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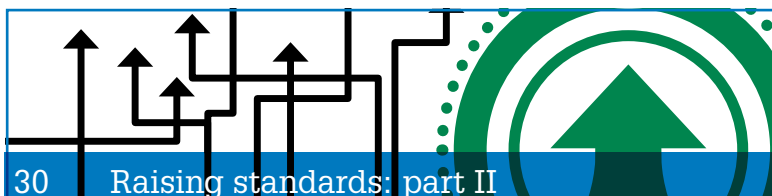
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An act of stupidity?

Owen Paterson's tenure at Defra was short-lived. Judging by his latest comments – in a speech to the climate change sceptic Global Warming Policy Foundation – the environment got off relatively unscathed from his almost two years at the helm of the department.

The erstwhile environment secretary wants the UK to rip up the carbon reduction targets enshrined in the Climate Change Act 2008. It should be remembered that 463 MPs – including Paterson – voted in favour of the Act, which requires the UK to reduce its greenhouse-gas emissions by 80% by 2050 against 1990 levels. But, according to Paterson, the 2050 target is being used to drive subsidies towards impractical and expensive technologies. He describes solar farms as futile eye-sores and a waste of land, tidal and wave power as expensive and impractical, and onshore wind as a subsidy-drunk industry, which is devastating landscapes. He also argues that the reason the UK is leading on offshore wind is because no other country is quite so foolish as to plough so much public money into it.

He does, however, accept the possibility that climate change may eventually turn dangerous, so it would be good to cut emissions. Fracking for indigenous shale gas, the construction of large-scale, localised combined heat and power (CHP) plants and small modular nuclear reactors, as well as the introduction of rational demand management system are the way forward for energy policy in the UK and will be sufficient to reduce greenhouse-gas emissions, says Paterson. The extent to which fracking will be environmentally and economically viable in the UK (pp.16–19) is debatable, while regulatory approval for “mini” reactors is likely to take years, their development costly and their popularity in urban areas zero. CHP and demand management are potentially more realisable and the government is pursuing both.

But, just like the technologies Paterson criticises for relying on subsidises, his favoured options will undoubtedly require taxpayer support. The government is already seeking to overcome resistance to fracking operations by offering local communities money to host them.

It is also worth remembering that the fossil fuel industry has consistently received public money. The European commission reported recently that, in 2012, subsidies across Europe to conventional power technologies totalled €22.3 billion. That is some way short of the €38.3 billion given to renewable technologies, but the money spent on supporting coal, gas and oil does not take into account the free allocation of allowances under the EU emissions trading system (p.4) nor the external costs, such as the cost of health and environmental impacts.

Just like the renewables that Paterson criticises for relying on subsidies, his favoured options – shale gas, CHP and small nuclear reactors – will require public money



Paul Suff, editor

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Short cuts

GHG standards revamp

Environmental standards for greenhouse gases (GHGs) are to be overhauled in response to changes in the market, ISO has announced. The standards were created in 2006 to help reduce GHG emissions and for use in emissions trading. The ISO technical committee for GHG management, TC207/SC7, is reviewing ISO 14064-1 greenhouse gases, part 1, which provides guidance for organisations to quantify and report their greenhouse-gas emissions. The revision will focus on establishing a more standardised reporting frame. ISO 14064-2 greenhouse gases, part 2, which covers quantification, monitoring and reporting of GHG emissions at the project level, will be expanded to cover carbon credits and innovative technology projects. ISO 14064-3 greenhouse gases, part 3, which supports the validation and verification of GHG assertions, and ISO 14065, the standard for verification bodies for use in accreditation, will both be updated to serve new markets, such as product carbon footprint verifications. The new standards are expected to be published by mid-2016. "With the increasing focus on monitoring, reporting and verification of GHGs across the world, this revision is needed by regulators, consumers and users," said Lesley Wilson, programme manager at BSI.

EU mercury action

The European commission has warned the UK that it has not properly transposed an EU Directive on the storage of waste metallic mercury. The reasoned opinion, sent out at the end of September, states that the commission is not convinced that amendments to the environmental permitting regulations in England and Wales, and to Scotland's landfill regulations, have set out sufficient action on the issue. The UK has two months to respond, or risk the case being referred to the EU court of justice. Mercury is highly toxic to humans, ecosystems and wildlife. A Defra spokesperson said: "We take this matter seriously and are confident that our legislation meets the Directive's requirements."

First CCS plant starts work

The world's first large-scale power station equipped with carbon capture and storage (CCS) technology has started operating in Canada. The CCS retrofit of the 110MW SaskPower's Boundary Dam coal-fired power plant in Saskatchewan will capture about one million tonnes of carbon dioxide a year. Some of the captured carbon will be injected into nearby oilfields to enhance oil recovery, with the remainder stored permanently deep underground.

The UK Carbon Capture and Storage Association said the SaskPower project had the potential to be a global game changer. "Boundary Dam combines post-combustion CCS with coal-fired power generation that will reduce carbon emissions by 90%, transforming one of the world's most abundant and affordable sources of energy to one of the cleanest," it said.

Maria van der Hoeven, executive director at the International Energy Agency (IEA), described the inauguration of Boundary Dam as "a momentous point" in the history of the development of CCS. "CCS is the only known technology that will enable us to continue to use fossil fuels and also decarbonise the



Boundary Dam CCS project

energy sector. As fossil fuel consumption is expected to continue for decades, deployment of CCS is essential," she said.

IEA analysis has shown that, without significant deployment of CCS, more than two-thirds of current proven fossil-fuel reserves cannot be burned before 2050 if the increase in global temperatures is to be held below 2°C.

Several CCS projects are under construction around the world and another large power station CCS project, in Kemper County, Mississippi, should begin operating early next year. The White Rose CCS project in the UK is expected to soon apply for planning permission.

EU has 12 months to save ETS

Climate think-tank Sandbag predicts the EU emissions trading system (ETS) could be so over-supplied with allowances by 2020 that it will cease to be an effective tool to drive the decarbonisation of Europe's economy. It says the European commission has 12 months to fix the system otherwise it will be time to scrap it and find a climate policy that works.

In its sixth annual report on the ETS, Sandbag says that the surplus is rising by 12.5 tonnes every second and that, if the commission fails to stem the rise, the surfeit will grow from 2.1 billion tonnes in 2013 to 4.5 billion by 2020. The huge surpluses in the system have significantly weakened the incentive for ETS participants to invest in abatement measures, warns Sandbag.

The commission is attempting to rein in the surplus by temporarily withholding the sale of 900,000 credits until 2019 in a move known as "backloading". However, Sandbag says it is already clear that this will fail to protect the ETS from the effects of structural oversupply. It acknowledges

that the planned market stability reserve (MSR), which removes allowances from auction when the surplus is high and returns them when it is low, is a more sustainable solution to oversupply. As the MSR does not start until 2021, Sandbag forecasts that the ETS market will be flooded in the interim with backloaded and other unused allowances.

Sandbag also reports that 10 companies have, over the past six years, accrued nearly 22% of the entire ETS surplus – despite being responsible for barely 10% of emissions. The top 10 includes three steel companies and five cement firms. The report says changes to the free allocation of allowances from 2013 have prevented the 10 companies expanding their surpluses further, and will lead to the surfeit owned by steel companies becoming exhausted by the late 2020s. The surpluses owned by cement companies, however, will continue to rise, Sandbag forecasts. The surplus owned by Lafarge, for example, is expected to keep increasing until at least 2029.

Party conferences reveal clues to policy priorities

Environmental practitioners have expressed a mixed reaction to the debates at the three main party conferences.

Key speeches by the party leaders, cabinet members and shadow cabinet members revealed few new concrete policy proposals (see right). Prime minister David Cameron's speech contained one reference to the environment, that the UK is "leading not following on climate change".

Labour leader Ed Miliband said that his party would set a national goal for Britain to become a world leader in the green economy, creating one million jobs by 2025 and decarbonise electricity by 2030. Deputy prime minister Nick Clegg committed the Liberal Democrats to five green laws, including on energy efficiency and decarbonising the electricity system.

Philip Pearson, senior policy officer for energy and climate change at the Trades Union Congress, said: "Of the three parties, two of them get it, the other doesn't."

Nick Molho, executive director at the Aldersgate Group welcomed cross-party commitment to the green investment bank. "All three parties provided clear indication that it would play a part in the low-carbon economy," he said.

While the parties differed on the rate at which the economy could be decarbonised, there was broad support for a strong European target and a recognition that this would be in line with the UK's, Molho added.

Although many politicians acknowledged that the green deal energy efficiency scheme is not working, the detail on how to improve it was lacking from the three main parties, he said.

Martin Baxter, executive director of policy at IEMA, said that all parties tend to play to their members and core voters rather than the wider world during conferences. "The critical thing is what policies they will put in their manifestos and I don't think we have a clear idea yet of what will go in."

He added that the surge in support for the Green Party could influence the other parties. Labour has appointed shadow justice secretary Sadiq Khan to lead work on how the party can defend itself against losing votes to the Greens, whose membership in England and Wales has increased by almost two-thirds since the start of 2014, to more than 22,500.



Conservatives

Starter homes would be exempt from zero-carbon homes standards, prime minister David Cameron said. Environment secretary Liz Truss said she was "determined" to restore habitats, rivers and flood defences. Energy minister Matthew Hancock argued that the nation must invest in shale gas and new nuclear, and ensure that renewables support provides the best value for billpayers. Chancellor George Osborne promised that he would "tap shale gas, commission nuclear power and renewables", build high-speed rail, and decide where to build a new airport runway.



Liberal Democrats

Electricity generation from coal would be banned after 2025, energy and climate secretary Ed Davey said. Deputy prime minister Nick Clegg pledged five green laws: to reduce carbon emissions from the electricity sector; legal targets for clean air and water; give everyone access to green space; boost energy efficiency and renewable energy; and prioritise the shift to "green cars".



Labour

Energy efficiency would be put at the heart of energy policy, with free home energy reports for 500,000 homeowners and energy saving measures retrofitted on 200,000 homes of those on low incomes, with councils in charge of delivery. Councils would also be given more powers to tackle air pollution. The party would introduce a national programme of low-emission zones, and establish a new climate adaptation programme.

Short cuts

Closed-loop aluminium

Aluminium products company Novelis has opened the world's largest aluminium recycling centre. Sited next to the company's rolling mill in Nachterstedt, Germany, the €200 million facility has the capacity to process up to 400,000 tonnes of aluminium scrap each year, turning it back into ingots to feed the company's European manufacturing network. Novelis says the technology for scrap sorting, decoating, melting and casting employed by the new plant will allow it to process a range of scrap types, creating a more efficient closed-loop recycling system. "The centre is a significant step towards our goal to be the world's low-carbon aluminium sheet producer, shifting our business model from a traditional linear approach to an increasingly closed-loop model," said Phil Martens, president and chief executive at Novelis. The company's goal is to achieve 80% recycled content in its products, mainly aluminium sheet and foil products for the transport, packaging, construction, industrial and consumer electronics sectors by 2020. Recycling aluminium saves 95% of the energy and emissions associated with the production of primary metal.

Natural England online

Natural England's online content is now available on the gov.uk website at gov.uk/natural-england. The government's adviser on the natural environment in England says that, although its old website has closed, bookmarks and saved links will still take users to the information they require. Guidance available from Natural England on the gov.uk covers land management issues, such as contaminated land, pollution and environmental stewardship. Some information, such as publications (publications.naturalengland.org.uk) and the GIS digital boundary datasets (gis.naturalengland.org.uk), remains available at the same url, however. The content of Natural England's main website is archived at lexisurl.com/iema35193. Natural England joins 24 government departments and more than 330 agencies and public bodies in moving to gov.uk.

In parliament



Connecting the power

I attended a European renewable energy meeting in October, where all the talk was about getting the renewable energy that is produced to where it can best be used. Germany, for example, simply does not have the capacity to move the renewable electricity from where it is predominantly produced in the north, to where it is needed in the south. Scandinavian countries are likely to have a permanent surplus of low-carbon energy, largely driven by hydropower, but as yet insufficient connection with countries, while Iceland has loads of low carbon, geothermal electricity and, with a population the size of Bristol, no prospect of using much of it internally.

All these sources of low-carbon power would be available to the UK if the country was wired up to receive them. Britain already possesses some “interconnectors”, but the existing links are not sufficient to meet the 10% of capacity demand the EU is targeting between each member state. A programme of interconnection with Ireland, Iceland, Denmark, Germany and others would get the UK to that figure in a relatively short period.

But there remain two problems with this obvious way forward. The first is, I believe, the mistaken approach to interconnector development by the government – they are assumed to make money in their own right and are not, as yet, supported in their development in the way that new nuclear and gas plants are.

The second problem is that it is not politically fashionable to advocate more cooperation with Europe, even though the evidence suggests that our energy security would be far better served by pooling it with our neighbours. But try telling that to those who are intent on pulling up the drawbridge. I hope we will not be blinded by those considerations to what is overwhelmingly in the UK's own national interest.

Alan Whitehead, Labour MP for Southampton Test and a member of the House of Commons' energy and climate change committee.

Heathrow targets energy

A group of businesses at Heathrow airport, including British Airways, Hertz and World Duty Free, has launched a code of practice to encourage energy efficiency across its properties.

Heathrow Airport Holdings, which owns the airport, has a target to reduce carbon emissions from fixed assets, such as buildings and car parks, against 1990 levels by 34% by 2020. But it has calculated that only around 15% of the site's emissions are directly under its control, predominantly related to electricity use.

The energy code has been developed by the Heathrow sustainability partnership, which comprises 12 of the biggest firms operating at the airport.

All of these companies in the partnership have committed to monitor energy use, set reduction targets and develop an action plan to reach these. Half of these firms have already achieved these three actions and the rest will do so by the end of the year, said Elizabeth Hegarty, head of sustainability and environment at Heathrow Airport Holdings.

Partnership members will monitor and report progress at meetings and will collectively report on the group's contribution to Heathrow's 2020 target. There are around 400 companies at the



airport, employing 76,000 people. The airport is also engaging with several companies that are not members of the partnership but want to reduce their energy use. It has made its facilities team available to advise them.

One area the airport has targeted is nighttime energy use. The airport is restricted to 5,800 take-offs and landings between 23.30 and 06.00 each year. However, facilities still need to be available for passengers on the flights that do arrive or depart during the night as well as those who arrive early for morning flights, Hegarty explained.

Heathrow is implementing a number of efficiency measures, such as fitting sensors to car-park lights and installing LED lights in digital advertising boards.

US military prepares for climate fight

The US military is taking steps to include climate change in its planning, fearful that the impacts could exacerbate many of the challenges the world already confronts, from the spread of infectious diseases to spurring armed conflicts.

The move is revealed in a new report from the US defence department setting out an adaptation roadmap for the military. It outlines how the armed forces are preparing for a changing climate by ensuring their facilities are not vulnerable to the impacts. “Our coastal installations could be vulnerable to rising shorelines and flooding, and extreme weather could impair our training ranges, supply chains and critical equipment,” said US defence secretary Chuck Hagel, launching the roadmap. “Our military's readiness could be tested, and our capabilities could be stressed.”

The report warns that the effects of the changing climate will be felt across the full range of defence department

activities, including plans, operations, training, infrastructure and acquisition. But it says that, by adopting a proactive and flexible approach to assessment and analysis, the department can keep pace with changing climate patterns and minimise effects on the military.

It singles out rising global temperatures, changing precipitation patterns, higher sea levels and more extreme weather as the main challenges facing the military and its capability. For example, sea level rise may affect the execution of amphibious landings, while increased frequency of extreme weather could limit aircraft operations as well as intelligence, surveillance and reconnaissance capability.

In future, the role of the military will change. It will increasingly be called on to support civil authorities, and provide humanitarian assistance and disaster relief in the face of more frequent and more intense natural disasters, says the report.



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CDP launches new focus on energy sector

The Carbon disclosure project (CDP) is to target oil and gas production companies since so few in the sector have emerged as leaders on climate change action.

The latest CDP list of global leaders on emissions reduction contains only six oil and gas production companies. Of these, only three have set absolute targets for emission reductions. To improve performance, the CDP said it will trial a sector-specific approach from next year.

The pilot project will involve consulting directly with investors and industry representatives to develop guidance to drive consistency of reporting among oil and gas companies. The CDP will also establish sector-specific scoring to better assess companies' level of ambition on addressing climate change, and how comprehensive the information they provide publicly.

The CDP is hoping that the work will help the oil and gas sector to produce data that is more meaningful to investors, incentivise transparency and catalyse action.

If the pilot is successful, the CDP hopes to roll it out to other sectors, which will be prioritised according to their dependence and impact on climate change, water and deforestation.

Several sectors, notably IT and financial services, are much better represented on the CDP's leadership list.

The CDP found that companies in the vanguard of taking action to mitigate climate change generate better returns for shareholders than those that are sluggish in their response. It commissioned investment advisers ECPI to compare the market performance of companies on its leadership list (CPLI) against both a broad market index and a global sustainability index between 2010 and 2014. The comparator indices were the Bloomberg world index and the Dow Jones sustainability world index (DJSWI). Over the four-year period, the CPLI gained



Image: Design Pics Inc/REX

37.53%, outperforming the Bloomberg world index, which gained 34.24%, and the DJSWI, which increased by 31.38%.

Paul Simpson, chief executive officer at the CDP, said: "The businesses that have made it on to our first global list of climate performance leaders are to be congratulated for their progress; they debunk economic arguments against reducing emissions."

EIA update

Responding to plans to raise screening thresholds in England

In late July, the communities department launched a consultation on plans to raise the screening thresholds for housing and industrial estate developments from 0.5 hectares to 5 hectares. IEMA responded to this consultation based on member input from a series of workshops among EIA Quality Mark registrants, engaging more than 50 practitioners, including consultants, planners, developers and academics.

IEMA's response agreed that exploring raising the thresholds for such developments was appropriate, but that retaining a simple land area based criterion would not be. Members expressed unease that the proposed thresholds would miss some forms and locations of development with likely significant environmental effects. Particular concerns were raised in relation to high-rise housing developments and those built near "sensitive areas". In relation to housing developments, members indicated that a threshold that included a trigger based on the number of new units or new residents could be more appropriate.

Such a threshold would have a much greater link to common significant effects identified in housing EIAs, such as those related to noise, transport, air quality and ecology disturbance impacts.

IEMA and QMark representatives meet communities department

On 8 October discussions were held between the communities department (Dclg) and IEMA and representatives of the EIA Quality Mark registrants. The meeting was to help identify practical actions that could be taken to deliver more proportionate EIA. The discussions covered activities planned by Dclg and wider agencies to deliver efficient EIA as well as IEMA-QMark plans to produce more effective assessments. It also discussed whether aspects of the recently amended EIA Directive, which were approved by the European parliament in March, should be implemented before the May 2017 deadline in order to deliver efficiency sooner. This could include bringing forward controls to limit the use of further information requests to issues directly relevant to coming to conclusions on significant environmental effects.



Progress on topic guidance

Two new guides – on noise impact assessment (iema.net/noise) and on odour impact assessment (iaqm.co.uk) – have recently been launched. The Chartered Institute of Ecology and Environmental Management is also updating its guidelines on ecological impact assessment. The aim of the revision is not to change the overall approach, but ensure it is updated to take account of regulatory changes. The revised guidelines should be published in early 2015.

Forthcoming EIA webinars

- 27 November – What can UK EIA learn from international practice?
- 18 December – EIA and fracking.

iema

Electricity from solar to eclipse coal

The sun could be the world's largest source of electricity by 2050, ahead of fossil fuels, wind, hydro and nuclear, says the International Energy Agency (IEA).

It reports that solar photovoltaic (PV) systems could generate up to 16% of the world's electricity by the middle of the century, while solar thermal electricity from concentrating solar power plants could provide an additional 11%. The installation of solar technology on this scale would reduce carbon emissions annually by 6 million tonnes by 2050, said the agency.

The IEA warns, however, that the solar industry will generate greater levels of electricity only if it receives consistent messages from policymakers. "Where there is a record of policy incoherence, confusing signals or stop-and-go policy cycles, some projects that are needed simply will not go ahead," said IEA executive director Maria van der Hoeven.

The UK government has consistently changed its policy on solar. In its solar strategy, which was published in October



Image: Langrock/Solar MILLE/SIPA/REX

2013, Decc forecast that installed solar capacity would reach 10GW by 2020. The solar industry has warned that plans by the energy department to remove large-scale solar PV (above 5MW) from the Renewables Obligation in April 2015, two years earlier than when the RO will cease to operate, will render such deployment levels unlikely.

The Solar Trade Association (STA) forecast that removing large-scale solar from the RO would cap solar deployment at 4GW by 2020. It said there was already evidence that projects were being cancelled.

EC urged to cut regulations

Small businesses should be exempt from EU regulations, according to one of the recommendations of a group looking at how to reduce "red tape".

The European commission's high-level group on administrative burdens, chaired by German politician Dr Edmund Stoiber, published its final report in October. It makes several recommendations aimed at "eliminating unnecessary and bureaucratic red tape" in order to strengthen the economies of member states.

First, it suggests setting a new target on cutting regulation and an action plan to implement it. The commission should also introduce an offsetting mechanism whereby new regulations are only brought in if others are removed, it states.

Another recommendation is to exempt small and medium-size enterprises from EU regulations as long as the political aim of the legislation is not jeopardised. It also urges the commission to establish an independent body to scrutinise impact assessments before new rules and regulations are adopted. In addition, it calls for the creation of an EU-wide ombudsman to act as a contact point for complaints by businesses about regulation.

"All protagonists involved in the legislative process need to be more ambitious in reducing regulatory costs, taking into account consumer and employee protection as well as health and environment concerns," the report states.

However, four of the group of 15 said they did not support the final report, and accused it of pursuing an outdated agenda. A dissenting opinion was published alongside the report. It was written by Nina Renshaw, deputy director of the campaign group Transport & Environment, Heidi Rønne-Møller, EU adviser for the Danish confederation of trade unions, Monika Kosinska, former secretary general of health campaigners EPHA, and Jim Murray, former director of consumer affairs organisation BEUC. They argue that Stoiber's recommendations would come at the expense of health, safety and environmental protection.

Pieter de Pous, policy director at the European Environmental Bureau, claimed that the recommendations would take Europe back 30 years. "By promoting deregulation as a recipe for more jobs and growth, this group has entered the realm of fact free policy making," said de Pous.

Business plans

Energy company **Ecotricity** and construction business **Skanska** have launched a joint venture to build onshore wind farms in Britain. The partnership, called **Skylark**, will aim to put 350MW of new energy projects into the planning system in the first five years, representing a potential investment of £500 million should the projects all receive consent.

The world's largest cruise business, **Carnival**, has announced that by the end of the year it will have saved more than 4.5 billion litres and reduced carbon emissions by 12 billion kilograms since 2007, when the firm introduced its fleet fuel conservation programme. The initiative combines energy-saving initiatives onboard existing ships with the launch of more energy-efficient vessels. Carnival says fuel efficiency has improved by 24% since 2007, saving it around \$2.5 billion in fuel costs.

Kingspan Insulation has unveiled the UK's largest rooftop solar renovation project at its manufacturing plant in Selby. Photovoltaic (PV) panels cover more than 15,000 m² of the roof space and the array is expected to generate 2.14 GWh of electricity a year. The system was installed as part of a wider programme of energy-efficiency measures to make Kingspan Insulation a net zero-energy business by 2020. Other measures include a new energy-efficient roof and an LED lighting upgrade, which, together with the PV array, will save 79.2GWh at the site over 25 years.

Heineken has installed 4,000 solar PV panels on the roof of the John Smith brewery in Tadcaster. The panels can generate more than 876MWh a year, which is equivalent to about 5% of the brewery's total annual electricity consumption. The array was designed and installed by specialists **SolarAccess**.

The **Ford Motor Company** is to install LED lighting at its manufacturing plants around the world. Some 25,000 new LED fixtures will replace traditional high-intensity discharge and fluorescent lights, and are expected to reduce Ford's energy use at the sites by 56 million kWh each year, and reduce annual energy costs by \$7 million. Installation of the LEDs will cost about £25 million.

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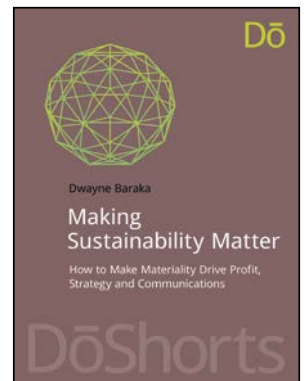
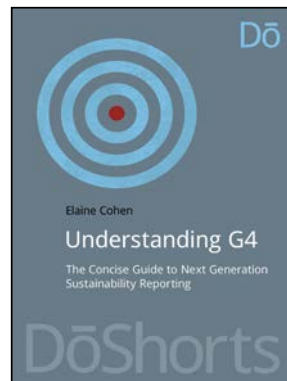
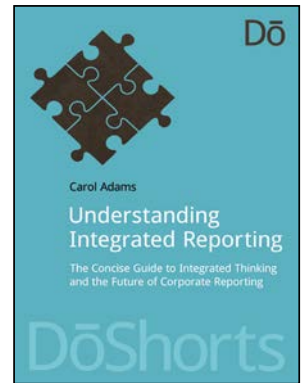
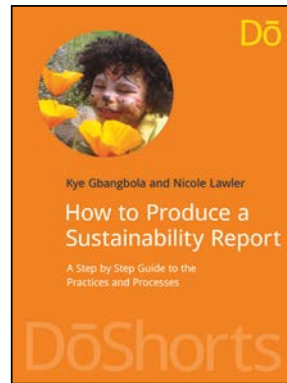
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In court

Loss of radioactive source costs Rolls-Royce £376,500

Rolls-Royce Marine Power Operations has been fined £200,000 and ordered to pay £176,500 in costs for losing a capsule the size of a small screw for about five hours. The capsule, a radioactive source containing ytterbium-169, was being used at the company's Sinfin Lane site in Derby to test welds. The loss of the capsule resulted in a number of workers being exposed to high levels of gamma radiation.

Leicester crown court heard that at around 5am on 3 March 2011 the source was being used in a purpose-built radiography enclosure, but during the work the capsule became detached from its holder, ending up inside the component being tested. This went undetected because at the end of the test a green light indicated that the radioactive material was back in its sealed container. The loss was discovered only when three welders who later worked on the component spotted the capsule and removed it for examination, passing it around. A radiographer also handled the capsule before identifying the object as a radioactive source. The room was cleared at around 10am, and the radioactive source was recovered.

A joint investigation by the Health and Safety Executive and the Environment Agency found the workers' hand exposure to radiation was considerably in excess of the annual permitted dose of 500 millisieverts. In some cases, it was exceeded by up to 32 times the permitted amount. The regulators also discovered a number of procedural failings, including the failure to do a suitable and sufficient risk assessment for the gamma radiography work at Sinfin Lane, and a lack of training for personnel.

In addition to breaches of health and safety legislation, the company, a subsidiary of Rolls-Royce plc, pleaded guilty to three counts of contravening Regulation 38(2) of the Environmental Permitting Regulations 2010, which covers non-compliance with permit conditions. Rolls Royce Marine Power Operations has since put safety measures in place to prevent a similar incident occurring. Commenting on the case, Mark Haslam, area manager for the agency, said: "The most important thing is that the company has learnt the lessons from this and put improvements in place to ensure this does not happen again. Our overriding aim in regulating the use of radioactive materials is to ensure their safe management and control to protect the public and the wider environment from the harmful effects of radiation."

Wrong label attracts £15,000 penalty

The National Measurement Office has issued a £15,000 variable monetary penalty to electrical distributors Pik-a-Pak after tests revealed that the energy performance of its IG3970 freezer did not match the claims on the energy label. The freezer, an IGenix brand, which is owned by Pik-a-Pak, was found to be using 49.2% more energy, on average, than was claimed. Pik-a-Pak returned all of its stock of the IG3970 freezer to the manufacturer. The financial penalty imposed on Pik-a-Pak takes into account: the level of detriment to the consumer; benefit to the company of selling the product as claimed on the label; and the company's willingness to work with authorities. "Stringent testing procedures have been implemented to ensure all products in the IGenix range conform to the EU ecodesign and energy information regulations," said Geeta Brown, purchasing and marketing manager at IGenix.

Fat block costs firm £14,293

The release of pork rind fat into a sewer, causing a blockage, has resulted in a Stockport-based company being fined £1,000 and ordered to pay costs totalling £13,193 plus a £100 victim surcharge. Jarmac, which refines oils for the soap and leather industry, pleaded guilty at Stockport magistrates' court to a breach of the Water Industry Act 1991. United Utilities brought the prosecution after fat and sewage came up through a pavement in Stockport in December 2012. It had to construct a new manhole in order to access the blockage and it took more than two months to return the sewer to service. United Utilities said it was important that commercial customers have in place proper spillage management procedures and accurate drainage plans. "In this case the situation was so serious it caused a major blockage and flooding," commented Craig Waddell at United Utilities.

Case law

Reasonably foreseeable

In *Commercial Estates Group v Secretary of state for communities and local government* [2014] EWHC 3089 (Admin), the high court rejected claims that an environmental impact assessment (EIA) was necessary before the communities secretary approved plans for a residential development. Commercial Estates Group (CEG) claimed that the communities secretary should have taken into account the potential large housing allocation (the sustainable urban extension or SUE proposal), which was in limbo following comments by the planning inspector, as it was a material consideration in the decision. It also argued that it was reasonably foreseeable that the SUE proposal would eventually come forward and the secretary's failure to consider it meant that the decision was unlawful.

The court agreed that the test was whether it was reasonably foreseeable that another development would occur. However, it considered it was unarguable that the common law meaning of reasonably foreseeable should apply. The communities secretary had reasonably concluded that the process of creating a draft core strategy for the area had stalled and that the prospects of the wider development becoming a reality were unpredictable. He had taken into account the fact that the core strategy had not yet been approved and that this had an effect on the likelihood of CEG's proposal coming to fruition. On that basis, he was entitled to conclude that CEG's proposal was not reasonably foreseeable.











The court would only interfere if the decision was "Wednesbury unreasonable" – that is, that no sensible decision maker could have come to that conclusion.

Jen Hawkins

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New regulations




In force	Subject	Details
15 Aug 2014 	Environment protection	The Local Government Byelaws (Wales) Act 2012 (Commencement No. 1) Order 2014 brings a number of provisions into force, including the ability to amend byelaws and the fixed-penalty notice regime. lexisurl.com/iema35669
22 Aug 2014 	Hazardous substances	EU Regulation 895/2014 amends the list of substances of very high concern (SVHCs) subject to authorisation under REACH (Regulation 1907/2006). The latest authorisation application dates and sunset dates are set for nine SVHCs, including arsenic acid, strontium chromate and formaldehyde. lexisurl.com/iema28691
28 Aug 2014 	Hazardous substances	EU Regulation 900/2014 provides six new test methods to determine toxicity, including reproductive toxicity, of chemicals under REACH (Regulation 1907/2006). lexisurl.com/iema28690
29 Aug 2014 	Emissions	The Sulphur Content of Liquid Fuels (England and Wales) (Amendment) Regulations 2014 amend the 2007 Regulations by revising sulphur content derogations, definitions and analysis methods for sampled fuels. lexisurl.com/iema26230
29 Aug 2014 	Hazardous substances	EU Regulation 866/2014 amends Regulation 1223/2009 by adding further substances to annex III – substances that cosmetic products must not contain except in certain circumstances; annex V – preservatives; and annex VI – UV filters. lexisurl.com/iema28686
9 Sept 2014 	Energy	The Renewables Obligation Closure Order 2014 includes arrangements for the scrapping of the renewables obligation scheme on 31 March 2017. Renewables obligation certificates (ROCs) may not be issued from this date except under restricted circumstances, although grace periods are available. lexisurl.com/iema31963
15 Sept 2014 	Marine environment	The Public Bodies (Marine Management Organisation) (Fees) Order 2014 sets fees for the monitoring and variation or transfer of marine licences. lexisurl.com/iema31967
30 Sept 2014 	Natural environment	Directive 2014/78/EU adds further harmful organisms to the list of those requiring measures to prevent their spread in Europe. Amendments include: banning the introduction and spread of specified organisms; and prohibiting the import or certain plants, plant products and other objects or imposing inspection and approval requirements for their import. lexisurl.com/iema26206
1 Oct 2014 	Planning	Amendments to the Town and Country Planning Act 1990 (TCPA) by the Growth and Infrastructure Act 2013 (GIA) allow developers of “major” projects to submit planning applications to the planning inspectorate instead of the local planning authority. The Town and Country Planning (Development Management Procedure and Section 62A Applications) (England) (Amendment) Order 2014 supports these changes by providing procedures to handle listed-building consent. Meanwhile, the Growth and Infrastructure Act 2013 (Commencement No. 6) Order 2014 inserts the remaining section of the GIA into the TCPA. It imposes duties for the determination of certain planning applications that may be made directly to the planning inspectorate instead of the local planning authority. lexisurl.com/iema23860 ; lexisurl.com/iema23861
1 Oct 2014 	Hazardous substances	The Petroleum (Consolidation) Regulations 2014 revoke and consolidate 12 pieces of legislation. As previously, certificates are required to dispense petroleum and licences must be obtained to store large quantities for use outside workplaces. lexisurl.com/iema26225

Latest consultations



20 Nov 2014

Environment Agency charges

 The Environment Agency is consulting on raising its charges for environmental permitting, abstraction and the EU emissions trading system from April 2015. The proposals include: a 2% increase in charges for installations and waste facilities covered by the Environmental Permitting Regulations (EPR); increasing the compliance band adjustment for waste facilities and installations that are in bands D, E and F for more than two years – for example, from 125% to 200% for band D sites; introducing a permit commencement charge to recover the additional costs the agency incurs in the 12 months immediately after the issue of a new permit – this would be an additional 40% of the annual charge for the permit and apply to EPR installations and waste facilities; and an 8% increase in the annual charges for the agency's Northumbria abstraction account, each year for three years. The agency is also proposing amendments to its Opra (operational risk appraisal) scheme, covering assessments of operator compliance and how Opra defines certain activities and their associated charging bands.
lexisurl.com/iema31981


1 Dec 2014

Arctic funding

 Streamlining funding for activities in EU Arctic, from Greenland to the Barents region, is the subject of a consultation by the European commission. The EU has invested more than €1.14 billion in the European Arctic since 2007, but the commission says that, in an era of budgetary constraint, it needs to ensure value and that investment is in line with local priorities. The consultation focuses on developing an overview of the region's key investment and research priorities; whether there is scope for further coordination and exchange of best practices; identifying where improvements could be made in the scale and scope of EU funding; and how other sources of funding, for example, from the private sector, could best be used to support development.
lexisurl.com/iema31997

3 Dec 2014


Nature recovery

 A proposal to develop a nature recovery plan to reverse the narrowing biodiversity in Wales has been put out for consultation by the Welsh government. The document acknowledges the importance of biodiversity in providing

essential services, such as water cycling and soil formation, and says a recovery plan is crucial if nature is to continue to provide these. Also recognised is the need to protect species, habitats and ecosystems. The government says the plan fulfils its international commitments under the Convention on Biological Diversity (CBD) over the next five years.
lexisurl.com/iema31986

16 Jan 2015

Endocrine disruptors

 The European commission is consulting on criteria for identifying endocrine disruptors in the context of implementing the Plant Protection Product Regulation (1107/2009) and the Biocidal Products Regulation (528/2012). The regulations require the commission to "specify scientific criteria for the determination of endocrine-disrupting properties" of chemical substances. Interim criteria for identifying endocrine-disrupting chemicals currently apply. The commission published a "roadmap" in June setting out how it would define criteria for identifying endocrine disruptors. The consultation is part of the process for developing an impact assessment.
lexisurl.com/iema32585

New guidance

UK GHG inventory

Decc has updated its guide (lexisurl.com/iema28772) on the origins and use of data in the compilation of the UK's greenhouse-gas (GHG) inventory. The inventory, which underpins the UK's national and international reporting requirements for GHGs, includes estimates of all emissions by sources and removals by sinks from 1990 to the latest available year of reporting. The guide contains emissions data and trends, an overview of the method adopted by the UK to calculate emissions, and details of any uncertainties in the data.

Low-risk waste activities

The Environment Agency has updated its guidance on low-risk waste activities. Version 60 of the guidance (lexisurl.com/iema32599) revises the list (annex A) of those activities that are not subject to environmental permitting and may become an exempt waste operation. The agency warns that it may amend or revoke the guidance at any time and advises operators to check periodically that a low-risk position remains in place.

Biocidal products

The European Chemicals Agency has published the first official article 95 list under the Biocidal Products Regulation (as amended by 334/2014) (lexisurl.com/iema32603). It includes the names of substance suppliers, their countries and product suppliers for relevant biocidal active substances, together with information about which product types (PTs) they are included for. From 1 September 2015, a biocidal product cannot be made available on the EU market unless either the substance supplier or the product supplier is included in the article 95 list for the PT to which the product belongs.



Laying down the law

Beware illegal waste activities

Ross Fairley issues a warning to landlords about the consequences of tenants' illegal waste operations



Resource minister Dan Rogerson recently acknowledged the need for "more systematic" regulation to tackle illegal waste activities in a letter to the waste industry. The minister talked of greater scrutiny of operators applying for environmental permits to carry out waste operations, as well as heightened enforcement and data sharing.

Earlier in the year, Defra allocated £5 million to the Environment Agency to help tackle illegal waste exports and to reduce the number of active illegal waste sites. Endowed with this sum, the agency is expected to toughen its stance against waste crime and bolster its regulation of permitted sites. The agency is likely to increase its scrutiny of operators applying for permits by conducting detailed checks of the operators' financial credentials, technical abilities and past behaviour.

A quartet of problems

With the number of illegal waste sites on the rise and the expensive consequences for landowners leasing land to waste operators, the improvements the new funding intends to bring are badly needed. Whatever the reason for this increase, lack of enforcement is having a notable impact on landlords whose tenants engage in waste operations outside the bounds of their permit or without a permit at all.

The problems faced by landlords when tenants participate in illegal waste activities are numerous and varied, but commonly include the following:

- loss of amenity of the rented premises, and associated difficulties in attracting tenants to occupy land adjacent to disruptive waste operations;
- the obligation to clear up sites at great cost where the tenant has gone into

liquidation or otherwise refuses to comply with legislation;

- increasing difficulty in convincing insurance providers to provide cover for waste management sites; and
- difficulties in enforcing lease terms without having to forfeit the lease and become responsible for waste remaining on the land if the tenant has gone into liquidation.

If the agency fails to take action against illegal behaviour, and if forfeiting a tenant's lease risks leaving the landlord with the hugely expensive task of disposing of the remaining waste, what options are available?

Taking action

Landlords should carefully consider the terms of the lease and the tenant's history. Where waste operations are concerned, the land owner should ensure that an express covenant is included in the lease, to the effect that operations carried out on the land are to be at all times in full compliance with planning and environment law and are not to amount to a nuisance. In addition, the landlord should insist that the tenant obtains insurance for the waste operations they intend to carry out.

The landlord throughout the term of the lease should closely monitor the activities carried out at the site. If suspicion arises that the tenant is failing to comply with its environment permit or is in breach of its planning permission, the landlord should contact the agency or planning authority at an early stage in order to put the authorities on notice, and to encourage early action. There is no obligation on the agency to investigate or prosecute waste offences, but regular dialogue and information sharing can sometimes compel the regulator to bring enforcement proceedings. It is open to the agency to carry out remedial works itself and recoup its costs of doing so from the tenant.

If illegal activities persist on the site despite the lease terms, and in the absence

of enforcement action, normal remedies for breach of lease terms can be sought in the county court. These include damages for breach of contract, an application for an "order for specific performance" (such as the removal of any waste stored unlawfully) or an injunction (ordering the tenant to cease its waste operations).

However, these remedies are of limited benefit if, as is common, the tenant goes into liquidation and becomes unable to comply with the terms of a court order. Forfeiture of the lease is the ultimate remedy open to a landlord. As for the remedies listed above, this option loses its appeal if the tenant goes into liquidation, making the landlord responsible for clearing out volumes of wastes when repossessing the land.

Counting the cost

The costs incurred by landlords in dealing with the aftermath of the illegal waste activities have been disproportionate in recent years. Landlords should actively negotiate the terms of their tenants' leases and monitor their tenants' activities to avoid illegal waste operations developing to such an extent that they become unaffordable to rectify.

A case in point

In April 2012, Chelmsford crown court fined Kevin O'Sullivan £34,985 and ordered him to pay £13,000 toward the Environment Agency's costs for renting 16 units at industrial estate he owned for operations involving vehicle breaking, skip waste transfer, waste burning and scrap storage. O'Sullivan told the court he thought his tenants had the correct papers, but none had permits. The court heard that some of the waste was hazardous and had contaminated the ground, while plastics, rubber and treated wood was burned illegally. An extensive clean-up was needed for many of the sites. In addition to the fine and costs award, the court ordered O'Sullivan to hand over £207,000 under the Proceeds of Crime Act for rent payments he received.

Ross Fairley is a partner in the award-winning energy and environment team at Burges Salmon. Contact him on +44 (0)117 902 6351 or at ross.fairley@burges-salmon.com.

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Gearing up for the shale revolution

Like it or not, fracking for gas and oil will go ahead in the UK, but is it environmentally sensible and economically viable? **John Barwise** investigates

Earlier this year, the prime minister David Cameron announced that the government is “going all out for shale”, arguing that the industry “means more jobs and opportunities for people, and economic security for our country”. All the main political parties support shale gas extraction through hydraulic fracturing technology, commonly known as “fracking”.

The prospect of a fracking bonanza has, however, raised criticism over the government’s failure to engage local communities in a balanced debate about the risks and benefits of exploiting sources of unconventional gas and oil. Geoff Maitland, president of the Institution of Chemical Engineers, argues that the fracking debate has been poorly presented: “There are many valid concerns and a huge amount of potential to be gained from exploiting shale gas. For the government, in particular, it’s important that it presents a clear roadmap of what shale gas means to the country’s future, and how it is going to address legitimate concerns.”

Much of that concern focuses on the amount of recoverable reserves and the environmental damage that its extraction could wreak. Is the exploration and extraction of gas and oil in shale rock viable in the UK in both economic and environmental terms?

Adding up the figures

Surveys by the British Geological Survey (BGS) indicate that the UK has significant gas and oil resources buried deep in underlying shale rock, which could be exploited using hydraulic fracturing technology. The Bowland shale, for example, which stretches across much of northern England, has an estimated 37.6 trillion m³ (tm³) of gas trapped within shale rock – known as “gas in place”. In Scotland, the amount of gas in place in the Midland Valley, which runs from Edinburgh and Glasgow, is estimated at 2.27 tm³.

And, while the Weald Basin is unlikely to contain much shale gas, the BGS estimates that around 4.4 billion barrels of shale oil could be located in the area, which stretches from Wiltshire to Kent, and could be exploited using similar fracking technology to that used for shale gas. The BGS estimates also suggest the



Midland Valley in Scotland could contain around 6 billion barrels of exploitable shale oil. Further shale gas resources are also thought to be present in parts of Wales, although further studies are needed.

The UK data is based on shale gas and oil resources and not on proven reserves, which the BGS says cannot be reliably estimated without substantive data from drilling and production rates. Commenting on the data, professor Jim Watson, research director at the UK Energy Research Centre (UKERC), says: "Large resource figures such as those reported by the BGS do not necessarily mean that shale gas will have a big impact on UK energy supplies. It remains to be seen whether it will make economic sense to develop these resources – and how much can be extracted cost effectively."

The US shale industry has expanded greatly over the past decade or so, and economic data from north America suggests there is little agreement on the energy returned on energy invested (EROEI) for unconventional gas and oil. A study published in the US *Journal of Industrial Ecology* reports a mean EROEI of approximately 85:1 for the gas-rich Marcellus shale play, which extends through northern Appalachia, primarily in Pennsylvania, West

Virginia, New York and Ohio. Researchers claim an EROEI ratio of 85:1 is at least as favourable as coal.

J David Hughes, a geoscientist, formerly with the Geological Survey of Canada, says that production forecasts are invariably overestimated. In his book, *Drill, baby, drill*, Hughes argues that shale gas and tight oil fields have a very high rate of decline in productivity and that the EROEI is much lower over time as the costs of extracting these reserves rises. Similarly, in a paper for resilience.org, Richard Vodra, president of Worldview Two Planning, estimates the EROEI for fracking in the region of between 10:1 to 20:1, which makes the economic viability of the industry more challenging. Earlier this year, finance publishers Bloomberg reported that some drilling companies in the US are struggling to keep pace with the rising costs. It reported that the amount of debt posted by 61 US shale companies had almost doubled over the past four years, while revenue had increased by just 5.6%.

The commercial viability of an emerging UK fracking industry will be unknown until production gets underway, although Cuadrilla Resources, which is planning shale operations in Lancashire and west Sussex, calculates that tax revenues from its operations could amount to at least £5 billion over the 30-year lifespan of a project. And, in a bid to encourage investment, George Osborne has halved the tax to be levied on oil and gas companies, saying this would help create more jobs and lower energy bills. "The country that was the first to extract oil and gas from deep under the sea should not turn its back on new sources of energy like shale gas because it's all too difficult," he told MPs in his autumn statement.

UK Onshore Oil and Gas (UKOOG), which represents firms exploiting unconventional oil and gas, commissioned a report by professional services business EY. It concluded that the development of shale gas in the UK could trigger £33 billion worth of investment and create 64,500 skilled and semi-skilled jobs across a wide range of industry sectors. "We are building an industry in this country which will not only potentially give the UK energy security and make a big contribution in tax revenues, but will also bring immense benefits to other industries and create sustainable, well-paid jobs," says UKOOG chief executive Ken Cronin.

Proven process?

Fracking involves pumping water, sand and chemicals down a vertical well at pressure to create fissures in the rock, allowing gas or oil to flow more freely into the well. The process has been standard practice in the US for conventional oil and gas wells for over 60 years and has been used in the UK's North Sea oil and gas fields since the 1970s. Around 200 British onshore conventional oil and gas wells have used fracking since the early 1980s. However, it was the introduction of horizontal drilling technology in the 1980s that, combined with fracking, opened up hydrocarbon-rich shale prospects and unlocked vast new reserves of unconventional shale oil and natural gas.

Fracking has revolutionised the US oil and gas industries. Over 80,000 fracking wells have been



Assessing the impacts

In 2013, Cuadrilla Resources, the first company to explore reserves of shale gas in the UK, engaged Arup to carry out environmental impact assessments (EIA) to support its planning applications for sites where the company planned to drill, hydraulically fracture and test the flow of gas. One of the proposed sites is off the Preston New Road (A583) between Blackpool and Kirkham. Arup produced a 21-chapter environmental statement (ES) – looking at a range of issues, including air quality, lighting, noise, transport, water and visual impact – to accompany Cuadrilla’s planning application to Lancashire county council.

The non-technical summary of the ES contains information on the likely significant effects of the site. It concludes, for example, that the project will not result in a significant effect on air quality. It does, nonetheless, recommend that dust control measures are installed to manage potential sources of dust during site construction. Greenhouse-gas emissions from exploration works at the site are calculated at between 118,435 and 124,386 tonnes of carbon equivalent, with the higher level around 0.002% of the UK’s current carbon budget. Up to 70% of the project’s carbon footprint will be from burning the gas in the flare during the temporary (maximum 90 days per well) initial flow-testing phase. Arup says the location of the site, which is currently used to graze cattle, was chosen so that it avoided direct loss of valuable or sensitive habitats. However, without any mitigation measures there is potential for a significant effect on bat activity, as well as loss of habitat for nesting birds and disturbance and displacement of migratory species of birds. Overall, Arup concludes that the only aspects of the project that cannot be mitigated are the visual effects from the tall equipment that has to be used during exploration, the contribution towards “skyglow” and reflected light from exploration equipment, and the capacity to treat flowback fluid waste.

The non-technical summary produced by Arup is available at lexisurl.com/iema32955 and the full environmental statement at lexisurl.com/iema32956.

drilled since 2005, according to a report by advocacy group Environment America, and the industry now accounts for 40% of US domestic gas production and 30% of oil production. But with thousands of horizontal wells operating across the US, fracking has its problems; groundwater contamination, methane migration and earthquakes have all been linked to fracking activities, with potential risks also to the natural environment and human health.

Defending the US record on fracking, Gina McCarthy, administrator at the Environmental Protection Agency (EPA), argues these issues are manageable through regulations and sound practices. “There’s nothing inherently dangerous in fracking that sound engineering practices can’t overcome,” she says. However, a recent report from the US federal office for government accountability criticises the agency for not doing enough to protect drinking water from risks posed by oil and gas.

The main political parties in the UK have welcomed the new job opportunities and economic growth that the shale industry will potentially provide. Public confidence in fracking is dwindling, however. According to surveys by the University of Nottingham, support fell from 58% in July 2013 to less than 50% in May 2014. Professor Sarah O’Hara, who led the Nottingham research, believes there is increasing unease among the UK public about the environmental and health implications of fracking. “While there is political support by all the main parties for shale gas extraction, it is clear voters have a very different view,” she says.

Regulations governing fracking in the UK are different, and in some ways are more stringent, than those in the US. Unlike in the UK, for example, fracking in the US is largely exempt from regulations to protect drinking water; while the reinjection of fracking wastewater is permitted in the US, but is outlawed in the UK.



The UK's regulatory framework for conventional and unconventional onshore exploration is basically the same, with additional rules for hydraulic fracturing. Drilling consents are subject to planning permission from the relevant minerals planning authority and Decc issues drilling licences to explore and produce oil and gas. Permits and authorisations for water resource protection, the treatment and disposal of extractive wastewater, and emissions to air are required from environmental regulators such as the Environment Agency, with additional requirements for site-based monitoring and reporting. The Health and Safety Executive (HSE) regulates engineering issues, such as well casings and design safety, with risk management monitoring required throughout the lifecycle of each well.

Yet despite the reassurances of a robust regulatory framework, doubts still remain over whether the industry can be effectively regulated. The Chartered Institute of Environmental Health (CIEH) has questioned the government's rejection of mandatory environmental impact assessment (EIA), which is something that has been proposed by the Royal Academy of Engineering, and says the risks posed by fracking are not properly regulated.

Graham Jukes, CIEH chief executive, said the institute had consistently made the case for a full, independent EIA to be carried out on all shale gas extraction proposals before permission to drill is given. "Despite central government encouragement for the process, local authorities should resist allowing shale gas extraction in their areas until they are satisfied on that point," says Jukes. "The CIEH believes that there is currently insufficient evidence to provide such assurance for proposals in the UK and the precautionary principle should apply."

In its latest report, *Shale gas and fracking*, the CIEH highlights major shortcomings in regulatory oversight concerning health risks and says budget cuts and skill shortages could also affect the ability of the Environment Agency and the HSE to regulate the industry effectively.

Local dilemmas

To encourage a positive response from local authorities, the government has announced that councils in England can keep 100% of business rates raised from fracking sites in their area, which will generate millions of pounds of extra revenue for local services. Decc has also announced a new payment of about £20,000 to local communities for each lateral well at fracking sites.

Water consumption and potential contamination linked to fracking are key considerations for local authority planners and regulators. The latest mapping study from the BGS and the Environment Agency reveals that oil and gas-bearing shales underlie almost half the main drinking water aquifers in England and Wales. Dr John Bloomfield at the BGS says the maps serve as a guide for regulators and planners: "We've identified areas where aquifers are in relatively close proximity to shale units and any developments would have to be looked at particularly carefully."

The distance between the shale rocks and groundwater supplies will be a critical factor for

the agency in deciding whether to give companies permission to inject chemicals under pressure to fracture the shale and release gas. "We have strong regulatory controls in place to protect groundwater, and will not permit activity that threatens groundwater and drinking water supplies," says Dr Alwyn Hart, head of the air, land and water research team at the agency.

The water industry body, Water UK, says there are inherent risks to water quality, water quantity and wastewater associated with shale activities. Pamela Taylor, chief executive at Water UK, says: "Our members are determined to ensure any potential risks of shale gas extraction are minimised." Water UK has signed a memorandum of understanding (MoU) with UKOOG to assess the risks and impacts of onshore oil and gas development on the quality and quantity of local water resources. "The MoU gives water companies a crucial extra layer of safeguards on top of the existing regulations to help ensure water supplies and the environment is protected," reports Taylor.

In its latest move to fast track fracking in the UK, the government has confirmed its intention to change trespass laws to allow companies to drill under buildings and land without the permission of the owners. The crown owns all subsurface minerals but, under current access laws, drilling companies still have to apply to landowners for access. This is problematic for fracking companies, because horizontal drilling under private land would require multi-access permissions.

The UK has a relatively high population density and, given that horizontal fracking can extend several miles from the wellhead, drilling under private property is inevitable. The government maintains that its proposals "would simplify procedures which are costly, time-consuming and disproportionate for new methods of underground drilling".

In return, the shale gas and oil industry is offering an additional package of financial incentives for local communities, including a lump sum of £100,000 to be paid when a test site is fracked, plus 1% of the revenues raised from the site. Meanwhile, the chemical company, Ineos, which has purchased the rights to explore shale gas in about 329 km² of the Midland Valley near its Grangemouth site, has unveiled a plan to pay 4% of future revenues to landowners and a further 2% to local communities, which could be worth a total of £2.5 billion.

The government is determined to press ahead with fracking, as it sees shale oil and gas as integral to the UK's energy security and a boost for local jobs and the economy. The proposed tax breaks aim to encourage more investment in the industry and the regulatory framework is deemed sufficient to effectively regulate environmental impacts and planning issues. Despite these reassurances, opposition to fracking continues to gather momentum, even with the cash inducements on offer. The government has yet to win the argument that regulation and sound practices will be enough to mitigate the social and environmental risks involved.

John Barwise, FIEMA, CEnv is a director at QoL, an environmental management and communications consultancy.

Collaborating on efficiency

the environmentalist learns how Defra and Interserve are working together to make the department more sustainable

In December 2008, Defra signed an outsourcing agreement with facilities management and support services company Interserve. The financial scale and duration of the contract – around £750 million over 15 years – was not particularly remarkable, but the sustainability targets attached to the deal distinguished it from many other facilities management (FM) contracts. It also differed from typical FM contracts in that Interserve is also responsible for more strategic services, such as energy management.

At the time, the sustainable built environment workplace support contract (SBEWSC) covered 186 sites, including laboratories and offices, and required Interserve to achieve annual savings and continuing cost reductions over the 15-year term of the contract; to invest in the Defra estate to achieve sustainability targets for waste and recycling, energy and water consumption, carbon emissions and biodiversity; and to improve sustainability and environmental performance through, for example, behaviour change and more efficient accommodation use.

Almost six years into the contract, how is it working? Is Interserve meeting its performance targets? What has changed since 2008? These are some of the questions put to Mark Hoult, head of built environment sustainability at Defra, and Rebecca Vowles, head of sustainability, civil government at Interserve.

Moving targets

Much has changed since the deal was struck in 2008. New pan-government environment and sustainability targets were set in 2011, while all central government departments have had to make financial savings, which in Defra's case has resulted in a significant reduction in its estate.

The targets in the original contract were related to the then administration's sustainable operations on the government estate (SOG) goals. Introduced in 2006, the SOG targets included: a 12.5% reduction in carbon emissions from government offices by 2010/11, relative to 1999/2000 levels; departments to reduce waste arisings by 5% by 2010, relative to 2004/05 levels; and cutting water consumption by 25% on the office and non-office estate by 2020, relative to 2004/05 levels.

SOG targets were replaced in April 2011 by the greening government commitments (GGC). Like SOGE, the GGCs focus on a number of high-level targets. These are to be achieved across the lifetime of the current parliament (2010–15), and include: reducing greenhouse-gas emissions across the whole government estate and business-related transport by 25%, from a 2009/10 baseline; and cutting the amount of waste produced by government departments by 25%, against 2009/10 levels. The water target is to reduce consumption towards a best practice benchmark of less than 6m³ per full time equivalent employee a year.

In addition to this, in 2010, the new government set an "in-year target" for central government departments to cut carbon emissions by 10% in 12 months.

Defra's network estate programme aims to significantly reduce the annual running cost of its estate. This means the department is reducing the number of sites it operates. In London, for example, one office has replaced three; while across the country, Defra and its network bodies are increasingly co-locating with other public sector bodies to make better use of space. The closures have saved money, but have done little to reduce Defra's total carbon emissions. "We have been downsizing the estate and closing office buildings, but the overall carbon footprint has not been majorly affected," says Hoult.

That is because two sites – the Food and Environment Research Agency (Fera) site near York and the Animal and Plant Health Agency (APHA) laboratories site at Weybridge – account for a significant element of Defra's energy consumption. The Defra estate consists of "office" and "non-office" facilities, such as laboratories. The non-office estate consumes about 75% of the total energy consumed by Defra and its executive agencies; and the York and Weybridge operations consume about 90% of the non-office energy use. "Operations at these facilities dwarf everything else," says Hoult.

He points out that the Interserve contract covers only around 40% of the combined floorspace of Defra's sites, however. "The Environment Agency, Kew Gardens and Forestry Commission are outside contract," he explains, adding that the agency sites



alone constitute around half of the department's overall floorspace. Sites served by Interserve, nonetheless, account for 50% of Defra's greenhouse-gas (GHG) emissions, which in 2012/13 totalled more than 112,000 tonnes.

The rationalisation of the estate does present Interserve with a specific challenge. It means that projects to reduce energy use, for example, have to pay back within the lease period. "We understand that rationalisation is the right thing for Defra and is actually producing energy savings. It is about getting the right balance between the potential carbon savings and the return on investment," says Vowles.

Ongoing performance

Vowles says that while the switch from SOGE to GGC targets did not present too much of a change for Interserve, achieving the interim 12-month target, set immediately by the new government in 2010, was more challenging. "We had 12 months to find a further 10% saving from about 50 offices nationwide, having already been reducing emissions from these sites," she says. In the event, Interserve needed to reduce carbon emissions from these offices by

10.18%, which is equivalent to 1,298 tonnes of CO₂ (tCO₂). Across the whole Defra estate, emissions over the 12-month period declined by 11.7% or 1,496 tCO₂. "That's equivalent to driving a diesel-fuelled Ford Fiesta to the Moon and back 20 times," says Vowles.

In terms of the SOGE targets, the parts of the Defra estate serviced by Interserve had, by 2010/11, reduced carbon emissions by 36.4% compared with 1999/2000 levels, while waste arisings were 29.9% lower and recycling levels up by 40.8%.

The most recent GGC data (2013/14) reveals that across the Interserve managed estate, carbon savings since 2009/10 total 17.5%, and emissions have declined by 19% across the whole of Defra. Waste arisings over the same period in offices and laboratories covered by Interserve are down 43.6% (32% across all of Defra), and water consumption has been reduced by 6.3%. Water use across Defra as a whole increased slightly (by 1%) in 2013/14 due to a water leak at Kew Gardens in 2013, but is down 15% overall when figures from this incident are removed.

Unique challenges

Vowles says that the nature of the Defra estate presents unique challenges. She explains that energy consumption and waste from the large laboratory sites, such as Weybridge, can vary enormously, depending on the type of research being undertaken. It can also be difficult to access some areas and implement energy conservation initiatives, for example, energy "shutdowns" during holiday periods such as Christmas, as research tends to be ongoing and to last for several months. "This can present a difficulty when deciding which projects to take forward," says Vowles.

An example of the operational demands that can make it difficult to install new equipment is the rainwater harvesting system at the Weybridge laboratory. Livestock drinking water and washing facilities account for 75% of the site's annual water consumption. Prior to the rainwater harvesting system being installed, this water was drawn from the mains supply. Domestic regulations require animals to have access to clean water, while EU regulations require the water to be suitable for human consumption. Water from the proposed rainwater harvesting system, which Vowles describes as a relatively simple solution to cutting the amount taken from the mains supply, therefore had to meet this criteria. Interserve piloted the rainwater system, using a filtration unit to ensure that the supply met the quality standard.

"We had to prove that the system could provide water that was beyond drinking water quality," says Vowles. She reports that in the first five months that the system was in operation across the site, just 5m³ of mains water was used to top it up.



Taking action

At the beginning of the Interserve contract, Defra made funding available to Interserve to finance projects selected by the contractor to improve environmental and sustainability performance. Projects are now developed in partnership. For example, Hoult will commission energy surveys – by Interserve and others – to inform a programme of work, which he will discuss with the sustainability team at Interserve to identify what equipment to install and which measures are necessary to reduce consumption.

Hoult explains that investment decisions are usually based on the payback period, which has lengthened since Interserve started. “In the early years, when there was a lot of ‘low-hanging fruit’, such as installing voltage optimisation equipment, return on investment (ROI) was typically three to four years. Now, because all the ‘quick wins’ have been achieved, ROI is averaging about seven to eight years.”

So-called quick wins include adjusting heating and ventilation systems to improve efficiency and better manage occupant comfort; reducing the temperature in Defra buildings to 19°C during the winter months, which has reduced gas consumption by 23%; raising the cooling temperature in server rooms to 24°C; replacing inefficient lighting systems; improving buildings’ insulation and draft-proofing; and engaging staff to get their ideas and tips for reducing energy consumption and encouraging them to reduce the amount of energy they use.

Hoult also says Defra takes a strategic approach to investment, linking sustainability measures and equipment replacement. “We consider longer paybacks, say 12 to 15 years, where there is not just a sustainability benefit but also a business benefit, such as the need to replace the ‘kit’ anyway.”

Biomass boilers are an example of accepting a longer ROI. The Starcross facility in Exeter, which is occupied by an APHA investigation centre and laboratory, as well as the Environment Agency, has replaced its old oil-fired boilers with a biomass boiler and two backup oil-fired boilers for heating. The total cost of the

project was £275,000. Annual savings from reduced energy costs and those associated with the carbon reduction commitment scheme amount to £25,000 – so, on current costs, payback is 11 years. The biomass boiler also reduces carbon emissions from the site by 340 tonnes a year.

Other projects have a much quicker ROI, however. Replacing standalone chilled-water services in three animal health buildings at Defra’s Weybridge site with a centrally controlled absorption chiller, for example, cost the department £240,000, but is saving up to £90,000 in annual energy costs.

Going forward

Hoult says the next phase of the Interserve contract will focus on further improving the energy efficiency of the Defra estate. A key activity will be ensuring workplace managers and onsite FM personnel have the information, processes and communication channels in place to enable them to take better decisions.

One example of supplying staff on the ground with better information is the energy bureau platform that Interserve personnel can now access. It provides FM and building managers with half-hourly meter data so they can see how their building is functioning and better understand the consequences of the decisions they are taking. Defra staff attending meetings of Interserve’s workplace managers have improved communication recently. “The meetings provide an opportunity to discuss Defra’s targets with our staff and what we are doing to achieve them,” says Vowles.

She believes this communication will help overcome some of the control issues, such as the difficulty in shutting down some buildings during holiday periods.

Hoult agrees. “Better communication of policies and targets is really important,” he says, adding that Defra has created a process to gather information from workplace managers on what is working at their sites and what needs improving or replacing, in terms of equipment. “Having that information will enable us to take better decisions and make the estate even more efficient,” he says.



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Transparency is good – isn't it?

Demanding that a company is completely open is not always best, suggests **Jiggy Lloyd**

In almost every walk of life, there are examples of people striving for greater transparency – to provide it, to receive it or both. This is not just an observation from the world of corporate social responsibility (CSR) and sustainability. Politicians must be more open about their business interests; the press about their information sources. The boards of publicly funded bodies hold meetings in public; healthcare professionals know that patients will have access to records. With social media, we are told we now have a “climate of radical transparency”.

I am in favour of transparency – by which I mean a willingness to disclose. But I have been working in the CSR and sustainability field for long enough to know that a blanket demand for transparency can be misguided. That is why a more measured approach should be adopted.

The good...

Let us start with the question: why is transparency a good thing? There are probably three main reasons. The first is practical. Without transparency, regulators, shareholders, analysts, voters, consumers and a whole host of others would not be able to do their job or exercise their rights as stakeholders. We need information on which to base judgments; transparency makes the information available to us.

Second, transparency has the status of a “surrogate” indicator – we rely on it as a measure of things that are harder to assess. In all walks of life, there is a tendency to “take comfort” from disclosure; there is a belief that a willingness to disclose is indicative of good behaviour, while secrecy suggests the opposite. There are obvious dangers in relying on transparency in this way, and the scope for misinterpretation or even abuse is obvious. In a recent survey of socially responsible investment

(SRI) analysts, it was found that more than half relied on participation in the Dow Jones sustainability index as an indicator of good practice, regardless of the score obtained. Nevertheless, to be reassured by transparency is an understandable human tendency and to act transparently is – I hope – still a reasonable indicator of underlying values and performance.

Third, we come to what might be considered the real reason. Many will argue – and I am one – that if something is relevant to an individual, perhaps affecting their livelihood or wellbeing, it should be shared with them. And in an interconnected world, a lot of things are relevant and should be shared. This is a tricky road to go down because, sooner or later, you meet that other important value, “privacy”, coming the other way. Striking the balance between transparency and privacy is a challenge for all, including the sustainability professional.

...and the bad

Simple advocacy of transparency raises concerns, however. One is the risk to “thinking out loud”. Every organisation, be it a private company, public body or non-governmental organisation, requires space in which its members can reveal their thoughts and opinions in the course of decision making. Many environment professionals will have attended a “public” meeting of a public sector body that was preceded by a private or pre-meeting session. Until we inhabit a world that is not shaped by soundbite and single-issue point scoring, we have to allow privacy (and hence deny transparency) for an organisation to develop its thinking before the “considered” view emerges. If we don’t, we may be throwing the “baby” (a better organisational decision) out with the “bathwater” (secrecy).



I am also concerned that demand for transparency contributes to greenwash. We live in a world where words are easier to deliver than actions. This is especially true of organisations in which management is less hierarchical but more dispersed. If organisations are expected to articulate policies on everything, and those expectations come without corresponding attention to relevance or robustness, there will be a temptation and a tendency to greenwash. Lawyers skilled in cross-examination say you should never ask a question to which you do not know the answer. Perhaps the sustainability profession should adopt a similar mantra: do not seek information that will have no bearing on your decision-making.

This is not to say that I condone poor organisational practice where policies are not actually delivered. All policies should be robust, evidenced thoroughly and wholly reliable. But as anyone who has worked in an organisation will testify, that is difficult to achieve.

Lastly, there is the question of cultural attitudes. It is an inescapable fact that attitudes to transparency vary according to culture. Contrasting my professional experience in north America with that in parts of Asia – and generalising for the sake of brevity – I can say that the former tends to a climate in which improvements are emphasised to demonstrate that things are getting better, while in the latter it is uncommon to refer to weaknesses, past or present. Colleagues working in Japan report similarly; respect for your predecessors and seniors (in age or authority) must be evidenced in all communications.

Relevant information

Just as financial disclosure reflects global economic history, there is a certain European hegemony in CSR and

sustainability reporting. Yet there is increasing evidence that transparency is a growing trend internationally. Indeed, there are now more CSR/sustainability reports produced in China than in the US; though more than half of the total worldwide are still from within Europe. Coupled with integrated reporting, we can look forward to more access to relevant information.

But it is still the case that organisations responding best to expectations of full disclosure tend to be large and operating internationally. This is not representative of the economy worldwide. There are many organisations – small, not-so-small, private and public – whose activities are significant to us all, but to whom the requirements of the Global Reporting Initiative, for example, would seem intrusive, excessive or even bizarre. Significantly, many such organisations are not averse to sharing information, but do so in a different way. SRI analysts and others will affirm to the willingness of these organisations to respond to a specific approach, or a specific question, where the purpose is clear and where there can be a dialogue more akin to a private conversation.

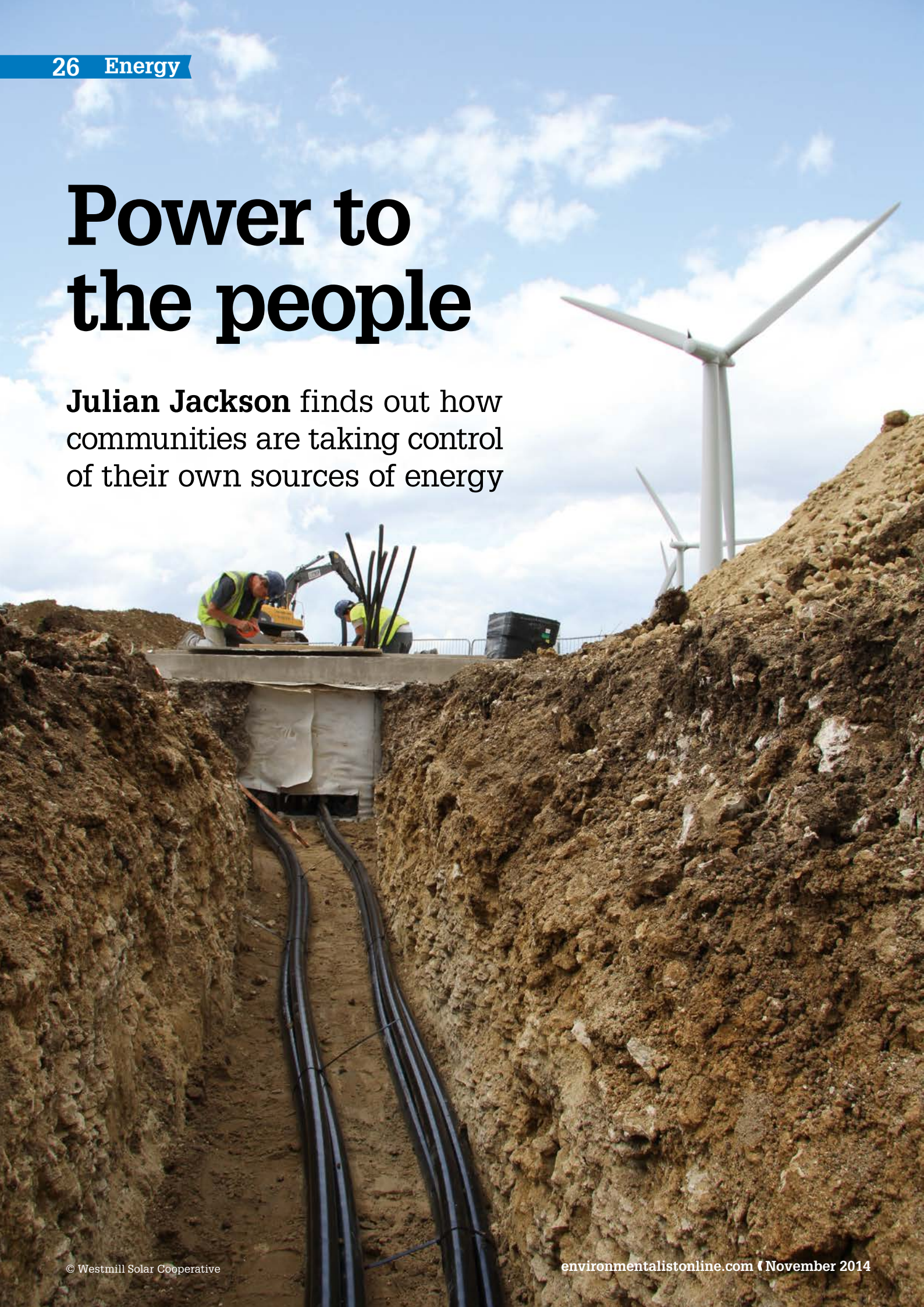
Transparency is good practice, but it does not of itself deliver accountability and it can be a distraction. CSR and sustainability professionals can help to ensure that the trend to disclose heads in the right direction by upholding the principle with qualifications. It should be relevant, robust, responsive and respectful of both culture and privacy.

Jiggy Lloyd is an independent environmental consultant. She is a former non-executive director at IEMA. For more information go to jiggylloyd.co.uk.

In a future article, Lloyd will discuss how to ensure disclosure does not become selective, where an organisation is open about certain topics but silent on others that are equally relevant.

Power to the people

Julian Jackson finds out how communities are taking control of their own sources of energy



Decc unveiled its community energy strategy at the start of the year. In his foreword, energy and climate change secretary Ed Davey said there was the potential in the UK for community schemes to generate enough electricity for one million homes by 2020. The strategy notes that, as well generating energy, putting communities in control can be more effective in reducing consumption and managing energy demand.

Although Decc confirms that more than 5,000 groups across the UK are already working to transform how their communities are using energy, the country has a very poor track record in this area compared to some others. In the UK, communities own less than 1% of renewables capacity, whereas in Germany, for example, it is more than 40%. And, in Denmark, the majority of wind turbines are wholly or jointly owned by citizens, communities, landowners and farmers, rather than exclusively owned large energy firms.

The German and Danish experience can be replicated in the UK, but the pioneers of community energy in this country need to be very dedicated to battle the bureaucracy, as well as a tendency for top-down institutions to regard a cooperative, participatory model with suspicion. This has made it a rough ride so far. However, from the brooks of Abergwyngregyn in Wales to the roofs of Brixton in south London, determined people have found ways to make community energy schemes a reality.

Benefits in kind

Baywind was the first community-owned wind project in the UK. It was registered as an Industrial and Provident Society in 1996. This is a form of limited liability company and is often used for cooperatives and community-owned mutual organisations, as it can balance such ownership with the legal protection of limited liability. Baywind owns six wind turbines in Cumbria, having raised around £2 million to purchase the turbines.

The cooperative currently has over 1,300 shareholders, most of whom reside in the north of England. Its governing body is an elected board of nine members; one of these is Baywind's only full-time staff member. Investors in the scheme have been paid back between 7% and 8.2% interest per annum. Founder and community shareholder Richard Scott says: "When you look up the hill and see the turbines going round, it gives you satisfaction and a feeling of ownership."

The Decc strategy says independent modelling estimates that community electricity could generate between 0.5GW and 3GW from a mixture of solar PV, onshore wind and hydro projects by the end of the decade. This represents between 2.2% and 14% of the total installed capacity of these technologies, and between 0.3% and 1.4% of the UK's entire electricity consumption in 2020. The analysis also suggests that beyond 2020, community electricity has the potential to make an even greater contribution.

Above and beyond the potential for community-owned energy schemes to help tackle climate change, Decc has identified several other likely benefits. These include:

- **Stronger communities:** Community energy activity can bring local people together to achieve something for their community and take action on issues that matter to them.
- **Skills, education and work experience:** Community members can benefit from opportunities to learn new skills through involvement in community energy activity; some schemes have specifically engaged young people in work experience or energy and climate change education activities. Community energy projects can build confidence and skills both within the group and more widely.
- **Financial benefits:** In addition to saving money on energy, locally-owned energy can present opportunities to generate income for the community, through feed-in tariffs (FITs) for generation of renewable electricity and renewable heat incentive (RHI) payments for generation of heat; or through part ownership of larger commercial energy developments.

The money

Often, individual investors buy shares in community projects and obtain tax relief via the enterprise investment scheme or the seed enterprise investment scheme. This is the method used to raise capital for the Brixton solar projects run by Repowering London. Chief executive Agamemnon Otero says that Repowering London is more than just installing solar panels. "It is about creating social, financial and environmental returns in the local community," he explains.

Brixton solar is on its fourth project. The previous three projects put 134.5KW of solar panels on the roofs of council flat-blocks in Brixton estates. After operating costs are deducted, profits resulting from the sale of energy are used to support local energy efficiency initiatives and provide cooperative members with an annual return on their investment. Otero says that Decc's support was crucial to the project and it is good that Davey has now set up a unit specifically to promote community energy.

Local residents can apply for paid internships, lasting between six and eight months. They receive training about the financial, legal, information technology and technical elements of renewable energy. Young people have been particularly enthusiastic to join, says Otero, but there have also been a number of older people who want to reskill in renewable energy technologies. Initially sceptical, Lambeth council now backs the project, having observed the impressive results. Repowering London sees itself as an umbrella organisation, and is now mentoring and supporting projects in Hackney, Vauxhall and Haringey. Otero is bullishly positive about community energy, but even he admits that it can be a hard road to follow.

The opposite end of the community scale is Abergwyngregyn, a tiny village in Snowdonia national park in Wales. It has a population of around 250 people and contains about 100 properties. Like many similar rural areas, it has suffered the loss of local amenities, including its pub and shops. The Abergwyngregyn Regeneration Company (ARC) was established in

Companies and councils come to the aid of community energy

A number of companies and several local authorities are helping communities to realise their ambitions to develop local energy generation. This includes firms in the energy sector, such as **Northern Powergrid**. It launched a £50,000 community energy seed fund in August, which offers grants of up to £10,000 to help get community energy projects off the ground in its licence areas – the North East, Yorkshire and Humber, and parts of north Lincolnshire. The money is available for purchasing expert advice and feasibility studies. Meanwhile, **Ovo Energy** published a community energy white paper and launched its platform for community energy in April. The platform provides community projects with access to Ovo expertise, infrastructure and systems. **Scottish and Southern Energy** (SSE) helped to finance the first projects developed by Bath & West Community Energy. SSE's £1 million loan is to fund 400kW of solar photovoltaic (PV) installations in up to 12 projects, mainly local schools, in the area.

The **Co-operative Group's** community energy challenge was launched in 2012 and seven community groups, including the Abergwyngregyn Regeneration Company (see main text), were selected to receive money from a £1 million pot to set up and run their own renewable energy schemes. Successful schemes are assigned an expert mentor and receive support for project planning, community facilitation and enterprise development, as well as technical assistance.

Lewes-based **Harveys Brewery** joined forces with OVESCO (the Ouse Valley Energy Services Company) in 2011 to install a 98kW solar PV array on the roof of brewer's main storage and distribution warehouse in the town. The 544 PV panels will

generate 93,000kWh of green electricity each year – enough to save more than 40 tonnes of carbon annually. Community shares funded the project. The **John Lewis Partnership**, which operates the John Lewis stores and Waitrose supermarkets, is buying energy from **SmartestEnergy**, the leading purchaser of independently generated electricity in Great Britain. Its suppliers include the Undy Community Turbine, the first wholly community-owned, built, financed and operated wind turbine on the Scottish mainland.

Local authorities providing support for community energy projects include **Oxford city council**. In June, the council provided the Low Carbon Hub with a loan of £2.3 million to enable the Oxfordshire-based social enterprise to install solar panels on more than 25 schools and businesses in the area. The projects together will generate over 1MW electricity and save 750 tonnes of carbon a year, and are part of a pipeline of community solar and micro hydro energy projects that the hub is developing across the region. **Bristol city council** provided Bristol Energy Cooperative with initial seed funding through its community energy catalyst fund. The £50,000 “revolving” fund is to help community projects make the transition from a well-thought-through idea to a successful working enterprise, and grew from a recognition that access to finance and expertise are often the main barriers to realising a community energy scheme.

Engineering company **Siemens** has offered its backing for community energy projects by providing products and services for such initiatives. Its decentralised energy management system has been developed to connect and pool small-scale distributed energy sources so they can be operated as a single “virtual power plant”.

order to improve the social and economic wellbeing of residents. Over the past 10 years, it has successfully developed a range of community projects, including the purchase and renovation of an old mill, which now houses a café and community centre.

In 2011, the ARC started the development of a community-managed hydroelectric scheme called the Anafon hydro scheme. This is intended to generate around 275KW from Aber Valley river water. The main funding is being delivered by a commercial lender (see panel, above) and will be paid back over five to 10 years. Planning permission has been granted and the scheme is expected to start construction this year. Another project, the Talybont-on-Usk hydro scheme delivers an annual income of about £25,000 per year and the Anafon project is likely to make a similar return.

Working together

Energy4All is the umbrella organisation that runs Westmill Wind Farm cooperative and Westmill Solar, on an organic farm in the south east of England. Each year, the wind farm produces enough green electricity to power 2,500 homes, avoiding 5,000 tonnes of carbon dioxide emissions. The 5MW solar farm, meanwhile, consists of 20,000 solar panels, which generate enough power for 1,400 homes and prevent 2,000 tonnes of carbon. The cooperative has 1,650 members. Philip Wolfe is chair of the cooperative's

board and is a pioneer of UK renewable energy. He is the former chief executive of what is now BP Solar and was director general of the Renewable Energy Association from 2003 to 2009. Wolfe comments: “Westmill's solar park has performed ahead of expectation and we have been able to make our first member interest payment this year as scheduled. We are also making a partial return of capital.”

He is confident that the solar park will continue to operate until the end of the FIT period – another 22 years. Wolfe explains that Westmill Wind Farm set up a local charitable trust called Westmill Sustainable Energy Trust (WeSET), which supports energy efficiency and sustainable energy projects in the local community. Westmill Solar is expected to contribute to WeSET also.

Community-owned projects are able to deliver value for local communities, over and above the revenue provided by electricity generation. Research by Community Energy England reveals that community-owned renewable energy businesses deliver £137 of social investment for every £100 of tax relief given to their members. The question is, as usual, whether the government and policymakers are committed enough to deliver an overall framework as we see in Germany and Denmark, or whether things will amble along with piecemeal developments so that the sector fails to realise its full potential.

Julian Jackson is an environment writer.

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Raising standards



Environment and sustainability guidance

Part one of our series (September 2014) looking at environment and sustainability standards focused on some of those associated with ISO 14001, the global benchmark for environment management systems. The second part contains several

more ISO standards that are part of the 14000 “family” – environmental management – as well as management standards and guidelines for energy and sustainability. Part three of the series will focus on standards for auditing management systems and for reporting.

Standard/guidance	Details
14051 – material flow cost accounting (general framework)	Material flow cost accounting (MCFA) traces and quantifies into physical units the flows and stocks of materials in an organisation, as well as their associated costs. MCFA aids environmental management accounting. 14051 provides an MCFA framework consisting of common terminology, objectives and principles, fundamental elements and implementation.
14062: 2002 – integrating environmental aspects into product design and development	14062 supports the identification of the likely effects on the environment of new products, helping organisations to make decisions in the design and development stages so as to improve environmental performance. It describes concepts and practices relating to the integration of environmental aspects throughout the six typical stages of the design and development process: planning; conceptual design; detailed design; testing/prototype; market launch; and product review.
14063: 2006 – environmental communication (guidelines and examples)	14063 offers guidance on the general principles, policy, strategy and activities relating to both internal and external environmental communication. It gives examples and suggestions for effective environmental communication, and includes references to existing voluntary guidelines and approaches that are available to help improve the quality of environmental reports and communications.
14071: 2014 – lifecycle assessment (critical review processes and reviewer competencies)	14071 provides additional specifications to 14044 (see part 1), which relates to lifecycle assessment (LCA), including requirements and guidelines for conducting a critical review of any type of LCA study, and the competencies required for the review.
50001: 2011 – energy management systems (requirements with guidance for use)	50001 presents a framework of requirements for organisations to: develop a policy for more efficient use of energy; fix targets and objectives to meet the policy; use data to better understand and make decisions about energy use; measure the results; review how well the policy works; and continually improve energy management. 50001 is compatible with 14001 and 9001 (quality management). As well as 50002 (below), ISO is planning several more standards on energy management, including: 50003 on requirements for bodies providing audit and certification of energy management systems; 50004 on guidance for the implementation, maintenance and improvement of an energy management system; 50006 on measuring energy performance using energy baselines and energy performance indicators; and 50015 on the measurement and verification of energy performance in organisations.

Standard/guidance	Details
50002: 2014 – energy audits (requirements with guidance for use)	50002 sets out the basic principles and requirements for carrying out energy audits and harmonising common auditing processes. It also enables organisations to compare results across similar sites.
16247-1 – energy audits, part 1 (general requirements)	The European standard EN 16247-1, which was published in 2012, supports EU directives, such as the Energy Efficiency Directive (2012/27/EC). Four more standards in the 16247 series are planned. Both 50002 and 16247 can be used for energy audits under the UK's energy savings opportunity scheme (ESOS).
16212: 2012 – energy efficiency and savings calculation (top-down and bottom-up methods)	EN 16212 provides a general approach to calculating energy savings in buildings, cars, appliances and industrial approaches, for example. It covers energy consumption in end-use sectors rather than energy supply, such as in power stations.
16231: 2012 – energy efficiency benchmarking methodology	The European standard EN 16231 specifies requirements and provides recommendations for energy efficiency benchmarking methodology. It describes, for example, how to establish the boundaries of what is being benchmarked, and provides guidance on the criteria for collecting, processing and reviewing the data.
16258: 2012 – methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers)	EN 16258 specifies general principles, definitions, boundaries, calculation methods, apportionment rules (allocation) and data recommendations for calculating energy use and greenhouse-gas emissions of transport services. These include operators, such as freight or passenger carriers, and users, such as shippers.
20121: 2012 – event sustainability management systems (requirements with guidance for use)	The international standard 20121 defines the requirements for an event sustainability management system for any type of event or event-related activity, and provides guidance on compliance. It focuses on establishing, implementing, maintaining and improving a management system to act as a framework for identifying the potentially negative impacts of events, removing or reducing them, and capitalising on the positive impacts through improved planning and processes. 20121 replaced the British standard 8901: 2009 and was used by the organisers of the London Olympics and Paralympics in 2012.
8900-1: 2013 – managing sustainable development of organisations (guide)	The British standard 8900-1 provides guidance on managing sustainable development and a framework for embedding it in the organisation's day-to-day decision making. It includes a maturity matrix (pp.32–33) to assess progress, clarify next steps and combine the principles underpinning the management of sustainable development with practical implementation. 8900-2: 2013 provides a framework for assessment against 8900-1. It is not a management system specification; rather it provides a strategically based framework to direct and lead an organisation's approach to the management of sustainable development.
8903: 2010 – principles and framework for procuring sustainably (guide)	8903 sets out a comprehensive framework to implement sustainable procurement processes across all supply chains.
8905: 2011 – framework for the assessment of the sustainable use of materials (guidance)	8905 provides a framework for the concepts, techniques, tools and methodologies that can be used to support decisions on the sustainable use of materials. It is designed to help an organisation select materials that maximise positive social, environmental and economic contributions and minimise negative impacts.



Getting to the point

Materiality is an area of reporting that many companies find hard to do well. **Kye Gbangbola** on determining what is critical to the firm and its stakeholders

Determining “what is material and where” is arguably the main focal point of sustainability reporting. The Global Reporting Initiative (GRI) states that: “Material topics for reporting should include those topics that have a direct or indirect impact on an organisation’s ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large.” As such, it is important that organisations know how to identify what is material or most important to their stakeholders. The objective in determining what is material is to identify topics from an organisation’s day-to-day activities that have the greatest impact on its sustainability.

The GRI notes that the materiality focus of sustainability reports is broader than the traditional measures of financial materiality. “In financial reporting, materiality is commonly thought of as a threshold for influencing the economic decisions of those using financial statements, investors in particular. The concept of a threshold is also important in sustainability reporting, but it is concerned with a wider range of impacts and stakeholders.”

The outcome from determining the material topics is a priority focus on measuring and monitoring what matters; those topics that have the greatest impact, relevance and risk. The reason for this approach is highlighted by the analogy of packing a backpack for a hike: you take only the supplies that are critical, otherwise the weight will slow you down and eventually bring you to your knees.

The problem for many businesses is a lack of methodology to focus on what matters, resulting either in an initiative overload and failure to achieve sustainability objectives by trying to do too much or insufficient understanding of which areas of sustainability enhance the organisation’s performance.

Starting the journey

Sustainability reporting requires stakeholder participation. At times, this can be broad and involve large numbers of stakeholders; at other times, it can be narrow and involve only the key stakeholders. This engagement is crucial to materiality.

Reporting is commonly considered to encompass the development of knowledge of how the organisation’s operations affect communities and how performance can be improved. Briefly, an organisation must *prepare* itself for change. It should then *connect* with its broad range of stakeholders in a structured manner to consider the areas and aspects to be addressed. The next phase is known as *define*, which considers the list of material aspects gathered from the previous two phases.

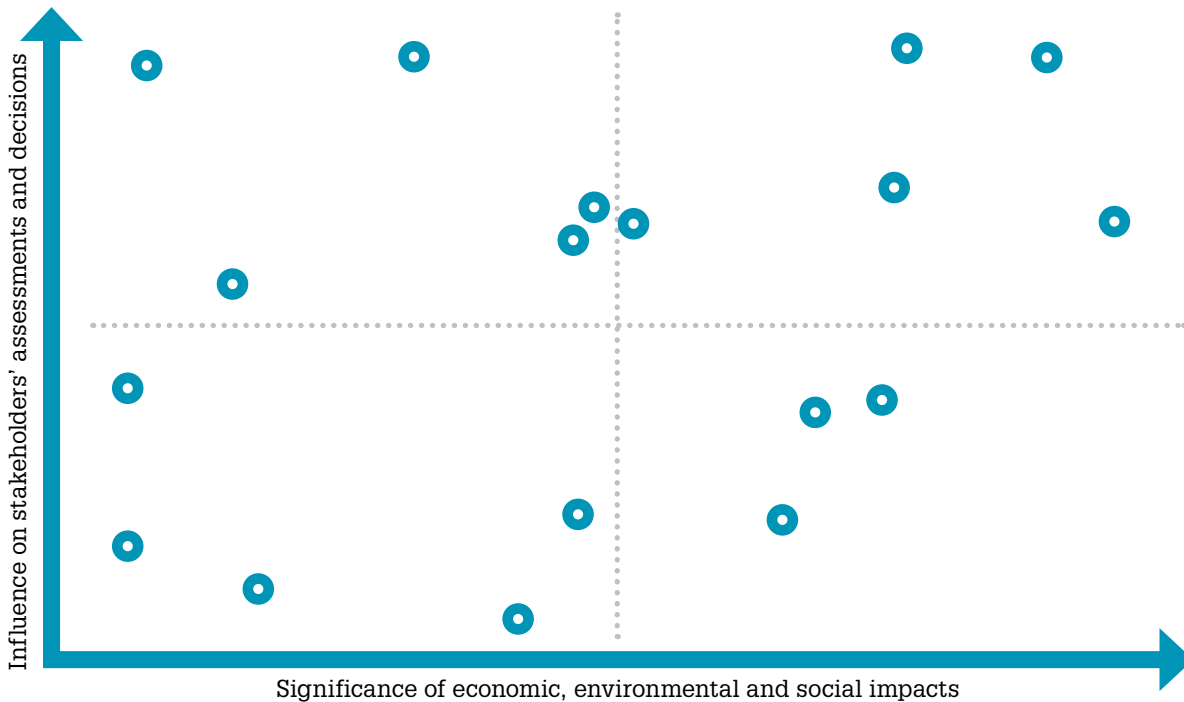
This third phase is where organisations identify what is material. During this stage, it is best to reduce the number of stakeholders to the few that are most knowledgeable and experienced, and who hold most corporate strategic authority. I liken this transition to panning for gold – having collected material from a given source, the sieving process that follows reveals the precious material topics sought. The sieving uses a methodology called materiality testing. Its focus on the material enables reports to be more concise and act as strategic tools of engagement to reinforce how an organisation’s business model creates and sustains value.

A helpful example of the sieving effect was used in the reporting for London 2012. The games had a huge array of national and international stakeholders in the connect phase, including athletes, team officials, broadcasters, suppliers, workforce, and spectators. The types and groups of stakeholders that organisers LOCOG consulted for the define phase and to determine what was material was much smaller, consisting mainly of the executive and key delivery partners, including the London 2012 delivery authority and the



Materiality scatter matrix

Source: Global Reporting Initiative



International Olympic Committee. Locog engaged these key stakeholders to consider a shortlist of sustainability issues through several workshops, the outcomes of which was the set of material issues.

Boundary issues

In identifying what is material, an organisation should determine the “boundary”. This refers to the extent of the organisation and supply chain it wishes to include or exclude – for example, the US, European and Asian operations. The parts of the supply chain to be included should also be identified where there are activities that have a material impact on the organisation’s ability to be sustainable. It is no longer good enough to turn a blind eye to impacts because the organisation does not have full control over them.

The G4 GRI guidelines place greater emphasis on boundaries when determining material issues. They advise that when setting boundaries, an organisation should consider both internal and external impacts. Boundaries should be described in sufficient detail in reports to identify where exactly in the organisation the impacts occur or where outside of the organisation the impacts take place, the guidelines say.

The outcome of using a materiality methodology and identifying boundaries can be shown on a materiality matrix (see example, above), which indicates and ranks the importance, relevance and risks of material impacts. For example, those in the upper right-hand corner are the organisation’s greatest material impacts, as considered important by stakeholders, management and for the planet. A focus on material items distils the key issues for an organisation to help generate clear, concise reports that concentrate on the “value-creation” story – that is, what you did, what you gained from it, how you did it and the outcome. However, an organisation remains

free to measure, manage, change and self-improve any of its lower priority sustainability impacts in the lower quadrants of the materiality matrix, while the final report focuses on the priority areas. The materiality matrix itself should be placed in the final sustainability report.

Next step

If materiality is done well, the organisation will have prepared itself for the next stage of the journey, which is the *monitor* phase. By following the first three steps, the organisation will have heeded the warning to take forward only what is needed to avoid being overburdened and overloaded with measurements that detract from the key purpose of improving margins and creating efficiencies while reducing risk.

Avoid overloading an organisation with a host of different things to measure, as this risks bringing it to its knees. Aim instead for seamless transitions that focus on the material and which enable effective benchmarking of performance. During this phase, the principal question an organisation should ask is: what does an adequate response to the material issues identified in the define phase look like, based on the organisation’s level of ownership, control and influence?

Identifying what is material, accompanied by an effective methodology to measure and monitor performance, will ensure that sustainability or corporate responsibility reports meet the requirements of all stakeholders, including investors and policymakers, as well as improving business performance, credibility and reputation.

Kye Gbangbola is director and founder of consultancy Total Eco Management. His book, *How to produce a sustainability report – a step-by-step guide to the practices and processes*, provides more detail on how to determine materiality. Readers can use the code IEMA15 to receive a 15% discount (dosustainability.com).



www.iema.net

Non Executive Directors

With 15,000 Members worldwide, IEMA is the largest Institute for Environment & Sustainability professionals. We are seeking three Board members who can contribute to the realisation of our vision to transform the world to sustainability.

This is a fantastic opportunity to join our Board. Specifically, we are seeking individuals who work and influence at a senior level, and have a track record of making a significant difference across organisations or communities.

It is essential that you have experience of working at Board level, preferably as a Non-Executive Director. We are particularly seeking people with expertise in at least one of the following areas: Finance, PR, Corporate Governance and Business Development.

For more detailed information about IEMA, the NED role and to download an Application Form, go to www.iema.net.

To apply please send your completed online Application Form, your CV and a covering letter to **Ann Guest, Executive Assistant to CEO, IEMA, Saracen House, Crusader Road, City Office Park, Tritton Road, Lincoln LN6 7AS** and mark *Private and Confidential*.

Closing date for Applications is Friday 28th November 2014

Alternatively, for a conversation with the CEO - Tim Balcon - regarding the vacancies, please contact **Ann Guest** on +44 (0)1522 540069

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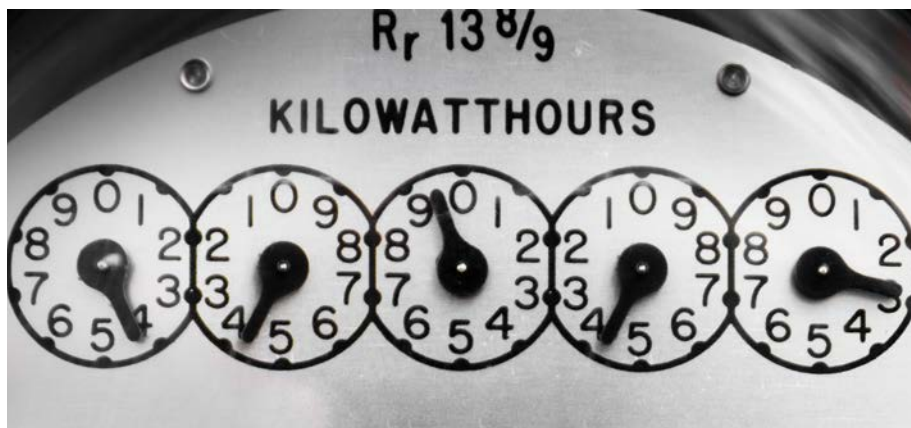
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ESOS launch energises new opportunities for members



With the October launch of the energy savings opportunity scheme (ESOS), which requires eligible companies to undertake an energy assessment every four years, auditor members of IEMA can now become approved independent ESOS assessors.

IEMA is one of only 11 organisations, and one of only six professional bodies or associations, to be approved by Decc to operate an ESOS lead assessor register.

The Institute has been involved in the development of the scheme for more than a year and, now that it has launched, Full members who hold environmental auditor status and principal environmental auditors are eligible to join its new ESOS lead energy assessor register. IEMA is now working with eligible (or potentially eligible) members with energy assessment experience to sign them up to the register so they can begin delivering assessments to organisations throughout the UK.

The scheme covers about 7,000 companies – those with more than 250 employees; or with an annual turnover exceeding £40 million; or a balance sheet exceeding £34 million.

IEMA's acting head of professional standards, Claire Kirk, believes ESOS will open new doors for eligible members. "This will enable our members to add a new string to their bow," she said.

"We have worked with Decc from the very early days of ESOS's development to ensure members' views were taken into account," she added. "I'm delighted to see that this scheme has now launched and that IEMA is one of a select few organisations approved to run a lead

energy assessor register. We're already working with a number of members to enable them to successfully apply to join the new register."

To support the scheme's registration process, IEMA is developing a training course to ensure the Institute's professional standards are met, and enable more members to achieve a place on the register.

Interested in joining the ESOS register?

If you are interested in joining IEMA's energy savings opportunity scheme (ESOS) lead energy assessor register e-mail professionalstandards@iema.net and the Institute will contact you with further details on the application process and the training course as they become available.

Note that to be or to become eligible for IEMA's ESOS register you need to be either:

- a principal environmental auditor; or
- a Full member and an environmental auditor.

If you want to join the register but do not yet have these professional recognitions IEMA recommends that you prioritise applying for these registrations first. If you are unsure, contact IEMA's professional standards team who will be happy to advise you on the application requirements. Alternatively, visit iema.net/join-esos-lead-energy-assessor-register.

Policy update



A statement on climate and energy

This month IEMA will publish its revised climate change and energy position statement. It follows discussions at regional workshops, a webinar and survey with 500 members. The statement reflects the urgency and priority IEMA members place on this critical agenda.

Four main policy areas are identified. First is a call for climate leadership at all levels as we approach and exceed environmental limits. Action is needed to address the unsustainable trajectory, to minimise longer-term costs and to help organisations and communities make an effective transition to be low-carbon and climate-resilient. IEMA supports and recognises a professional urgency on climate change and encourages individuals, businesses, organisations and governments to all show climate leadership.

The second call is for policy drivers that provide certainty and confidence and are not subject to short-term political change. The statement draws on a number of recent examples, including disruptive "policy journeys", such as extensive changes to the CRC, and examples of commitment reversal and policy delays – for example, on zero-carbon homes. Members have been clear that short- and medium-term policy confidence is a critical ingredient for supporting their work on transformational change.

The two other policy calls concern the need to embed climate change as a mainstream business issue and to increase transparency on climate change performance – for example, through GHG reporting.

The launch of the statement will be supported by the development of a climate and energy web portal with practice examples, resources and information on climate campaigns from members. A policy group is being established and the statement used in engagement work ahead of the climate summit in Paris next year and the UK general election in May.

Nick Blyth is policy and engagement lead at IEMA; @nblythiema

IEMA launches campaign to fill the global environment and sustainability skills gap

The global economy is heading towards a skills crisis, a perfect storm of pressure on all fronts. That is the stark warning from IEMA's recently launched campaign on bridging the gap in supply and demand for "skills for a sustainable economy".

Publication of the Institute's report, *Preparing for the perfect storm: skills for a sustainable economy*, launched the campaign on 15 October. It was accompanied by a hard-hitting media release, which stated that by 2020 the world economy could be facing a supply deficit driven by several global mega-trends – such as population growth, increasing demand for natural resources, soaring costs of energy – combined with the impacts of climate change and ecosystem degradation. IEMA's core message is that all of these issues are merging to pose significant challenges to the long-term success of business and the global economy.

The campaign highlights for businesses, employers, governments and the media that the transition to a sustainable economy presents significant opportunities that they need to grasp. However, research among almost 900 organisations employing IEMA members found that only 13% of companies are fully confident that they have the skills to successfully compete in the sustainable economy.

At the same time, there is mounting evidence that building a sustainable economy can deliver significant

opportunities for business. IEMA's 2014 sustainable resource management research revealed, for example, that businesses, both small and large, can save money through more efficient use of resources – from £5,000 to more than £1 million a year.

"In the new business world, environment and sustainability can no longer be a bolt on, it needs to be part of businesses' DNA. IEMA has launched this campaign to shine a light on this issue and catalyse action to address the skills deficit," said IEMA's chief executive Tim Balcon. "Businesses need to urgently turn what is a growing and prevailing list of challenges into opportunities. The most effective way of grasping this opportunity is by ensuring that all businesses have access to a new set of skills – environment and sustainability – to ensure that UK plc and businesses globally can transition and survive in this new economy."

As part of the campaign to ensure IEMA's policy call and recommendations resonate across the economy, the Institute has brought together a number of businesses, organisations and individuals to raise awareness. These include companies such as BAE Systems, Rolls-Royce, EDF Energy, EY, Wilmott Dixon and Saint-Gobain, and individuals like Jonathon Porritt and Joan Walley MP.

Another central element of the campaign is a proposed "skills framework" for businesses worldwide, which includes the following key actions:



- Developing skills for leaders to integrate sustainability into long-term decision making.
- Enhancing skills and capability for environment and sustainability professionals so they can integrate sustainability throughout their organisations and value chains, building in foresight and horizon scanning and creating a convincing business case.
- Increasing environment and sustainability knowledge and understanding among all workers.
- Integrating environment and sustainability into the national curriculum, ensuring that young people entering work are able to play their part at the start of their careers.
- Filling the skills gaps at all levels, from apprenticeships to those in leadership and managerial roles.

Research findings

Preparing for the perfect storm: skills for a sustainable economy was distributed to IEMA members two weeks ahead of the campaign launch in mid-October. It shows that many organisations lack the basic skills to capitalise on the opportunities that a sustainable economy can offer and to guarantee their survival. Key statistics include:

- Skills to compete – only 13% of companies are fully confident that they have the skills to successfully compete in a sustainable economy.
- Leadership gap – just 25% of leaders and 20% of senior managers are fully capable of addressing the sustainability agenda.
- Funding gap – in 72% of organisations, investment in environment and sustainability skills is less than for other disciplines, with 63% of organisations spending less than £100 a head on environment and sustainability training each year.
- Strategic challenge – 65% of organisations have not carried out a strategic evaluation of the skills needed to successfully compete in a sustainable economy.
- Recruitment gap – more than half (53%) of organisations surveyed by IEMA are unable to recruit environment and sustainability professionals with the right skills.

As the *environmentalist* went to press, several media outlets, including BusinessGreen, edie.net, Click Green and the *Environment Times*, were publishing extensive coverage of the campaign launch, and more stories are due in the coming months ahead.

For details of the campaign, download a digital copy of the report and find information on supporters and how your organisation can become involved, visit iema.net/skills-campaign.

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

Sarah Adams, The Hydraulic Centre
Norasiaah Haji Ahmad, MINDEF
Elizabeth Ainslie, Hosking Associates
Deborah Astles, Unipart Group
Sam Aukland
Rachael Burkey, Siemens
Matthew Chester, BP Global
Eleanor Christelow, Costain
Jonathan Clubb, Yorkshire and Humber Assembly
Peter Coy, Applicus
Clare Fallon
Andrew Farley, Flint Group

Stephanie Ferry, GB Railfreight
Glenn Forbes, Magnox
Paul Forster, Halco Rock Tools
Iain Forsyth, Carbon Footprint
Katie Gray, SWH
Lesley Harkin
Barry Harwell, First Great Western
Thomas Heath, National Grid
Martin Hoar, Stonegate Farmers
Tom Hughes, Flint Group
Wayne Hydon
Jason James, Magnox
Andrew Lack, Turner Business Consultants
Tom Lack, European Metal Recycling
Trevor Lawton, Mars Petcare UK
Andrew Le Masurier, University of Southampton
Kathryn Manning, Bromsgrove District Council

Frances Martin, Occidental Petroleum of Qatar
Adam McLaughlin, Sainsbury's
Jennifer McTeer, Amec Environment and Infrastructure UK
Anja Mudric, Nestlé Adriatic
Andrew Newton
Timothy O'Reilly
David Partridge, Knowledgepool
Gareth Pulman
Peter Renton, Northside Truck and Van
Rebecca Riches, Sainsbury's
Oliver Robinson, University of Southampton
Andrew Shaw, Wagstaff Interiors Group
Emmanuel Taiwo, Natural Resources Institute
Ai Wun Tan, Hengyi Industries SDN BHD

Aled Williams, Dwr Cymru Welsh Water
Cerian Wood, Unilever UK

Full and Chartered environmentalist

Fiona Brannigan, Sustainability Spirals
Richard Gould, Environment Agency (NEAS)
Jane Huxtable, Jacobs Engineering UK
AdaAllanah Kidd, Downer New Zealand
Robert McCann, InterContinental Hotels Group
Ehikori Edobor Osondu, Environment Agency

Upgrading your IEMA membership is key to you gaining the professional recognition you deserve. Learn more at iema.net/membership-upgrade or call +44 (0)1522 540069.

IEMA events

Date	Region	Topic
6 Nov	South East	Social
7 Nov	Midlands	ISO 14001 revision
10 Nov	South West	Energy savings opportunity scheme – regional launch event
13 Nov	Wales	Wales membership upgrade surgery
13 Nov	Wales	Open forum and social
18 Nov	North West	Energy savings opportunity scheme – regional launch event
19 Nov	Yorkshire and Humber	Smart Cities: a Leeds perspective – finance, data and development
19 Nov	South West	Social (Exeter)
25 Nov	West Scotland	Climate change adaptation
26 Nov	South East	Energy savings opportunity scheme – regional launch event
4 Dec	South East	Social (London)
Conferences		
26 Nov	London	EMS national forum
External professional events		
11–12 Nov	Edinburgh	Progress in effective habitat restoration, translocation and creation
		cieem.net/2014-autum-conference
19 Nov	London	Sustainability leaders' forum 2014
		lexisurl.com/iema36038
2 Dec	London	Establishing a green agenda
		eic-conference.co.uk

Martin Bigg

Professor of environmental technologies innovation, University of the West of England

Why did you become an environment professional?

I have always been interested in the environment around us, our relationship with it and our responsibilities to it. Collecting newspaper, claiming the deposit on bottles, composting, cycling everywhere – these things were normal when I was at school. At university, as part of a chemistry degree, I studied environmental chemistry and researched wastewater. *The limits to growth*, a report for the Club of Rome, introduced me to the issues of sustainability. I had started to become green before I recognised it.

What was your first environment job? After university, I was keen to apply my skills in the real world. My first job as a works chemist gave me responsibilities for people, plants and pollution.

How did you get your first role?

My interests in environmental standards, regulation and control developed with my career in the chemical industry. Responsibilities for various agrochemical and pharmaceutical plants honed my knowledge and skills in hazard analysis and assessment of environmental performance. Working with the regulators after a serious incident encouraged me to become a pollution inspector.

How did you progress your environment career?

In the Inspectorate of Pollution, I was fortunate to gain experience of regulating a wide range of processes before being asked to establish the pollution regulation regime for local authorities. This gave me an insight into very different industries, standards and ways of regulation. I spent time in and with government departments, trying to reconcile the politics of the day with the needs of industry and the environment. My drive was the integration and simplification of regulation and inspection. My commitment to open reporting of emissions was reflected in the introduction of the pollution inventory. At the Environment Agency, I maintained

the momentum for the development of wider pollution prevention regulation.

What does your current role involve? As professor of environmental technologies innovation, I teach and support research on environmental technology. I'm also director of the environmental technologies innovation network (iNet), leading a £2.4 million joint programme across several European universities. My IEMA roles involve providing strategic direction.

How has your role changed over the past few years? The changes to my role reflect the wider changes to protecting the environment and promoting sustainable development. I have moved from a strict directional approach in industry and working as a traditional regulator to adopting a more collaborative approach, working in partnership as a regulator and academic.

What's the best and hardest part of your work? I love working with such a diverse range of committed individuals and organisations. Finding time and prioritising everything that I want to do is the hardest part. Sometimes I have to accept that I am not going to achieve an environmental commitment or change despite my best endeavours.

What was the last training you attended? In the past week, I have learnt about flood risk resilience planning, cemeteries and crematoria, education for sustainable development, low carbon business opportunities and evaluating environmental performance.

What did you bring back to your job? I share my learning, passion and enthusiasm with everyone.

What are the most important skills for your role and why?

I believe that it is important to have and be able to share a vision, objectives and principles. It is also important to look at issues from other perspectives.



Career file

Qualifications:

BSc MSc PhD FRSC FIEMA CEnv CChem CSci

Career history:

Now professor at University of the West of England; chair of IEMA council and board member; project lead, World Bank and International Finance Corporation
1996–2011 Environment Agency, including head of industry and waste regulation, head of industry regulation and national policy manager
1990–1996 head of integrated environmental management, Inspectorate of Pollution
1988–1990 head of local authority unit, Department for the Environment
1987–1988 principal pollution inspector, Inspectorate of Pollution
1985–1987 manager, Fine Organics
1980–1985 chemist, May and Baker

Where do you see the profession going? I would like to see it learning from the challenges and growing in self-confidence and respect. In particular, I would like to see it become a mainstream profession sitting comfortably alongside other professions, such as accountancy or engineering. My ambition is that the capabilities and competencies of the profession are embedded in the core skills requirements of most businesses and other organisations.

Where would like to be in five years' time? Making a difference and securing a sustainable future.

What advice would you give to someone entering the profession?

Go for it, give it the most, make the most of it and enjoy. You owe it to the future.



China/Hong Kong

Chung Ming Choi says a greater number of practitioners experienced in delivering effective environment management systems are required in Hong Kong and mainland China

ISO 14001 certified environment management systems (EMS) are considered best practice in driving environmental performance and have become the mainstream. In Hong Kong and mainland China, many publicly listed companies have certified their operations to the 14001 standard. ISO reports that, in 2012, there were more than 91,000 14001 certifications in China. One of the biggest challenges for holding companies, where operations involve other subsidiaries with either management or operational control, is the ability to monitor the effectiveness of EMS development and implementation across different business units.

For those companies that consider environmental management a core

business value, experienced EMS practitioners are crucial. Environment management is a relatively new concept to some companies in China and Hong Kong and therefore it has not become a key focus in their business plans. Many will therefore need a professional, preferably a registered EMS auditor involved in key system developments.

The auditor will need to guide inexperienced practitioners through the EMS development process, including the identification and evaluation of significant environmental aspects, conducting the internal environmental audit, and preparing the management review before the ISO 14001 certification. Subject matter experts and specialists can also be deployed

internally across a company, sometimes temporarily, to ensure that material risks are properly addressed and that specific knowledge of the industry is shared.

However, a common difficulty in China and Hong Kong is that there is an insufficient number of experienced EMS practitioners. Most of these practitioners are recent graduates or non-environmental professionals, rather than registered environmental auditors. Some are only working part time on the EMS.

There is no quick fix to the lack of experienced practitioners in the region, but bodies like IEMA are key to the role of developing sufficient professionals to facilitate the development and wider implementation of effective EMS throughout the region.

Chung Ming Choi, FIEMA, principle environmental auditor and lead EMS auditor at group environment, CLP Holdings



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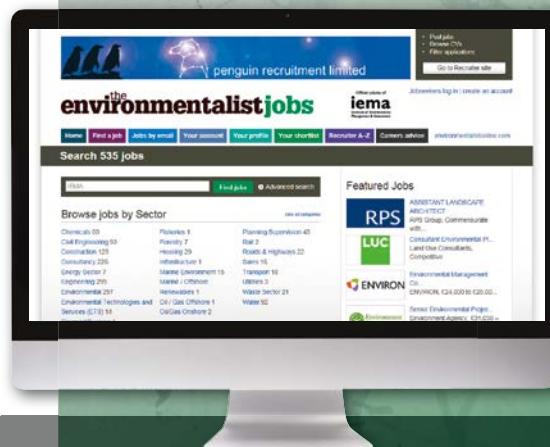
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