacso@iema.net. Francis Sullivan, founder member of GACSO and deputy head of global corporate sustainability at HSBC, believes the engagement is a very positive move and wants more people to be involved. "An engagement process to build understanding around corporate sustainability is an excellent initiative for IEMA and GACSO," he said. "I would encourage anyone interested in corporate sustainability, from chief sustainability officers to human resource professionals, to read *Defining corporate sustainability* and to contribute their thoughts. The sustainability landscape needs focus and agreement – GACSO and IEMA are now well placed to catalyse this debate to provide clarity on the role sustainability professionals play in supporting long-term business success."

Concepts identified and captured in the white paper (see gacso.org) include the importance of mega-trends, underpinning principles and sustainability as a transformative agenda. The objective is not to restrict discussion or thinking on sustainability but to hear a diversity of views. Although definitions will vary with context, the process of developing a baseline lexicon is helping IEMA and GACSO members to build a shared understanding.

Nick Blyth is policy and engagement lead at IEMA

14001 course goes live

Just as members are contributing to IEMA's final round of consultation on the revisions to ISO 14001, a course has been launched to prepare practitioners to implement the new international benchmark for environment management systems (EMS), which is due for publication in 2015.

As previewed in the August issue of *the environmentalist*, IEMA Sustainability Training Solutions, part of the IEMA group, has worked with the Institute's 80-plus global training partners to deliver the IEMA-certified course, called Making the transition to ISO 14001: 2015. It will provide an overview of the new requirements and enable delegates to evaluate and implement changes to improve their organisation's environmental performance, and each delegate will receive the unique iemaSTS gap analysis tool for EMS.

Delegates at this one-day course over seven hours will not only leave with an understanding of the proposed changes to 14001 and their intent but, crucially, they will also be able to identify and plan actions to enable their organisation to conform to, and benefit from, the new requirements.

If you want to be among the first to be ready for 14001: 2015, equipped and able to implement the new standard, this course will arm you with all the essential knowledge and the tools. There are 13 course dates available, with plans to add more. To find out more about the course, partners and costs visit iemasts.com.

Forum engages employers on sustainability skills

IEMA is increasingly working with large employers to ensure that environment professionals are effectively supported and developed. On 29 July, the Institute held its first employer forum, made up of organisations that employ significant numbers of IEMA members. The employer forum has been established to support organisations to collaborate, build capability, and help develop innovative products and services.

Representatives from Atkins, Skanska, WSP, Network Rail, BAE Systems, Siemens, Wilmott Dixon, AWE, Sellafield, Ricoh, EDF, URS, Rolls-Royce, the Ministry of Defence and BP met the Institute's management team to explore and develop how it can support businesses to maximise the take-up and use of environment and sustainability skills. By becoming members of the forum, these leading organisations have acknowledged that they need to upskill their entire workforces, supply chains, customers and consumers in order to deliver strategic corporate sustainability objectives.

The session was aimed at establishing a common understanding of the importance of environment and sustainability knowledge and skills across the workforce to ensure resilience, agility, productivity and competitiveness. An important outcome was agreement on the challenge and the need to collaborate on a skills solution to ensure economies worldwide are equipped to succeed and survive.

From this initial meeting, IEMA aims to establish a structure for such partnerships with employers. Jonathan Nobbs, IEMA's head of partnerships, said the event was the first of many activities planned by the institute to ensure employers worldwide have access to skills. "We held this very successful first employers' forum event to ensure that we engage with organisations – at what is a very important time for skills – in the best and most impactful way," said Nobbs. "This day laid great foundations for some very exciting future work with employers worldwide so I'd like to thank these 'founding members' for offering their insight."

The next forum meeting will be held in October to further progress objectives and actions. If you would like to know more, contact j.nobbs@iema.net.

More successful IEMA members

IEMA would like to congratulate the following individuals on recently upgrading their membership as part of their ongoing commitment to learning and professional development.

Associate

Jennifer Angus, Magnox
Chris Atkins, Great Bear Distribution
Fiona Barker, Norland Managed Services
Entela Bejleraj, Bankers Petroleum
Timothy Blatchford, Royal Navy
Ian Blondel, First Great Western
Daniel Bound, Environmental Scientifics Group
Ryan Brettell
Graham Cameron, Jones Lang LaSalle
Stephen Carbery, Lovell Partnerships
Agnieszka Chuchla, Milliken Industrials
Jason Clarke, City University
Robert Cole, Siemens
Lucy Collins, University of York
Rowena Dossett, Dematic
Emilia Endsminger-Matchett, Office Depot
Stephanie Farrugia, Malta Environment and Planning Authority
Helen Finnegan
Alice Flint, Lovell Partnerships
Sophie Gallagher, Magnox
Andrew Grant, AG Barr
Rosemary Grant-Muller, SPS Envirowall
Paul Harris, UPL
Leila Henry, Nottinghamshire Fire and Rescue Service
Dawn Hubbard, AFI Uplift
Martin Jones
Robert Jones, Babcock International Group
Derek Kay, Lovell Partnerships
Anthony Kenna, Costain
Thomas King, Magnox Electric
Kathryn Mair, Envirep
Adam McMonagle, Prestwick Airport
Krishnen Mootien, O-I Manufacturing UK
Ian O'Connor, Pilon
Kevin O'Connor, Bridon International
Rosalinda O'Connor, Parker Hannifin Manufacturing
Michael Parker, Sulzer Wood UK
Jonathan Parkin
Mark Pollard, Ian Williams
David Prentice, Cumbria Rural Enterprise Agency
Adam Rothera, Carmel Campbell
Emma Roy
Janene Ryan, Rachel's Organic Dairy
Mohamed Samy
Feila Scally, Skanska UK
Richard Smith, BBC
Jill Stephenson, Network Rail
Ian Straker
Manuel Vitoria Torres de Carvalho
Jayesh Vekaria, Arcus Renewable Energy Consulting
David Walford, Unipart Group
Laura White, TCI Renewables
Tom Williams

Full

Chitradarsinee Beekoo, Omnicane Management and Consultancy
Ravindra Nath Bhargava, Ecomen Consultants Pvt

Full and CEnv

Amy Hammond, Lantern UK
Nicola Paterson, DS Smith Paper
Laura Phillips, BAE Systems Surface Ships
Daniel Reading, Royal Yachting Association
Simon Reid, Wrap
Rachel Shore, Inbuilt

IEMA events

Date	Region/Time	Topic
30 Sept	Midlands	Sustainable manufacturing
2 Oct	South East	Social (London)
15 Oct	South West	Social (Exeter)
Membership workshops		
15 Sept	Scotland Central	Delivering sustainability – developing organisational capability
16 Sept	North West	Delivering sustainability – developing organisational capability
17 Sept	South West	Delivering sustainability – developing organisational capability
17 Sept	Midlands	ISO14001 revision
18 Sept	Wales	Delivering sustainability – developing organisational capability
1 Oct	Scotland West	Delivering sustainability – developing organisational capability
1 Oct	Scotland West	From waste to resources
2 Oct	North East	Delivering sustainability – developing organisational capability
3 Oct	East of England	ISO14001 revision
7 Oct	East of England	Delivering sustainability – developing organisational capability
21 Oct	West Scotland	ISO14001 revision
Webinars		
17 Sept	12:30–1:30pm	Achieving Associate membership
25 Sept	12:30–1:30pm	Effective noise impact assessment

Tom Yearley

Energy officer, University of Reading

Career file

Qualifications:
BSc Economics, MIEMA, CEnv

Career history:
June 2009 to now Energy officer, University of Reading
2007–2009 Senior environmental consultant, WSP Environmental
2008–2009 Environmental engineer, South Hook LNG Terminal Company
2005–2007 Environmental consultant, Enviros Consulting
April 2004–March 2005 Environmental management, National Britannia
May 2003–April 2004 EMS development, Mars Limited

Why did you become an environment professional?
Growing up, I had always wanted to go into marketing. I realised at university that I wanted to do something worthwhile – not just selling people things they did not want or need. Working in the environmental sector allows me to be creative and "market" greener living and lower carbon emissions.

What was your first environment job? Implementing an ISO14001 environment management system for the Mars chocolate factory.

How did you get your first role?
As a result of a summer job at Mars. When I knew I wanted to be in the environmental sector, I emailed some contacts I had in the organisation. It was certainly a case of being in the right place at the right time.

How did you progress your career? My ambition is to become the head of environment or sustainability for a large organisation. To do this, I feel I need wide-ranging experience across the sector. I have progressed my career with this in mind, never saying no to the opportunity to learn new skills. For example, I have worked for several consultancies, including National Britannia, Enviros and WSP, and this is where I really cut my teeth. I'd say that a year as a junior consultant beats an MSc any day of the week. I worked on projects ranging from due diligence and contaminated land surveys to legal compliance and BREEAM assessments. I also got involved in EIAs and energy reviews, though I always favoured management systems. I found the opportunity to take an overview of an organisation's approach to the environment fascinating.

What does your current role involve? Energy compliance, billing and communications.

How has your role changed over the past few years? It has become more communications-focused. After you have installed efficient lighting and equipment, you still need to engage people to use it correctly. I have become fascinated by the potential for reducing our environmental impact through the way we behave.

What's the best part of your work? Being part of a team that has saved over 30,000 tonnes of CO2 in three years. I now understand that I can make the biggest difference in managing the environmental impact of energy use.

What's the hardest part of your job? Keeping track of more than 1,500 meter points.

What was the last training course you attended? I have enrolled on a part-time MPhil so I do a lot of training.

What did you bring back to your job? It's not enough to know that a project was or was not successful. I now appreciate the benefits of taking time to reflect carefully on how and why the project succeeded or not.

What is the most important skill for your role and why? The ability to communicate complex subjects simply – whether it is explaining how a new air circulation technology works or how an individual can take simple steps to save energy. A huge challenge I face is making carbon real – CO_2 and kWh are abstract concepts to most people.

Where would like to be in five years' time? I have recently accepted a role as energy manager at King's College, London (starting in September). In five years, I would like to be part of the team that continues to deliver class leading energy efficient and sustainable campuses at King's College.

Where do you see the profession going? I see a need to focus on the individual. Business and industry have achieved a lot over the past 15 years, but a huge proportion of carbon emissions result from wasteful domestic practices. Being able to afford to waste energy should not be a reason or excuse to do so. Having said that, I see the inevitable rise in utility costs playing a large part in reducing our collective carbon footprint.

What advice would you give to someone entering the profession?
Show an interest and be passionate. It's a very wide-ranging industry, so use your transferable skills to your advantage. I have recently won an *Observer* ethical award for energy savings at home – nothing to do with work, just a passion for carbon reduction.

How do you use IEMA's environmental skills map?
I found this tool invaluable for preparing for my Full membership. It also helps me prepare for one-to-ones at work.

New Zealand

Alec Tang on efforts in New Zealand to strike a balance between sustainable management and resource extraction

New Zealand – or Aotearoa, to give it its indigenous Māori name – is a country of picture postcard views, from its pristine alpine headwaters to the 15,000 km or more of natural coastlines. However, like any modern country balancing economic development with environmental protection and social responsibility, New Zealand has its challenges. One of the key debates now raging centres on the sustainable management of its seas – balancing environmental protection and cultural sensitivity with the economic potential provided by the diverse natural resources.

Until recently, there was no mechanism to assess and regulate the environmental effects of an array of potential offshore activities, from petroleum exploration and seabed mining to marine energy generation. However, the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act) changed this, by placing impact assessment at the centre of the regulatory framework and putting an independent government agency – New Zealand's Environmental Protection Authority (EPA) – in charge of decision-making.

Recently, the first full marine consent application – for iron sand seabed mining off the west coast – was decided, offering both proponents and opponents an insight into the sustainable development balance sought by the EPA. The 90-day consenting process culminated with a refusal of the application (now at appeal) due to uncertainties and inadequacies in the information presented, and concerns that the "life-supporting capacity of the environment" could not be safeguarded. The New Zealand government heralded the decision as confirming the robustness of the regulatory framework and as evidence of a "balanced approach" to development.

Elsewhere, the decision has been reported as a "major knock" to investment in resource extraction, but it has not resulted in a major withdrawal from New Zealand. Applications for seabed phosphate mining and petroleum development drilling, which were lodged before the decision, have continued throughout the process. What is clear, however, is that proponents need to fully understand the regulatory context and the sustainable management balance sought by the EPA to minimise the risk of delays to their capital projects.

Alec Tang, MIEMA CEnv, is a principal consultant, environment and sustainability, at ERM.

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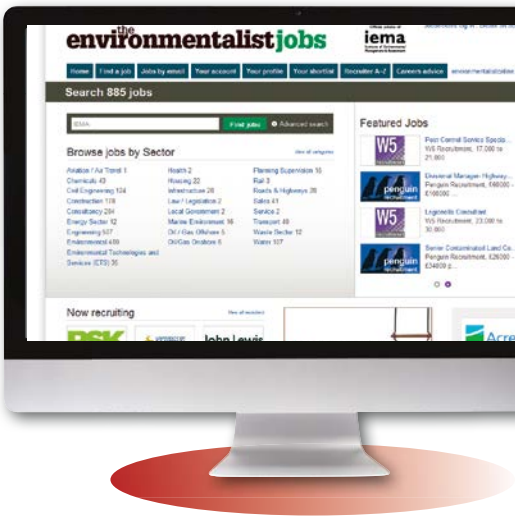

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- To undertake/assist with production of tenders and quotes

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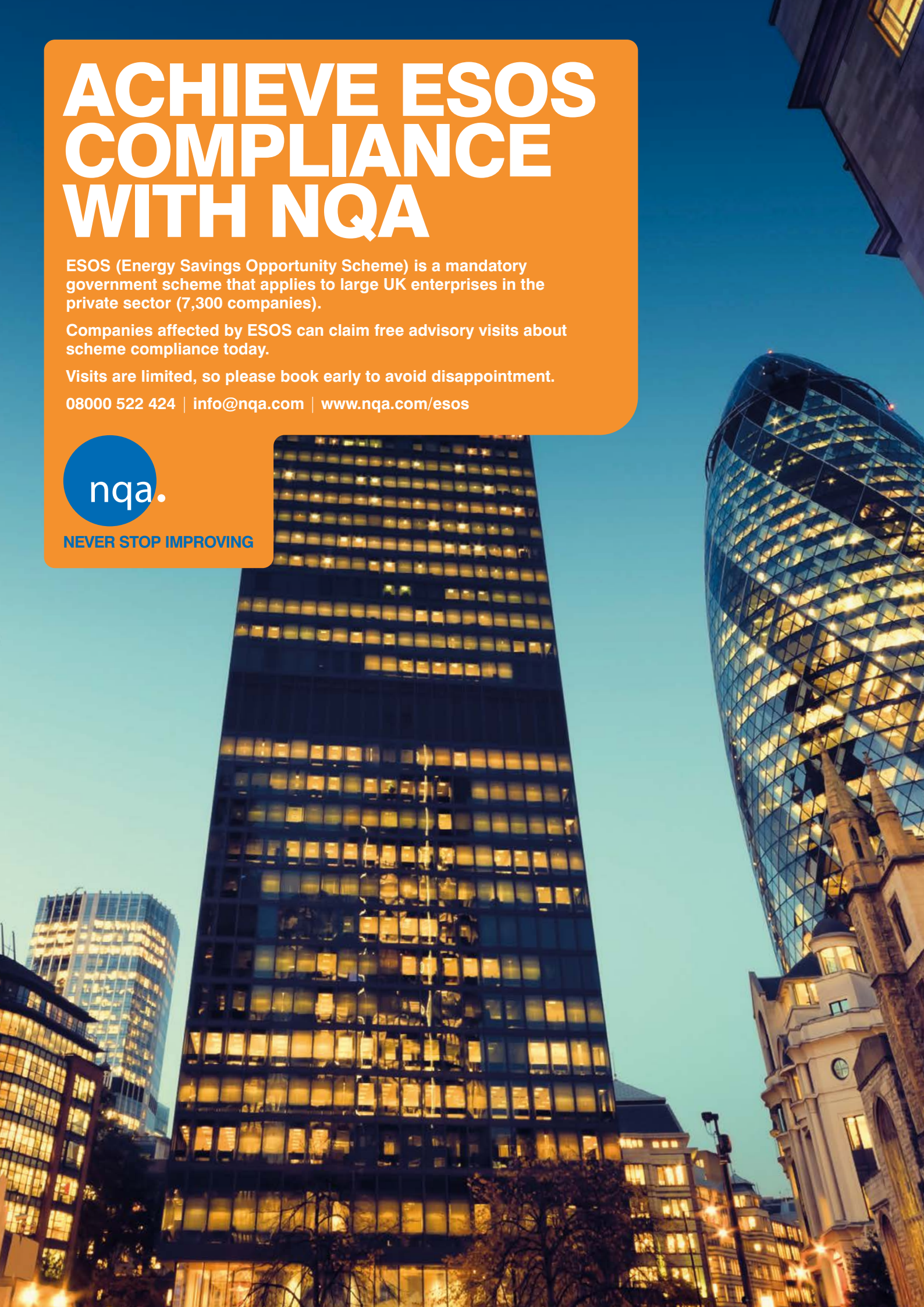

ACHIEVE ESOS COMPLIANCE WITH NQA

ESOS (Energy Savings Opportunity Scheme) is a mandatory government scheme that applies to large UK enterprises in the private sector (7,300 companies).

Companies affected by ESOS can claim free advisory visits about scheme compliance today.

Visits are limited, so please book early to avoid disappointment.

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