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The 2014 powerlist

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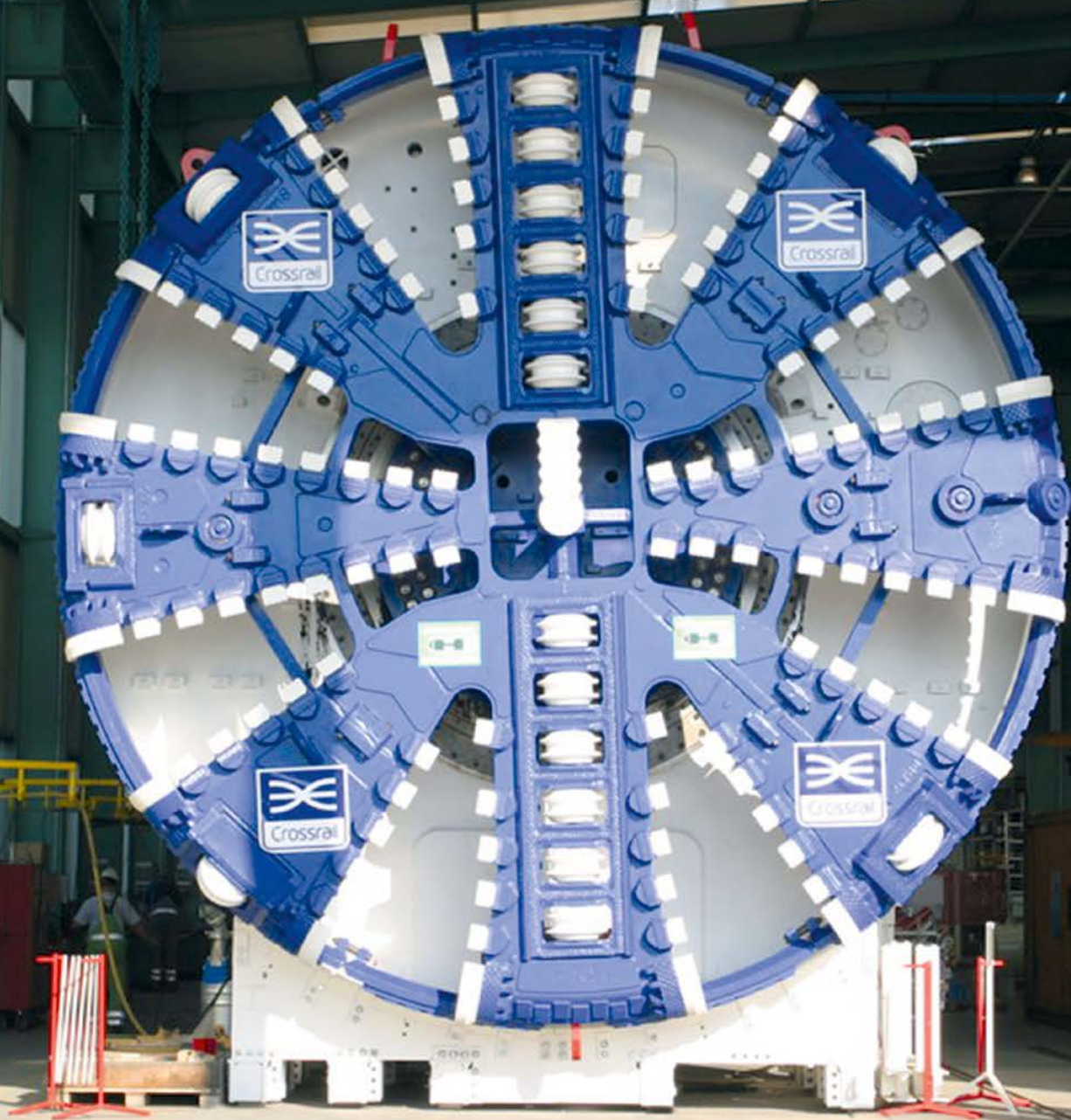
Dredging up a fix

Will dredging rivers provide a cost-effective and sustainable solution to rising flood risk?

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July 2014



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Crossrail goes further on sustainability

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The false economy

Economists have again attempted to estimate the price of carbon to avoid dangerous climate change (p.8). By revisiting a standard economic model, Lord Stern and Simon Dietz have calculated that a tonne of carbon in 2015 needs to cost between \$32 and \$103 to prevent warming above the 2°C threshold scientists believe is the limit to prevent unprecedented change. And, by 2035, the price should rise to between \$82 and \$260. The authors say that such figures would, according to the model, keep the expected atmospheric stock of carbon dioxide to a maximum of 425-500 parts per million and the expected increase in global mean temperature to 1.5-2°C above pre-industrial levels. Today, the price per tonne of carbon under the EU emission trading system (ETS) is around €6, while the price of allowances sold at the most recent auction for the cap-and-trade scheme (the regional greenhouse-gas initiative) covering nine US states was just over \$5. So the price needs to climb significantly to reach even the lower Stern-Dietz estimate.

The European commission plans to backload ETS allowances, under which 900 million permits will be temporarily withdrawn from the scheme, will push prices higher – possibly to €19 in 2015, according to the best estimate – but not by nearly enough. It is worth remembering that in 2000 the commission projected that the price of an ETS allowance, which is equivalent to one tonne of CO₂, would be €33. In April 2006, just over a year after the system started, the price of allowances peaked at around €30, but have come nowhere near such heights since and there is no guarantee that backloading will see prices rise sufficiently. In the UK, the carbon price floor (CPF), which places a charge on every tonne of CO₂ emitted by high-carbon energy generators, was, under George Osborne's original plans, supposed to rise from £16 per tonne in 2013 to £30 by 2020. However, in a rethink, the chancellor announced in his 2014 budget that the CPF would remain at the planned 2016/17 level of £18 per tonne until at least 2019/20.

Policymakers, often after intense lobbying, are reluctant to pursue action to raise the cost of carbon to anything like the level required to prevent temperatures spiralling because they fear that intensive energy users will decamp to countries without similar pricing mechanisms. Hence the political haggling last year over whether to support the backloading proposals and Osborne's backtracking on his own policy.

But a reluctance to take measures now to raise the cost of carbon is ultimately a false economy: it means the costs of curbing carbon emissions and dealing with the damage wrought by the changing climate will escalate.

The reluctance to put a realistic price on carbon because of fears it will damage competitiveness is a false economy, as the costs of curbing emissions will only rise



Paul Suff, editor

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Short cuts

Public purchase rules

The government has implemented art 6 of the Energy Efficiency Directive (2012/27/EU) in England through a procurement policy note (PNN), effective from 5 June. It requires “central government departments” in EU states to purchase highly energy-efficient products, services and buildings, as set out in annex III of the directive. The PNN covers all central government departments including non-ministerial departments, executive agencies and some non-departmental public bodies. When buying products or services and purchasing or renting buildings, these bodies must comply with specified energy-efficiency standards, such as labelling, and those listed in the Regulations on ecodesign and the Energy Star decision. Authorities do not have to buy the default product or service if it is not cost effective or impedes competition. Purchasers can prioritise the overall energy efficiency of product packages over the efficiency of individual energy labelled products.

Behaviour change

“Nudging” cues, combined with good data, can provide better strategies for persuading people to make environmentally friendly choices than information campaigns alone, a new study published in the *Journal of Consumer Policy* has found. Based on insights from psychology and behavioural economics, nudging techniques alter people’s behaviour by changing their social or physical environment in subtle ways that unconsciously trigger a desired action. The study cites a Danish survey, which found that the way people are asked about smart meter installation substantially affected the rate of uptake. Making acceptance the default response, but with opt-out available, resulted in almost 50% more people having meters installed than by asking them to opt in, nudging consumers towards the more sustainable choice. In a separate American study, people who thought their neighbours cared about conserving energy were more likely to say they themselves tried to reduce energy consumption.

Europe ups its waste targets

Recycling 70% of municipal waste by 2030 is among a host of new targets adopted by the European commission as part of a package of measures to achieve a circular economy in the EU.

Launching the targets, outgoing environment commissioner Janez Potočnik said: “We are living with linear economic systems inherited from the 19th century in the 21st century world of emerging economies, millions of new middle-class consumers, and inter-connected markets. If we want to compete we have to get the most out of our resources, and that means recycling them back into productive use, not burying them in landfills as waste.”

The commission outlined a circular economy in which reuse, repair and recycling become the norm, and waste is seen as a thing of the past. Keeping productive materials in use for longer and reusing them would also improve EU competitiveness, says the commission. Efforts to use resources more efficiently and promote the circular economy will be guided by a political target to increase resource productivity by 30% by 2030.

In addition to the 70% recycling target for municipal waste, the commission is proposing that member states recycle 80% of packaging by 2030. It also wants a ban



on burying recyclable waste – plastics, metals, glass, paper and cardboard, and biodegradable waste – in landfill from 2025. To achieve this, the commission will increase recovery targets for specific materials from 2020. It says the overall objective is to move towards the virtual elimination of landfilling by 2030.

Under the proposals, existing waste legislation will be simplified and minimum-operating conditions established for extended producer responsibility schemes. Also, tailor-made approaches will be implemented for specific waste streams, such as marine litter, phosphorus, construction and demolition, food, hazardous and plastic waste.

The legislative proposals will now pass to the European council and parliament.

HS2 should go further

The government has rejected the call from MPs for more ambitious environment objectives for the HS2 high-speed rail line.

In its response to the environmental audit committee’s April report on HS2, the government insisted that “no net biodiversity loss” was an appropriate objective for the scheme on the basis that it was already a “very challenging” target for a major infrastructure project. The response, published on 11 June, also discounted the call to provide greater “environmental compensation” for ancient woodlands destroyed by the rail line.

“It is disappointing that the government will settle for no overall biodiversity loss when it could use the enormous budget for the scheme to provide more gains than losses for the environment,” said EAC chair Joan Walley.

Describing the government’s limited ambitions as “a wasted opportunity”, she added that, if ancient woodlands

and other critical habitats are lost, “they should at least be much more fully compensated for than currently planned by the government’s off-setting system”.

The government also largely rejected the EAC’s proposal for compensatory habitats away from the HS2 route that might provide better results for wellbeing.

On carbon emissions, the committee suggested the government look at reducing maximum train speeds until electricity generation has been sufficiently decarbonised. Although the response noted that the company behind HS2 would examine running slower trains, it emphasised that lower speeds could reduce the number of travellers shifting to the rail route, ultimately producing less overall UK carbon benefit.

The government accepted EAC advice to set up an independent body to monitor and report progress against the “no net biodiversity loss” objective.

Energy sector facing a 'double whammy'

The twin impacts of climate change and rising costs present increasing challenges for energy production and transmission, according to separate reports from the World Energy Council (WEC) and Eurelectric, the body representing the electricity industry in Europe.

The WEC report finds that all energy sectors will be affected by the impact of climate change. The oil and gas industry is likely to suffer increased disruption and production shutdowns due to extreme weather, while power plants will also be disrupted and energy facilities in coastal areas will be affected by rising sea levels. Also, energy transport infrastructures, including oil and gas pipelines and electricity grids, will be affected by storms and extreme temperature changes, and electricity generation from thermal and hydroelectric stations and renewables will be disrupted by bad weather.

"The time has come to get real about the challenges facing the energy sector. Climate change is certain to impact the energy sector," said WEC secretary general Christoph Frei. The council says more needs to be done to move to a low-carbon economy, arguing that this can be achieved by investing in lower-carbon fuels, increasing use of renewables and nuclear, improving energy efficiency and introducing carbon capture and storage.

It warns, however, that the annual investment costs associated with such a transition would be up to \$900 billion over the next 35 years.



Eurelectric, meanwhile, says that, without a concerted effort by the industry, policymakers and consumers to manage the energy system more effectively, total energy expenditure could be 50% higher in Europe by 2030. It reports that European expenditure on electricity and gas surged by more than 18% between 2008 and 2012, from €450 billion to €532 billion.

It recommends the creation of a single energy market for Europe to better link supply and demand, and says that optimising renewable energy systems, so that solar and wind generating systems, for example, are sited in the best locations for the technology, could save Europeans up to €20 billion a year. Further savings could be achieved by implementing more intelligent grid management, and by improving demand response and energy efficiency. According to the analysis, shifting some peak demand could improve reliability and reduce costs significantly, resulting in overall savings of between €5 billion and €20 billion a year on energy expenditure.

Short cuts

Climate action funds

The European commission has issued a call for proposals to receive funding under a new programme for projects dedicated to climate action. The LIFE climate action sub-programme will provide €44.26 million until the end of the year to develop and implement innovative ways to respond to the climate change challenge across Europe. Interested organisations are encouraged to prepare now by developing their project ideas, forming partnerships with stakeholders and identifying complementary financial support. The commission says transnational projects are particularly welcome because cross-border cooperation is essential to guarantee EU climate objectives. The LIFE Regulation was published on 20 December 2013 and will make €3.4 billion available for environment projects up to 2020. The funding available now for climate action is part of the €449.2 million being allocated to such projects under LIFE between 2014 and 2017.

GAP plan for SMEs

The European commission is to publish a green action plan (GAP) for small and medium-sized enterprises. It will set out a series of EU-level measures to encourage resource efficiency, promote green entrepreneurship and enable SMEs to access domestic and international markets for eco-innovative products and services. Measures likely to be taken under GAP include establishing a European resource efficiency excellence centre in 2015 to advise SMEs on related programmes and actions, and an analysis of barriers to greater SME resource efficiency. The commission believes there is considerable scope for SMEs to reduce costs and improve their competitiveness through greater resource efficiency and eco-innovation. Small manufacturers, for example, typically spend about 40% of their costs on raw materials. Responses to a recent consultation revealed that SMEs want help to identify partners for resource efficiency and need matchmaking services so they can pinpoint the best technologies.

ESOS takes shape

Decree has formally responded to feedback on the proposed energy savings opportunity scheme (ESOS), providing further details on how ESOS will operate. Under the scheme, large companies – at least 250 employees and/or with an annual turnover of more than €50 million and a balance sheet exceeding €43 million – will have to complete an assessment of their energy use every four years.

The first ESOS audit must be completed by 5 December 2015. For each phase, there will be a qualification date, when potential participants will have to determine whether they are eligible, and a compliance date,

by which time companies must have completed their ESOS assessment. The first qualification date will be 31 December 2014.

An ESOS assessment includes three main requirements:

- participants must measure all their energy use for a continuous 12-month period;
- audits must cover all their main areas of energy consumption, and at least 90% of total energy use; and
- participants must report compliance to the Environment Agency, as the scheme administrator, by the compliance date, and maintain an ESOS evidence pack providing a full record of scheme compliance.

Short cuts

Transparent rights

The British Retail Consortium (BRC) is to identify ways for UK retailers to eradicate human rights abuses in their supply chains after a request from government. The BRC says it will work with its members and produce a document to highlight good practice and explain how to address issues, such as forced labour and dangerous working conditions, in their overseas suppliers. The document, due to be published later this year, will also include a framework of human rights reporting requirements, information on ethical auditing and the various accreditation schemes that are available. UK companies listed on the stock market are already required to report on material human rights issues in their annual report and accounts ending after 30 September 2013. The government says it expects reporting of human rights to be further strengthened by new reporting rules due to come into force in 2016.

Delay to SuDS

Defra has postponed the target start date to introduce compulsory legislation for sustainable drainage systems (SuDS) in England and Wales. In a letter to stakeholders, the environment department said that the October 2014 starting date for new local authority SuDS approving bodies (SABS) had been scrapped. Defra says it will announce details soon of its plans to implement schedule 3 of the Flood and Water Management Act, which will require companies to seek approval from an SAB for drainage systems to manage surface runoff in construction projects before work can begin. The delay is because of concern in the government that a requirement for SuDS could hinder development. The letter states that the government remains committed to implementing SuDS but not in a way that has any adverse impact on development. However, Alex Stephenson, chair of the British Water sustainable water management focus group, said: "SuDS legislation is a vital element of measures to combat surface-water flooding."

MPs want rise in flood funding

The government must increase funding for critical maintenance of flood defences if it is to avoid a repeat of the damage to homes and businesses caused by last winter's floods, MPs have warned.

In a report on the floods that affected large parts of England in 2013–14, the environment, food and rural affairs committee called for fully funded plans to address the backlog of dredging and watercourse maintenance, as well as to maintain manmade flood defences.

The committee received evidence on dredging and concluded that it can be beneficial in certain circumstances, and as part of a portfolio of measures. It warned, however, that dredging should not be seen as an all-purpose solution and that, where appropriate, the benefits need to be sustained through routine maintenance.

Committee chair Anne McIntosh said regular work to dredge and keep rivers clear is "exactly what gets squeezed out when budgets are tight" and asked the government to recognise the importance of maintenance and put it on equal footing with building new defences. The report also highlighted the importance of including local knowledge in flood prevention and mitigation planning. MPs supported the devolution of maintenance



activity to internal drainage boards and to local landowners where possible.

Turning to funding cuts for the Environment Agency, the committee said it was essential that these do not lead to unintended consequences where money is redirected to one operational area to the detriment of another. It also called for reassurance from Defra that frontline flood jobs at the agency would not be cut.

The committee identified the current split between capital and revenue budgets as a major barrier to targeting funding in line with local priorities, advising that adopting a total expenditure approach to funding would allow more flexibility.

Investors target sustainability

Investors are increasingly considering sustainability issues in their decisions, according to research by PwC. However, many investors outside Europe are not happy with the quality of corporate reporting on sustainability.

A survey of a diverse range of institutional investors, representing more than US\$7.6 trillion in total assets under management (AUM), found that four investors in five had considered sustainability issues in one or more investment contexts in the past year. And 85% expected to do so three years from now.

Most investors considering sustainability did so when they were voting proxies and deciding whether to engage directly with a portfolio company about a subject of concern. Very large investors – those with AUM of more than US\$100 billion – were most likely to incorporate sustainability issues into their investment strategies.

PwC's research found that, in the past 12 months, 82% of respondents had considered climate change and/or resource scarcity in future investment decisions, while 79% took into account social responsibility and/or good citizenship. Most investors who identified sustainability issues as relevant said it was "very likely" they would communicate with their portfolio companies about this topic in the next 12 months.

Risk mitigation is the main reason investors are looking at sustainability, with nearly three-quarters (73%) identifying this as their primary driver. Enhancing performance returns (52%) and avoiding firms with unethical conduct (55%) are other key drivers.

Investors were generally dissatisfied with companies' current sustainability reporting, as well as the lack of common standards to assess the materiality of environmental or social issues.



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Another Stern warning on carbon price

The price of carbon may have to rise to \$260 a tonne by 2035 if the world is to avoid warming of more than 2°C above pre-industrial levels, says a new assessment by economist Lord Stern, author of the 2006 review of the economics of climate change and chair of the ESRC centre for climate change economics and policy.

His latest study estimates that a tonne of carbon today needs to cost between \$32 and \$103 to prevent warming above the 2°C threshold scientists believe is the limit to avoid dangerous climate change. By 2035, the price could rise to between \$82 and \$260 a tonne, depending on how great the damage from climate change is over the next two decades.

The figures are contained in a paper published in *The Economic Journal* and co-authored with Dr Simon Dietz.

Standard economic models tend to underestimate the risks of climate change, so Stern and Dietz base their figures on a revised version of the dynamic integrated

climate-economy (DICE) model. Whereas the standard DICE model looks only at the economic impact of around 3°C of warming, Stern and Dietz used it to calculate the economic cost of a range of temperature rises, from 1.5°C to 6°C. They also factored in the impact of climate change on countries' infrastructure, such as the damage to coastal power stations from a rise in sea levels and the amount of global economic output lost as temperatures increase.

The findings, described by the authors as preliminary, came as José Ángel Gurría, secretary-general at the OECD, called on policymakers to impose a "big fat tax" on carbon emissions. He told the World Cities summit in Singapore that the most cost-effective way of cutting emissions to keep the rate of global warming below 2°C is through pricing measures, such as a carbon



tax or an emissions trading system (ETS). His preference would be the former, he said.

A report in 2013 from the OECD made the case for carbon pricing mechanisms as a way to move to a low-carbon economy: "Since producers and consumers would pay for each tonne of CO₂ emitted, explicit carbon pricing provides an incentive to continuously improve the efficiency of energy use, and to develop and deploy technologies that substitute for existing carbon-emitting technologies."

From environmentalisonline.com...

A Welsh first

New environment and energy data from the office for national statistics (ONS) for the four "home" countries reveals wide differences. Wales, the first of the four nations to introduce a levy on single-use carrier bags, leads on recycling, with 49% of all household waste recycled in 2011/12, 6% above England on 43%, followed by Scotland with 41% and Northern Ireland on 40%. In 2011, England was responsible for the highest share of greenhouse-gas emissions (77%), followed by Scotland (9%), Wales (8%) and Northern Ireland (4%). Air pollution across all four countries has been on a downward trend between 1990 and 2011, says the ONS, with the most notable decreases being for sulphur dioxide and lead. Per capita emissions in Wales were highest for four of the seven pollutant types examined, with, for example, above average ammonia emissions. Scotland, meanwhile, experienced above average emissions of non-methane volatile organic compounds. environmentalisonline.com/ONS

Crops at risk

The world's most widely used and pervasive pesticides are contaminating the natural environment and posing a serious risk to global food production, according to findings published by the IUCN taskforce on systemic pesticides. The assessment report published by the taskforce indicates that pesticides containing "neonics" are having a major impact on natural ecosystems that support food crops and wildlife. Bees, butterflies and other wild pollinating insects, as well as invertebrates such as earthworms, which are essential for food crop pollination and soil conditioning, are at serious risk from neonics pesticides, says the report. Neonics are used routinely to protect crops against pests. Three neonicotinoid pesticides belonging to the group – clothianidin, imidacloprid and thiametoxam – have been linked to the rapid decline of honeybees in Europe and their use was banned by European authorities for two years from December 2013. environmentalisonline.com/crops

Natural return

Investing in nature is good for the economy, good for the environment and essential for human health and wellbeing, according to the latest evidence from Natural England. It claims that nature helps reduce pollution, minimises the effects of extreme weather and makes cities and the countryside more resilient to climate change. The report also provides evidence that the natural environment attracts inward investment, generates consumer spending and directly improves the UK economy. Protecting and enhancing natural habitats, such as forests, peat bogs and saltmarsh, helps to remove significant amounts of carbon from the atmosphere, says the report, which explains that 600 million tonnes of CO₂ are stored in UK forests alone. Natural England also highlights the impact of green spaces in towns and cities, which help to reduce air pollution. A hectare of green roof can remove 85kg of air pollutants a year, says the report. environmentalisonline.com/nature

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Politics needs 'regreening'

Lord Chris Smith, outgoing chair of the Environment Agency, has called for a "regreening" of politics and public discourse, claiming that the environment has faded from public sight. "It needs to be brought back into full and open view," he told an audience at the RSA.

Smith, who became agency chair in 2008, argued that the high point for political focus on the environment was the passing of the Climate Change Act 2008, but that politicians had since largely failed to follow up the legislation with meaningful action. "The environment is low down the list of issues for politics and for government," said Smith, describing the coalition as disappointing. It had done "little to live up to its ambition" to be the greenest government ever, he said, adding that the opposition was also guilty of failing to focus enough on the environment.

He contrasted the responses to climate change of politicians and the business community. "Businesses get it far better than most politicians," said Smith, a



former Labour government minister. Increasingly firms are preparing for climate change, he told the audience. "They recognise that doing things more greenly is also doing things more cheaply."

He also outlined the key role of regulation in improving the environment. Regulation is important and a force for good, he said, arguing that the law, much of it stemming from the EU, was responsible for driving environmental improvement in the UK. Arbitrarily abandoning regulation would be a disaster, said Smith. He described the "one-in, two-out" policy on business regulation adopted by the government as unhelpful in delivering environmental protection.

Carbon policies too complex

Government policies to green commercial buildings need to be better understood, monitored and enforced if their benefits are to be fully realised, a new report has concluded.

Carbon penalties and incentives, which reviews the effectiveness of carbon reduction and energy efficiency policies in the commercial property sector, was produced by Deloitte for the Green Construction Board and Green Property Alliance. Overall, the study identified "significant limitations" in the existing framework of policy instruments, with particular concerns around inadequate enforcement, market incompatibility, and poor integration of penalties and/or incentives to drive compliance.

Policies designed to have a broad impact on underlying energy costs at the point of use – such as the climate change levy – are largely ineffective, the report argues, mainly due to their lack of visibility and the inelasticity of energy demand in the sector. Process-driven policies that do not impose an obligation for action – such as air-conditioning assessments under the EU Directive on the energy performance of buildings – are

also comparatively ineffective. Conversely, building codes, positive financial incentives and choice-editing instruments (prohibiting the use of particular types of product) are generally more effective.

The report concludes that policies focused on setting standards are most cost effective and easily understood. Given that industry finds the current policy framework complex, it recommends "bundling" together policies in mutually reinforcing packages of standards, penalties and incentives.

More broadly, the report calls for better environmental performance data to help owners and occupiers choose premises, together with more education for real estate professionals so they can properly consider environmental concerns alongside traditional legal and valuation issues.

"Industry is clear in its preference for good regulation and policy direction to create a level playing field for investment and innovation – which makes the government's insistence on reducing red tape, changing policy, and watering down regulation all the more frustrating," said Paul King, chief executive at the UK Green Building Council.

Business plans

Automotive manufacturer **Ford** reduced its per vehicle water use by 30% globally in 2013 compared with 2009, reaching its water reduction target two years early. Ford also reports that it cut global water consumption by 61% between 2000 and 2013, with the total amount of water used at its facilities around the world declining from 64 million cubic metres (mm³) a year to 25mm³. The US firm says it now plans to cut water use at its plants by a further 2% this year and to set new long-term goals.

Meanwhile, French car company **Renault** reports that its carbon footprint declined by 10% between 2010 and 2013. Over the three-year period, Renault prevented the emission of 5.5 million tonnes of CO₂ equivalent. The company's strategic objective, set out in 2010, is to reduce CO₂ emissions from its products and facilities by 3% a year on average to 2016.

In the UK, more than 11,500 solar photovoltaic panels have been installed on the roof of the Oxford plant producing the **Mini** range of vehicles, providing a generating capacity of more than 3MW. The panels on the plant's new bodyshop cover more than 20,000m², making it one of the largest, roof-mounted solar farms in the UK. It will enable **BMW Group UK**, which owns Mini, to reduce its carbon footprint by about 1,500 tonnes of CO₂ a year. The building also boasts 3,869 individually programmable LED lights, while its robots are equipped with an energy-saving "rest mode".

Pod Point, manufacturer of electric vehicle charging units, has announced that businesses in the UK can now lease its charging points. The three-year lease includes installation and Pod Point says the monthly cost of leasing a unit will be recouped with just two charges a day.

US firm **Tesla** is now producing a right-hand drive version of its all-electric Model S car for sale in the UK. The firm says it expects to expand significantly in the UK over the next two years.

After a report found that an estimated 95% of all fresh produce on its shelves is at risk from climate change, **Asda** has launched a climate resilience programme, which involves the retailer working with its suppliers and producers on ways to adapt to climate change risks and improve efficiency.

NQA to help UK companies gain exemption from mandatory government scheme

It's been confirmed that ISO 50001 certification will act as an alternative route for compliance with the energy savings opportunity scheme (ESOS). Rob Shepherd talks to Emma Clancy at NQA about why this is such good news and the important additional benefits that ISO 50001 offers organisations

The energy savings opportunity scheme (ESOS) is designed to address the requirements laid out in Article 8 of the EU Energy Efficiency Directive and will accelerate the drive towards greater energy efficiency and carbon reduction in the business sector.

Size matters

ESOS applies to 'large enterprises' that employ 250 or more staff or have an annual turnover in excess of around £40 million, and an annual balance sheet total of around £34 million. These organisations must complete regular energy audits – the first of which must be undertaken by 5th December 2015, and then at least every four years thereafter.

Money matters

ESOS will require approved assessors to carry out audits to identify energy saving recommendations. The process will be based around a review of the energy efficiency of an organisation and provide clear information on potential savings by identifying and quantifying the various opportunities to save energy.

However, for enterprises that have not done all they can to ensure that they are operating in the most energy efficient manner possible and do not have an energy management system (EnMS) in place, the findings of the ESOS audit could come as a shock. It is certainly the case that implementing any measures will require the investment of significant amounts of time and money.

Another way

It has recently been confirmed that accredited certification to ISO 50001

will be an alternative route to ESOS compliance. This internationally recognised energy management standard meets the assessment criteria requirements of ESOS.

“NQA is delighted to be in a position to enable organisations to meet the requirements of ESOS. However, I'm firmly of the belief that it offers so much more than just compliance.”

Emma Clancy is chief executive officer at Ascertiva Group, which owns and operates NQA, and has adopted an evangelical approach to the benefits of ISO 50001. She states: “As the first United Kingdom Accreditation Service (UKAS) approved certification body for ISO 50001, NQA is delighted to be in a position to enable organisations to meet the requirements of ESOS.”

Clancy firmly believes that ISO 50001 offers so much more than just compliance. “The business benefits are immense and in a fiercely competitive environment it provides a way to define and energy policy that can reduce operating costs and enhance customer perception about what you do and how you do it,” she says.

Case in point

Actions speak louder than words and to demonstrate just how beneficial ISO 50001 certification can be, Gareth Williams, Northern Rail's energy solutions manager, took part in a recent seminar and gave a presentation focusing on his company's experiences.

Clancy explains: “Northern Rail is the largest train operator in the UK and the company wanted to use ISO 50001 to make significant



Emma Clancy

energy savings. So far, on the non-traction side of its operations, which includes everything not related to the trains themselves, it has made a 9% reduction in energy per passenger mile, while on the traction side the figure is 0.5%. While these figures are obviously impressive, Williams also explained the additional benefits, such as how the standard will help Northern Rail put forward a good case in the next round of rail service franchise bidding.”

Best practice

Certification to ISO 50001 also specifies requirements for measurement, documentation and reporting, equipment design and procurement processes. For Northern Rail it has meant implementing initiatives such as its traction fuel responsible driving programme, which includes using natural gradients and coasting where possible, smooth acceleration and slowing down well before reaching a red light to save fuel. This alone has resulted in savings of more than 3%.

“What was particularly interesting about what Williams had to say concerned the fact that he was confident that ESOS compliance would be achieved at no extra cost,” says Clancy. “He estimated that for Northern Rail, ESOS would have cost over £25,000 on its own if it didn't have ISO 50001 certification.”

Look ahead

Emma Clancy concludes: “ESOS is the latest in a range of initiatives designed to reduce energy usage and the fact that ISO 50001 is a route to compliance should mean that large organisations give this international energy management standard the attention it deserves.”

ACHIEVE ESOS EXEMPTION WITH ISO 50001

ESOS (Energy Savings Opportunity Scheme) compliance will affect all large UK enterprises in the private sector (7,300 companies).

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

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

08000 522 424 | info@nqa.com | www.nqa.com/esos



NEVER STOP IMPROVING





Recent prosecutions

Sewage pollution costs water company £153,600

Discharging poorly treated effluent from a sewage treatment works in Cornwall has cost South West Water £150,000 in fines and £3,600 in costs. The Environment Agency estimates that 1.8 million tonnes of sewage effluent above the permitted level of biochemical oxygen demand (BOD) were released into the River Par in July 2013.

Truro crown court was told that between 9 and 23 July last year, the firm's Luxulyan treatment plant near St Austell was not operating properly. An effluent sample taken by agency officers revealed a BOD of 66.4mg per litre (mg/l), exceeding the maximum permitted level of 56mg/l and well above the BOD for normal conditions, which is 20mg/l. The investigation found that a surface aerator taken out of service in March 2013 was still not working in July when a second aerator failed. The agency said the plant, which has five aerators, could function effectively when one was out of action, but not more. "South West Water took an unreasonably long time to repair a broken aerator and this meant the works were running at a significantly reduced efficiency," said Phil Christie for the agency.

Sentencing the company, Judge Christopher Harvey Clark said he had the strong impression that the plant operatives had lacked proper vigilance. "They were treating their responsibilities with a slackness amounting to complacency," said the judge. He also described the area surrounding the treatment plant as "environmentally sensitive" and noted that Cornwall council had erected warning signs at Par and Polkerris beaches informing their users of the potential contamination.

Under the terms of its permit for the plant, South West Water is required to notify the agency of anything that might affect effluent quality. The company failed to do so, however, and the problem was discovered only when an agency officer noticed a bad smell and traced it back to the Luxulyan works.

South West Water was fined £50,000 under the Environmental Permitting (England and Wales) Regulations 2010 for each of these offences: failing to return the Luxulyan sewage treatment works to normal operation as soon as practicable; exceeding the BOD discharge limit of 56mg/l; and failing to inform the agency of any failure that may adversely affect effluent quality.

The agency has warned utility providers and other large companies that they face higher penalties in future for breaches of environmental legislation after recent judgments in the Court of Appeal and the new sentencing guidelines.

Court quashes Pickles' decision

The High court has overturned a decision by the communities and local government secretary, Eric Pickles, to refuse planning permission for a 24MW solar farm at a disused airfield in Suffolk. Justice Lindblom described as "perverse" Pickles' decision in October 2013 to reject an application by Lark Energy for the farm, despite approval by the local planning authority. Lindblom said the secretary of state had not performed his duty under s38(6) of the Planning and Compulsory Purchase Act 2004, and that the decision to reject the application showed "substantial prejudice" to the company. Waveney district council turned down Lark Energy's original application, forcing the firm to split the application in two. It received consent for a smaller 14MW scheme, which has since been constructed

and connected to the grid. The recent court ruling also refused the secretary of state leave to appeal.

NRW accepts Tata's dust plans

Natural Resources Wales (NRW) has announced that Tata Steel has fully addressed the dust pollution that resulted in an enforcement notice being issued for the firm's Port Talbot steelworks in July 2013. After complaints from local residents about dust, an NRW investigation identified as the cause movement of materials between the sinter plant and blast furnace stock houses to storage silos. NRW says that Tata has now complied with the requirements of the notice and has made additional improvements to ensure that releases of dust generated by the movement and handling of raw materials are minimised.

Case law

Protecting trees in conservation areas

In *R (on the application of McClellan) v Lambeth London Borough Council* [2014] EWHC 1964, the court considered a claim for judicial review by a resident against Lambeth council's decision to fell a tree. The 80-year-old tree, owned by Lambeth council, stood behind a public library in the Kennington conservation area. The council was concerned that tree roots could damage the library. It commissioned two reports and both found no evidence of damage to the library building. However, in July 2012, a council officer decided to fell the tree – as long as it did not receive any strong objection – and plant a new one nearby. Local residents submitted an independent report from a leading arboricultural consultancy, which stated that over 80 years the roots had not caused any damage and there was a "low" risk of future structural impact.

The council's cabinet considered the report and decided not to overturn the officer's decision. The claimant complained to the local government ombudsman, who concluded that the council was entitled to take this decision and found no fault in the process. The claimant then brought a claim for judicial review.




Judge Sycamore held that, although the council had no duty under s72 of the Planning (Listed Buildings and Conservation Areas) Act 1990 to preserve the tree, it was a "material consideration" that it was situated in the conservation area. He said: "Had the members of the cabinet weighed the impact that the loss of tree would have on the character of the conservation area as a whole, there is a real possibility that a different conclusion would have been reached."

Keith Davidson

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New regulations



In force	Subject	Details
30 Apr 2014 	Emissions trading	EU Regulation 421/2014 derogates certain aviation activities from the EU emissions trading system (ETS), including flights to and from outside the European Economic Area until 31 December 2016. In addition, non-commercial aircraft operators emitting less than 1,000 tonnes of CO ₂ a year are excluded from the ETS until 31 December 2020. The derogations are made in advance of the planned introduction by 2020 of a single, global, market-based measure for international aviation emissions. lexisurl.com/iema23854
14 May 2014 	Water	The Water Act 2014 received royal assent on 14 May. It provides powers to integrate abstraction, impounding, fish-pass approval and flood defence consents into environmental permitting. Water regulator Ofwat is required to take long-term resilience into account, while sustainable urban drainage systems may be a function of sewerage undertakers. Market reforms under the Act will permit business, public sector and charity organisations to switch sewerage and water suppliers. The sale of water resources between sewage undertakers and by owners of small-scale water storage is enabled, while the Act also introduces the “Flood Re” insurance scheme. Although applying primarily to England and Wales, the cross-border water and sewerage retail market aspects of the Act include Scotland, as do fish-passage permitting requirements on some rivers. The flood insurance provisions cover the entire UK. lexisurl.com/iema23852
28 May 2014 	Planning	The Planning (Fees) (Amendment) Regulations (Northern Ireland) 2014 revise fees payable for planning applications in Northern Ireland. lexisurl.com/iema22972
31 May 2014 	Natural environment	The Plant Health (Wales) (Amendment) (No. 2) Order 2014 prohibits the landing of elm for planting unless pre-notified to an authorised inspector. Amendments also remove provisions concerning western corn rootworm (<i>diabrotica virgifera virgifera</i>) following the implementation of EU legislation. lexisurl.com/iema23853
1 Jun 2014 	Energy	The Renewables Obligation (Amendment) Order (Northern Ireland) 2014 revises the renewables obligation scheme as follows: sustainability criteria are tightened for biomass feedstock to be used in electricity generation; and renewables obligation certificate (ROC) levels are increased for ground-mounted, solar photovoltaic generation with an installed capacity over 250kW. lexisurl.com/iema23864
5 Jun 2014 	Natural environment	The Plant Health (Forestry) (Phytophthora ramorum Management Zone) (Scotland) Order 2014 prohibits the movement of bark, wood or tree from two species of larch (<i>larix decidua</i> and <i>larix kaempferi</i>) and their hybrids in parts of Scotland. Movement is only permitted to approved facilities for processing. lexisurl.com/iema22970
10 Jun 2014 	Energy	The Energy Act 2004 (Commencement No. 11) Order 2014 brings the following sections of the Act into force: s89 prohibits the generation, transmission, distribution or supply of electricity within the offshore renewable energy zone unless authorised by a licence under the Electricity Act 1989; s180(1) defines “high voltage line”, which includes “relevant offshore lines”. Meanwhile, the Energy Act 2008 (Commencement No. 6) Order 2014 brings into force s44(3) of the 2008 Act, providing transitional arrangements for operators holding electricity distribution licences for systems consisting wholly or mainly of “high voltage lines”. lexisurl.com/iema23857 ; lexisurl.com/iema23858
18 Jun 2014 	Emissions	The Sulphur Content of Liquid Fuels (Amendment) Regulations (Northern Ireland) 2014 revise the maximum sulphur content permitted in heavy fuel oil (1% by mass) and gas oil (0.1% by mass), except for marine use. Derogations are also provided from the sulphur content limit on the use of heavy fuel oil under specified circumstances. lexisurl.com/iema23863


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

Latest consultations



31 Jul 2014

Environment guidance

 Defra is continuing with its year-long programme (to the end of March 2015) to “simplify” environment guidance. The latest topics for consultation from June are: land management; biodiversity; development; emergencies, pollution incidents and environmental hazards; enforcement and sanctions; and flood management and coastal change. lexisurl.com/iema23919




4 August 2014

Sepa and sustainable development

 The Scottish government is consulting on the statutory guidance on the general purpose for the Scottish Environment Protection Agency (Sepa) and its contribution towards sustainable development. The draft guidance has been developed by the government as a result of the new general purpose inserted into the Environment Act 1995 by the Regulatory Reform (Scotland) Act 2014. Although Sepa’s primary purpose remains the protection and improvement of the environment, the 2014 Act formally recognises that the regulator must balance the needs of the environment, the economy and social aspects. lexisurl.com/iema23067

15 August 2014

Underground drilling

   Decc is consulting on proposals to support underground drilling for extraction of petroleum – defined as covering all oil and gas (both conventional and unconventional) – to provide access to underground land. Currently, operators must negotiate rights of access with every landowner living above underground drilling. Decc is proposing a statutory right of access to allow companies to access underground land to extract petroleum or geothermal energy. The system would also include payment in return for the right of access – oil and gas companies have offered a £20,000 one-off payment for each “unique” horizontal well that extends more than 200 metres laterally; and a community notification process. lexisurl.com/iema23870

15 August 2014

Corporate social responsibility

 The European commission is seeking feedback on the achievements, shortcomings and future challenges of its activities on corporate social responsibility (CSR). These were outlined in the commission’s 2011

communication “A renewed EU strategy 2011–14 for CSR”, and covered eight areas, including enhancing the visibility of CSR and disseminating good practice, and improving company disclosure of social and environmental information. The consultation aims to identify what aspects of the 2011 strategy have proved useful and successful, and whether any specific actions were missing from the original plan. lexisurl.com/iema23064

15 August 2014

Freight transport

 The European commission has issued a consultation on improving “combined transport” – a form of goods haulage involving a combination of road transport with alternative rail and/or water-based transport – across Europe. Using alternative modes for most of the journey, with use of road haulage limited to a relatively short distance at the start and/or end can help reduce the overall environmental impact of freight transport and reduce road congestion, says the commission. Combined transport is currently promoted through EU Directive 96/53/EC, and the commission is seeking views on whether to revise the Directive. lexisurl.com/iema23873

New guidance

Climate change adaptation

A climate change adaptation manual has been published by Natural England (NE) to help conservation managers and advisers to make informed decisions about adaptation. It brings together recent science, experience and case studies, and is intended to be an accessible entry point to a range of available resources and tools that can support practical adaptation. NE says the manual will be useful to managers of nature reserves and other protected sites, conservation and land management advisers, and environmental consultants. It is available to download at lexisurl.com/iema23874.

Energy knowledge

The National Energy Foundation has launched an online knowledge forum for non-domestic building and energy professionals (nef.org.uk/building-performance-exchange/). The not-for-profit body describes the “Building performance exchange” website as a place for professionals to record their experiences, solutions and thoughts on building better buildings. The site has 24 categories, ranging from acquisition and building and facilities management to sustainability and verification.

Sustainability standards

A new website from BSI aims to help guide users through the often complex world of sustainability standards. The “sustainability standards navigator”, which was developed with support from the business department and Defra, provides a practical tool for organisations to help them understand standards that can assist with a specific sustainability-related issue, as well as highlighting the benefits of implementing a particular standard. BSI says the tool is aimed at improving understanding and accessibility of standards to organisations from all sectors and of all sizes.

In the May issue, the environmentalist mistakenly reported that the Environment Agency had revised its guidance on pollution prevention. These documents have not been updated recently. We apologise for the error.

Laying down the law



Taking a regulator to court

In the aftermath of the winter floods, **Simon Colvin** highlights the key legal barriers organisations and individuals face when attempting to sue a regulator



When can you sue an environment regulator for getting it wrong is a question clients often ask me. Taking action against a regulator has also emerged as a hot topic since the flooding earlier in the year, which some have suggested could have been prevented or better controlled if the Environment Agency had dredged rivers more frequently or maintained flood defences more regularly.

The short answer to the question is yes, but with difficulty. Simply, the person seeking to bring the claim would need to demonstrate they were owed a duty of care by the regulator, that the duty had been breached and that the infraction resulted in them suffering harm or loss.

In environmental cases, there is a requirement to demonstrate that the regulator owed the person affected a duty of care, and this is the most difficult hurdle to overcome. It helps to consider this point in relation to the two routes open to those wanting to bring a claim against a regulator: a breach of statutory duty and a breach of common law duty.

Statutory duty

It is notoriously difficult to successfully bring a claim for breach of statutory duty – for example, under s4 of the Environment Act 1995 (EA 1995), which places a duty on the agency to act to protect and enhance the environment. The primary reasons for this difficulty are twofold:

- many statutes do not create such a right and it was never the intention of parliament to confer that right on those affected by a breach of duty; and
- such duties are often for the benefit of the public at large as opposed to

a specific group. Generally it is only where a duty is owed to a specific group that a claim can be brought for breach of a statutory duty. Also, the courts take the view it is not in the public interest to subject regulators to such duties, so they often come down on the side of the regulator when interpreting statutes.

It is important to note that EU law gives rise to a number of important duties relating to the environment – for example, arts 11 and 191 of the Treaty on European Union. There is also a EU principle that there should be effective remedies for breaches of European law. It is arguable that if a regulator were in breach of its environmental duties under EU law it would give rise to an actionable claim.

Common law duty

Generally, liability for the negligent exercise of a power conferred on a regulator will arise only where it has assumed a specific duty or responsibility to the person affected, such as through specific knowledge, or where that person has been exposed to a risk due to circumstances created by the regulator.

In practice it is rare for such circumstances to occur, at least to the extent necessary to give rise to a duty. It is the courts that are often asked to consider this question. Generally they are reluctant to interpret the circumstances as giving rise to the existence of a duty.

The justification for a reluctance to impose a duty is that it is not fair and reasonable to do so. Nor would it be in the public interest because the imposition of such a duty could inhibit the regulator's ability to exercise its various statutory functions. That said, there are situations in which the actions of the regulators – whereby they have had specific knowledge or undertake specific steps without regard to those who might be affected – can give rise to an actionable duty.

No successful environmental cases have been reported. That is probably because it is such a high hurdle to demonstrate the existence of “special circumstances” and also because any claims that are likely to be successful tend to be settled before reaching the courts. Examples of unsuccessful cases against an environment regulator include *Dodson v Environment Agency* [2013] EWHC 396 and *Sterling v NIEA* [2014] (see panel, below, for details).

The ever-increasing influence of EU legal principles and the growing prevalence of claims against other enforcement agencies, such as the police, suggest it is only a matter of time before we start to see more claims against the environmental regulator from those who suffer harm or losses due to the negligent or improper exercise of their powers.

Those bringing such claims will need to show the existence of special circumstances. But I wonder, if such claims become more prevalent, whether we will see a softening of the courts' stance towards the question of whether or not a duty of care was owed in the first place. I think we might.

Dodson v Environment Agency

In *Dodson v Environment Agency* [2013] EWHC 396, the High court clarified that the Environment Agency owes no duty of care to private landowners. The plaintiff had claimed damages for conservation work by the agency. This work included the reintroduction of otters, which the plaintiff claimed had led to the loss of several thousand of his fish. The court held that the agency had no general common law duty of care to private landowners because this would create a conflict with the regulator's conservation duties.

Sterling v NIEA

In *Sterling v NIEA* [2014] NIQB 8, the High court said the Northern Ireland Environment Agency had not assumed a responsibility towards the plaintiff, a skip-hire operator, because there were no special circumstances.

Simon Colvin is legal director in the environment practice at Pinsent Masons LLP. Follow him on twitter @envlawyer

the environmentalist

POWER

★ LIST

2014



The inaugural *environmentalist* powerlist reveals the individuals our readers believe are the most influential in helping organisations better manage their environmental impacts or who have had a big influence on raising environment issues up the business and policy agendas. Readers voted online and via Twitter, and the top 10 is a mix of people, from those working to encourage better use of resources and improve business practices, such as Wrap chief executive Liz Goodwin and Mike Barry at Marks & Spencer, to those, like broadcaster Sir David Attenborough and Forum for the Future founder Jonathon Porritt, who have worked tirelessly to elevate interest in the natural environment and the need for sustainable development.

★ Liz Goodwin

Liz Goodwin became chief executive at Wrap in 2007. A chemist by background with a PhD in chemical physics, Goodwin held a number of technical and production-related roles with ICI and Zeneca before moving into the environmental field. She joined Wrap in 2001 as director of its materials programme. Since becoming CEO, Goodwin has shifted the focus of the organisation to one that is helping to deliver the economic benefits of a more circular economy. Goodwin says her aim is to make a difference by working with others to help make the UK economy more circular.

She comments: “I want to say a huge thank-you to the readers of *the environmentalist* who voted for me in the 2014 powerlist. I’m especially pleased, as it’s a publication I hold in high regard – but that’s not the only reason. Getting this recognition is a real credit to the work of my colleagues at Wrap and our partners.

“It’s clear, the pressure on global resources means there is a pressing need to influence organisations on how they manage their environmental impacts, and the most powerful way to do that is to be able to show the big economic gains from using resources more efficiently. That really builds the business case. We’ve seen a seismic shift in the UK over the past decade in the way the UK thinks about these things, whether that’s increasing recycling rates or cutting food waste. Looking ahead, Wrap will continue offering its expertise and practical know-how, helping to create a robust circular economy. With population growth, shortages of supply, climate change and dwindling materials, all at a time when the financial recovery is not complete, safeguarding the future is dependent on a culture of being more resourceful. The circular economy fits with all of these. There are solutions to these challenges; we need to embrace them.

“I’m glad you support my ambitions of encouraging positive change. Together, we can make a real difference to the benefit of organisations, the economy and the environment.”

★ Sir David Attenborough

Naturalist and broadcaster David Attenborough has spent five decades exploring rare wildlife in its natural habitat, having joined the BBC in 1952 as a trainee producer and making the landmark series, *Life on Earth*, in 1979. Attenborough was knighted in 1985 and is a trustee of the British Museum and the Royal Botanic Gardens, Kew, as well as a Fellow of the Royal Society.

Attenborough is currently on location, but he set out his thoughts on the impact of human society on the natural world in the final episode of his *State of the planet*

series, which was first broadcast in 2000, saying: "The future of life on earth depends on our ability to take action. Many individuals are doing what they can, but real success can only come if there's a change in our societies and our economics and in our politics. I've been lucky in my lifetime to see some of the greatest spectacles that the natural world has to offer. Surely we have a responsibility to leave for future generations a planet that is healthy, inhabitable by all species."



★ Anne-Marie Warris

Anne-Marie Warris, MIEMA, CEnv and Fellow of the Energy Institute, has more than 25 years' experience in sustainability. She is chair of both the ISO sub-committee (TC207/SCI) responsible for environment management systems and the ISO joint task coordination group, as well as chair of the UK emissions trading group. She is also ISO observer at the IMO marine environmental protection committee. Having spent much of her career at Lloyd's Register and LRQA, Warris now runs her own consultancy, ecoreflect. Its aim is to continue to explore and understand "eco" – economy, ecology, ecosystems – and reflect on the links and connectivity that govern the way the world works.

She told *the environmentalist*: "Personal consistency in behaviour, while helping to improve consistent environmental outcomes is important to me. To be consistent I need to lead by example, so am involved voluntarily with a very exciting wave energy concept, CCell, which is aimed at small-scale generation. I also have my various ISO roles and my position at the UK emissions trading group. And I am also in the process of building an energy-efficient house. Professionally, I believe voluntary, international, consensus-based standards are critical to helping us achieve a better environmental outcome."



★ Caroline Lucas

The UK's first Green MP, Caroline Lucas, has represented Brighton Pavilion since 2010, having been elected, in 1999, as the first Green MEP in the UK, representing southeast England. She is now a member of the House of Commons' environmental audit committee. Lucas was voted the UK's most ethical politician in 2007, 2009 and 2010 by readers of the *Observer*. Speaking to *the environmentalist* about her hopes for the "greener" future, Lucas highlights three areas of activity: "Get together – today digital media is used with increasing flair to get heard globally and instantly. Whole movements are being born from even

the simplest of 'hashtag' campaigns. Combine efforts – more voices make a louder noise. We should work together much more than we do. Organisations can make a huge difference alone but, where we combine our efforts, our influence and lobbying power grows. Think positive – more and more organisations are seeking to work in a greener and more sustainable way, reducing their own carbon footprint. Next, they need to shift from simply offsetting negative impacts to promoting an actively positive approach to greening their work."

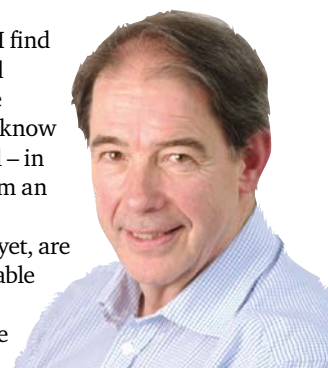


★ Jonathon Porritt

A former teacher at a west London school, Jonathon Porritt became involved in environmental issues in 1974, and was appointed director at Friends of the Earth in 1984, a position he held until 1990. In 1996, he was a founder director at Forum for the Future, which he says remains "home base" in terms of his current activity, which ranges from advisory work to writing. His latest book, *The world we made*, was published in October 2013. He stood down as chair at the now defunct UK sustainable development commission in July 2009 after nine years providing high-level advice to government ministers. Porritt received a CBE in January 2000 for services to environmental protection.

Reflecting on what it means to work in sustainability, he says: "From time to time, I find myself asking, 'why is all this still such hard work?'. We all know we have to learn to live more sustainably on this planet, and we all know that changing our ways need not be painful – in fact, it's mostly very advantageous both from an economic and a quality-of-life perspective.

"The reality is that not enough people, as yet, are excited about that transition to more sustainable living, allowing politicians – especially this dreadful coalition government – to do as little as they think they can get away with."



★ Ellen MacArthur

Ellen MacArthur shot to prominence in 2001 when, aged 24, she single-handedly sailed non-stop around the world in the Vendée Globe race. In 2004, she became the fastest person to circumnavigate the globe single-handed, having sailed more than 26,000 miles in just over 71 days. MacArthur says her years at sea gave her a deep understanding of what it means to rely on a finite supply of resources.

In September 2010, she launched the Ellen MacArthur Foundation with the goal of “accelerating the transition to a regenerative, circular economy”. It works in the three areas of business, education and communication. MacArthur was knighted in 2005 and she received the Légion d’honneur from the French president in 2008.



★ Sally Uren

In July 2013, Sally Uren became chief executive at Forum for the Future, the global not-for-profit organisation, working with businesses, governments and others to solve complex sustainability challenges. Her role includes overseeing relationships with business partners, including Aviva Investors, Heineken, Kingfisher, Sky and Unilever. She is also project director on a number of innovation projects being run by

Forum for the Future, including Tea 2030. She is chair of Kingfisher’s advisory council, a member of Sustainable Brand’s advisory board and an independent member of advisory boards and stakeholder panels for numerous global businesses. Before joining Forum for the Future, Uren was director of environment management and sustainability at Casella Stanger (now Bureau Veritas).



★ Mike Barry

Mike Barry is director of sustainable business at Marks & Spencer. He has responsibility for the firm’s high-profile strategy, Plan A, which was launched in 2007 and aims to help M&S become the world’s most sustainable major retailer. His role involves ensuring sustainability is integrated with the commercial side of the business. He is also focused on embedding sustainability across the retailer’s global operations so that leadership teams have the skills and knowledge

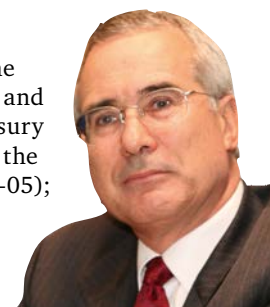
to implement Plan A, and engages with stakeholders so that M&S is “talking to the right scientists, pressure groups and policymakers” about the future. Barry reports directly to the company’s chief executive, Marc Bolland. Barry is co-chair of the sustainability steering group at the Consumer Goods Forum, and a board member of both the World Environment Center and Business in the Community.



★ Professor Nicholas Stern

Lord Stern has been chair of the Grantham Research Institute since it was founded in 2008, and is chair of the ESRC centre for climate change economics and policy. He is also the author of the influential *Stern review of the economics of climate change*, which was published in October 2006 during his two-year tenure as a government adviser on this subject. The report described climate change as the “greatest market failure the world has seen”. An economist and

academic, Stern was also previously head of the government’s economic service between 2003 and 2007; second permanent secretary to the Treasury (2003–05); director of policy and research for the prime minister’s commission for Africa (2004–05); and chief economist and senior vice-president at the World Bank (2000–03). In 2007, he received a life peerage, with the title Lord Stern of Brentford.



★ Al Gore

Former US vice-president Al Gore is best known in environmental circles for his Academy award-winning documentary film *An inconvenient truth*, which was released in 2006. Gore was elected to the US House of Representatives in 1976, 1978, 1980 and 1982, and the Senate in 1984 and 1990. He served as the 45th vice-president from January 1993 to 2001. He controversially lost the 2000 presidential vote to George W Bush, winning the popular vote but losing

the electoral college (“electors” in each state). Gore now spends most of his time as chair of the Climate Reality Project, a non-profit organisation devoted to solving the climate crisis. Established in 2011, it was formed by merging the Alliance for Climate Protection and the Climate Project, which Gore had set up in 2006. In 2007, Gore, together with the Intergovernmental Panel on Climate Change, was awarded the Nobel Peace Prize.



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Risky business

the environmentalist checks out the key messages from the new IEMA guide on sustainable resource management

The 28 member countries of the EU use on average about 16 tonnes of materials per capita each year. Some 10 tonnes go into stocks, such as infrastructure, houses and durable goods, while the rest leaves the economy as waste. Improving resource efficiency is a key policy objective for the European commission (see panel, p.22). Its 2011 document, *A resource efficient Europe*, makes it clear that the current linear, “take-make-use-discard” model of production and consumption is no longer an option. Instead, new ways ought to be developed to reduce inputs, minimise waste, improve management of resource stocks, change consumption patterns, optimise production processes, management and business methods, and improve logistics.

To assist the transition from the take-make-use-discard model to a circular or regenerative model, which reuses the materials to reduce the need for virgin materials, IEMA has published a guide, *From waste to resources*, on implementing sustainable resource management (SRM) in an organisation. Launched on 19 June, it sets out the opportunities of taking such an approach; the value that environment and sustainability professionals can add; the need for strong leadership and strategic support from senior management; and the necessary core systems, including procurement and supply-chain management.

Efficient and effective

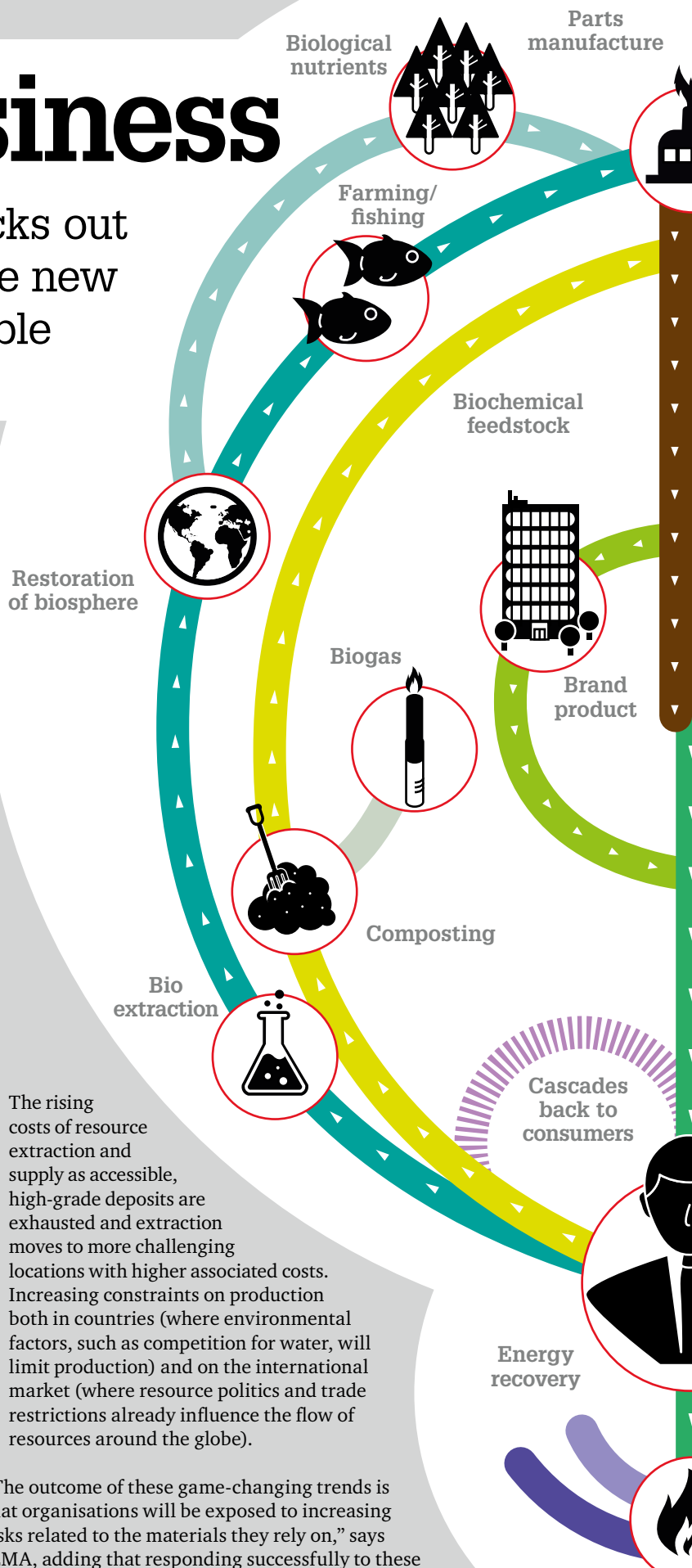
All businesses can take advantage of the opportunities offered by SRM, says the report, but it acknowledges that too many remain focused on managing waste rather than recognising it is the consequence of an ineffective system. Securing the financial and other potential benefits of a circular economy requires all organisations to engage in the transition to resource management to ensure they begin viewing waste and unused/end-of-life products as viable raw materials, says IEMA.

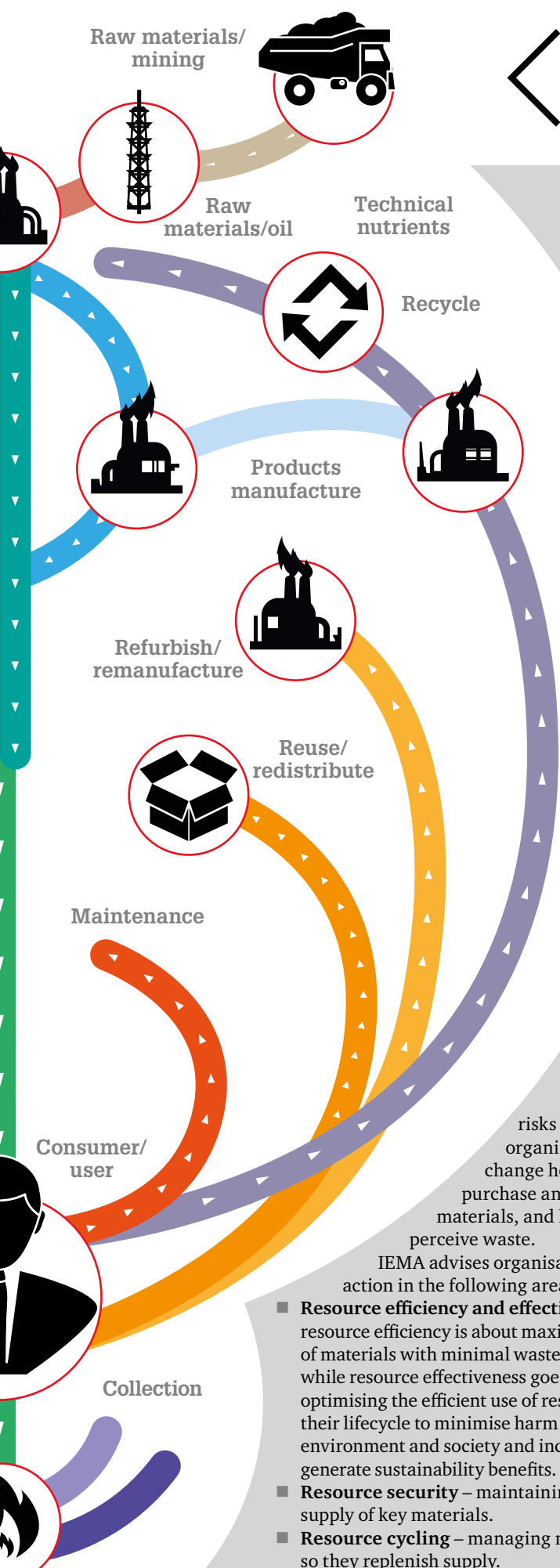
It outlines the drivers that are reshaping how organisations view resources. These include:

- Substantial growth in demand for all resources, led by the growth in middle-class consumers and rapid urbanisation, particularly in the Asia Pacific region.
- Exceptional demand for key enabling materials to support the significant and ongoing expansion in technologically advanced products and services – for example, smartphones, renewable energy, and hybrid and electric transport.

- The rising costs of resource extraction and supply as accessible, high-grade deposits are exhausted and extraction moves to more challenging locations with higher associated costs.
- Increasing constraints on production both in countries (where environmental factors, such as competition for water, will limit production) and on the international market (where resource politics and trade restrictions already influence the flow of resources around the globe).

“The outcome of these game-changing trends is that organisations will be exposed to increasing risks related to the materials they rely on,” says IEMA, adding that responding successfully to these





Circular economy

Six steps to success

1. Enable your environment and sustainability professionals to catalyse your organisation's progress on resource management by developing an action plan identifying departmental and individual responsibilities.
2. Provide the leadership required to create a positive culture around a clear vision.
3. Involve your entire workforce in sustainable resource management initiatives, particularly those in research and development, and the design of products and services.
4. Ensure your business maintains a clear understanding of its potential exposure to resource security risks, which are dynamic in their nature.
5. Embrace the circular economy in your long-term business strategy to identify ambitious targets and initiatives that actively seek to disrupt the traditional approach to resource management.
6. Align your systems to deliver effective performance improvements in management of resources – resource data collection and analysis, procurement of materials, and control activities across the value-chain.

Spotlight on practitioners

The report identifies the practical steps that organisations can take to move to SRM. First, senior management, particularly the chief executive, needs to ensure resource thinking becomes embedded in the company's ethos and strategy. Second, it highlights the key role of environment and sustainability professionals. It is practitioners, argues IEMA, who will ensure businesses systems adapt to meet the new strategy. Through their knowledge and cross-cutting roles, environment and sustainability practitioners have the potential to act as change agents to drive action. Finally, the rest of the workforce needs to be fully engaged and appropriately incentivised to improve resource management.

Research by IEMA has found that the initial actions required to begin the transition to SRM can often be driven by a small number of staff, or even a single individual. Inevitably, these are environment and sustainability professionals because they generally have the skills and knowledge to help stimulate the transition. These competences, which are typically demonstrated by Full membership of IEMA (iema.net/membership-full), include: an understanding of environmental and sustainability issues from global to local, and from short to long term; skills to collect, analyse and report data effectively; ability to communicate a compelling case for action across different parts of a business; leadership that positively influences the culture of individuals and the organisation; and experience of using core environmental and sustainability tools, such as environment management systems, lifecycle thinking and sustainability reporting.

risks will require organisations to change how they purchase and use materials, and how they perceive waste.

IEMA advises organisations to take action in the following areas:

- **Resource efficiency and effectiveness** – resource efficiency is about maximising the use of materials with minimal waste production, while resource effectiveness goes further in optimising the efficient use of resources across their lifecycle to minimise harm to the natural environment and society and increasingly generate sustainability benefits.
- **Resource security** – maintaining a reliable supply of key materials.
- **Resource cycling** – managing material flows so they replenish supply.

Tools of engagement

IEMA has created the resources action maturity planner (RAMP, iema.net/rmramp) to help organisations evaluate their position in relation to resource management. The Institute has also established a resource hub at iema.net/rm, where practitioners can go for more information, including the full report and a summary for businesses, and sign up to become a member of its resource management group.

Commission eyes new targets

On 2 July, the European commission launched its proposals to overhaul EU waste legislation. These are designed to move the EU to a more circular economy and deliver the roadmap to a resource-efficient Europe, published in 2011. The proposals (p.4) include:

- member states to recycle 70% of municipal waste by 2030;
- 80% of packaging waste to be recycled by 2030;
- ban on burying recyclable materials – paper, metals, glass, paper and cardboard, and biodegradable waste – in landfill from 2025.
- material-specific recovery targets will gradually be increased between 2020 and 2030 to: 90% of paper and cardboard by the end of 2025; and 60% of plastics, 80% of wood, 90% of ferrous metal, aluminium and glass by the end of 2030;
- the virtual elimination of landfill by 2030; and
- a 30% reduction in food waste generated by 2025.

Outgoing environment commissioner Janez Potočnik made it clear during EU green week at the start of June that a circular economy would become the “new order of things”, pointing out that continuing with the current take-make-use-discard model, in which 80% of what is produced is used once and discarded, is no longer an option.

A survey of 500 IEMA members reveals that many organisations employing skilled and qualified environment and sustainability professionals are already achieving significant benefits by taking action on resource efficiency. Nineteen per cent of practitioners working in very large companies indicated that their company had saved more than £1 million a year by improving their resource efficiency; more than 20% of large companies report annual savings of £100,000 a year; and 63% of small and medium-size enterprises saved at least £5,000 a year, with nearly 70% reporting annual savings of more £10,000.

These figures suggest that annual savings of more than £108 million have been achieved by organisations that employ environment and sustainability practitioners.

A systems approach

Gathering meaningful data and reporting it is vital to managing materials and waste effectively, says IEMA, adding that collecting the data is not enough; it needs to be reported in a comprehensible way across the business to those who can implement an appropriate response.

Environment and sustainability practitioners should be at the forefront of collecting and disseminating such information, says the report, but acknowledges that in many organisations such activity focuses on waste, not materials. “The current focus on

waste data and reporting poses significant risks to an organisation’s ability to efficiently transition to resource management,” warns IEMA. This is because the professionals responsible for driving performance improvements base their decisions on evidence.

With access to waste data and little equivalent information on material usage, it is inevitable that many will prioritise improving waste management, such as increasing recycling rates, over resource management initiatives like reducing resource intensity.

Although IEMA has discovered examples of where environment and sustainability professionals have ensured that the resource management information systems generate high-quality data, its research indicates that most of the practitioners lack access to key data to make an effective assessment of their organisation’s performance.

As well as ensuring the necessary data on waste and materials is collected and reported, IEMA recommends that organisations seeking to adopt SRM prioritise procurement activities. To effectively manage the risks and opportunities associated with resource use, organisations must significantly improve their understanding about purchased materials, says the report. This extends beyond an organisation’s own operations to activities, risks and opportunities across its value chain. The report advises developing a strong working relationship between the environment/sustainability team and the procurement team to ensure “green” purchasing criteria – for example, setting minimum requirements for recycled content and agreeing supplier take-back arrangements – are applied to all purchased goods and products.

To truly manage its resources, an organisation must understand the impacts, risks and opportunities of the lifecycles of its materials, says IEMA. This involves going beyond conventional thinking to consider a material from its source, through the supply chain and the organisation’s activities, on to clients and the end-user and the potential for it as a future resource.

The revised ISO 14001 standard, due to roll out next year, should help generate such thinking. It is expected to require organisations to embed lifecycle thinking and value chain engagement with stakeholders.

Championing the cause

The financial benefits of improving resource efficiency are clear. A report from Defra and resource efficiency consultancy Oakdene Hollins in 2011 found that £23 billion could be saved across the UK economy if organisations put in place low- or no-cost actions to manage resources more efficiently. Using raw materials more efficiently and minimising waste would generate 80% of these savings. In addition, including measures with a longer payback would raise potential savings to £56 billion. As well as these, the IEMA report highlights how adopting SRM can help drive competitive advantage, reduce business risks and support growth.

The Institute now wants all environment and sustainability professionals to champion the transition to SRM in their organisation.



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Defensive

Is dredging rivers the answer to rising flood risk?

The record winter rain focused attention on how the UK manages water to reduce the impact of flooding. To do this cost-effectively and sustainably depends on joining up the management of water across a river's entire catchment. Success can be measured in reduced flood risk, improved water quality and wider biodiversity.

In the upper parts of the catchment, good agricultural and land management practice, such as tree planting, provides the groundwater recharge, evaporation and transpiration from plants to retain water as well as reduce peak flows and runoff. Providing flood storage further down the catchment – including restoring rivers in urban areas – retains water during high rainfall to prevent downstream flooding.

Open space next to waterways in towns stores excess water and doubles up as recreation and public open space during times of low flow. Other sustainable drainage systems (SuDS) – areas designed to hold water safely in developments and permeable surfaces – in the towns, including green roofs, reduce the runoff from rain falling directly in the area.

In the lowland parts of the catchment, where gradients are very low and drainage is managed to control water levels, removing silt to maintain the transmission capacity of watercourses is essential to maximise the conveyance of water to pumps and sluices where it is discharged into the sea or another watercourse. Removing silt in lowland areas where water levels have been managed for centuries to provide social and economic benefits, and otherwise would revert to marshland, is different from removing silt for navigational purposes in upstream sections.

In upper areas of a catchment, where gradients are higher, there should be no need to remove sediment because silt will be moved downstream naturally in high flow conditions.

Removal of silt is different from activities to straighten and alter the profile of river channels. However, the debate about where dredging is and is not appropriate has been characterised by misunderstandings driven by a lack of consistency in the definitions of the operation by different organisations.

The Association of Drainage Authorities (ADA) and the Internal Drainage Boards define dredging as “desilting”, a process of removing the build-up of silts or sediments from a watercourse to maintain its design capacity. The Environment Agency is now using this as the definition. Previously it made a distinction between dredging and desilting, with the former seen as enlarging the original channel through deepening and widening or reprofiling.

After the 2014 winter flooding, the ADA provided information on the purpose of desilting, which it regards as essential in low-lying areas where the land is relatively flat, flows are slow and pumping may be required to manage water levels. In such areas enough capacity in the channel must be maintained to take full advantage of hydraulic gradients to transfer sufficient quantities of water to discharge points. Higher capacity in the channel maintained by desilting moves water faster so the area can recover before the next heavy rain. Vegetation management, such as weed removal, is also essential to maintain design capacity.

Desilting is not “bad” for the environment when carried out sympathetically as a planned operation. It can increase the biodiversity and nature conservation potential of artificial water bodies without reducing their effectiveness as drains. Without desilting, watercourses can become so silted up that there is insufficient water to sustain a balanced ecosystem.

Dr Jean Venables, chief executive, and **Tim Vickers**, former technical researcher, Association of Drainage Authorities.



move

Historically, many rivers in the UK have been dredged, resulting in detrimental impacts on habitats. Although dredging may reduce some localised flooding, it would not have prevented the devastation of last winter.

Post dredging, a river will immediately start to deposit fine sediment, since dredged sections will have more storage capacity. Material can either enter the river from the surrounding areas – often contaminated, and adding additional pressure to already degraded habitats – or “mined” from upstream parts of the catchment, resulting in unpredicted bank erosion problems and further increases in sediments. As these natural river processes kick in, they negate any long-term benefit of the operation.

There is an argument in support of local desilting of berms – a level space or raised barrier separating two areas that are used to control erosion and sedimentation by reducing the rate of surface runoff. This is necessary where, for example, it is essential to maintain flow under road bridges if rainfall becomes more frequent and intense. However, routine dredging of rivers is an expensive, unsustainable river management activity, with limited benefit.

An 870m reach of the River Knaik, in Perthshire and Kinross, Scotland, was dredged in June 1995, and illustrates what can happen when a river is dredged. According to Scottish Natural Heritage, the morphology – and hence the habitat quality – was destroyed and the dredged section replaced by a shallow, flat, uniform, silt-covered bed. The increase in fine sediment was recorded at 23,000%.

Some argue that the blocking of upland ditches and erosion gullies to delay the flood peak downstream is preferable, but this technique in itself is not enough to manage floods. We need to rethink our land and water management approaches at the catchment level. If strategically implemented, measures could be taken to reduce the amount of fine sediment and water runoff

entering rivers during floods by focusing on the cause rather than the effect, thus negating the need to dredge rivers. Sustainable drainage, soil compaction reduction, buffer strips to reduce water flow connectivity by increasing resistance and storing water to “slow the flow” can all play their part.

Of course no two catchments will ever respond the same. The Parrett catchment in Somerset, centre of so much discussion last winter, is a perfect example. Much of this clay-dominated catchment has inland areas that lie up to 4m below the coastal plain, a situation that contributed to most of the flooding. Unlike the nearby Brue catchment, where flooding was restricted to controlled washland zones with limited impacts on the local community, the Parrett has no exclusion sluice. As a result, more than 32km of river are subject to tidal-related siltation. The tide flows in over two hours and ebbs slowly out for 10, carrying more silt upriver than it is capable of returning.

Freshwater flows normally occur only a few times a year in contrast to the twice daily tides. Since the channel size and resultant discharge capacity of the tidal reaches are determined by the tidal regime, it cannot handle major freshwater floods. Any enlargement of the tidal reaches by dredging, however, results in rapid resiltation. So, without the implementation of a range of catchment-based measures, including a tidal exclusion sluice, dredging would need to be frequent or even continuous.

Surely by implementing a range of solutions tailored to specific catchment needs we should be better able to manage flooding and ensure fragile wildlife habitats are preserved. This makes economic sense and would ensure that the dredger bucket is used as a last resort only.

Dr Jenny Mant is science and technical manager at the River Restoration Centre. She would like to thank independent chartered engineer **Dan Alsop** for his assistance with this article.

Crossing the capital

London's Crossrail project is on track to achieve its environment targets. **Paul Suff** finds out how

Crossrail will link Heathrow and Reading in the west with Abbey Wood and Shenfield in the east, passing through central London and increasing rail transport capacity in the capital by 10%. The full service is due to start operating fully in 2019. Before trains can travel on the route, more than 100km of track will have to be laid, 40 stations built or upgraded and 42km of new tunnels constructed beneath London. The work has significant environment impacts. The tunnelling alone will involve excavating around 4.5 million tonnes of material.

Environment manager Cathy Myatt says Crossrail picked up the baton passed by London 2012 to drive sustainability standards on major construction even higher. "We are certainly pleased with where we are," she says. "Contractors are exceeding waste targets, with 97% of demolition waste and 99% of construction waste being diverted from landfill, and 99% of excavated material beneficially reused – a large proportion of which is being shipped to Wallasea Island in Essex to create an RSPB nature reserve."

Myatt also reports some other notable achievements, such as Crossrail's development of a new BREEAM standard for evaluating the environmental performance of its new underground stations and its requirement that, where practicable, contractors use diesel-powered plant machinery with newer, cleaner engines or retrofit emissions-control devices on to existing engines.

Laying the foundations

Work on Crossrail, which is Europe's largest construction project, started in May 2009 and most of the tunnelling and major civil engineering works will be completed by the end of this year. From the start, Crossrail acknowledged that the scale of the project meant it could help shape the future of construction, and its aim is to set a new standard for environment management for the industry. That vision, entitled "Setting the standard for environmental performance and leaving the legacy of a sustainable railway", involves setting high benchmarks for contractors.

"Three-pronged" is how Myatt describes the approach adopted by Crossrail to ensure its environment vision becomes a reality. The first element of that was to put in place measures to ensure the construction works achieve industry best practice across the entire project. "We gathered information on what was currently achievable in terms of waste, for example, and set that out in the works information accompanying companies' contracts," explains Myatt. The sustainability team worked with Wrap to set its targets to reuse or recycle at least 90% of the estimated 1.3 million tonnes of construction and demolition waste generated over the main construction period of the project (to 2016), and at least 95% of the 6 million tonnes of clean earth from excavating the new underground stations and train tunnels.

The high standards and targets are accompanied by a strong assurance regime. "We've got a system of audits and inspections to ensure contractors are meeting our standards, and robust reporting requirements to provide visibility on how they are performing as the project progresses," says Myatt.

Above and beyond

Best practice is the minimum level of attainment, however, and the second strand of the Crossrail approach to environment management is to encourage contractors to excel. With contractors generally exceeding the targets for both construction and demolition waste, and excavated materials, many have sought from the beginning to pursue higher standards of performance. "We want contractors to focus on areas where they can realistically 'push the boundaries' of what is regarded as best practice. Our ambition is to set the new 'norm' in several areas," says Myatt.

Waste is one such area. Phil Bailey, environment manager at the Hochtief Murphy Joint Venture (HMJV) – the main contractor for the 2.6km tunnel under the Thames that links North Woolwich and Plumstead in south east London and is known as C310 (see panel, right) – summarises the company's commitment to exceeding Crossrail's waste targets: "We aim to divert 95% of our construction and demolition waste from landfill and recover all clean and excavated material."

To reduce waste HMJV is using hoarding made from 100% recycled plastic, which, unlike conventional plywood hoarding, can be reused on other projects. The panels can also be returned to the manufacturer for recycling at their end-of-life. The contractor has also received an exemption from the Environment Agency to reuse tarmac that previously formed the diversion roads at the tunnel entry and exit points at North Woolwich.

Another area of focus for Crossrail is air quality. Non-road mobile machinery used on construction projects is estimated to cause 15% of London's PM10 particle emissions, a major contributor to poor air quality in the capital. Under its environmental minimum requirements, Crossrail has to implement measures to control emissions from construction equipment, hence the requirement for contractors to use diesel-powered plant machinery with newer, cleaner engines (Euro IIIB standard) or retrofit diesel particulate filters (DPFs) on to existing engines.

Myatt says Crossrail learned from the experience of London 2012 on controlling such emissions and decided to go further. "Also, I knew Crossrail would come under the spotlight if London had a period of poor air quality," she says. Compliance has not been easy, however.

Bailey reports that HMJV is 100% compliant across the plant where more efficient versions are available or where DPFs can be fitted – it is difficult to fit such equipment to small dumpers, for example.

"More than 20 pieces of plant have either Euro IIIB standard engines or DPFs fitted," says Bailey. Reaching this position involved HMJV working closely with suppliers to find solutions for different types of plant. He also notes that few hire companies are prepared to invest about £3,000 in fitting DPFs to their machinery unless demand is sufficient.

Crossrail is committed to reducing its carbon footprint during the construction stage and into the future when trains start running. At the start of the project, total carbon emissions for the construction phase were predicted to be 1.7 million tonnes, and Crossrail



Going underground

Two types of tunnel boring machines (TBMs) are used on the Crossrail project to reflect the differing ground conditions along the route. The Thames Tunnel (C310) is bored mainly through chalk, so slurry TBMs, named Mary and Sophia, are used, whereas earth pressure balance machines are deployed elsewhere because the ground is predominantly London clay, sand and gravels. Each of the eight TBMs used on the project are operated by a team of 20.

Across the 42km of tunnels, the TBMs will excavate 4.5 million tonnes of material, and install 250,000 pre-cast concrete tunnel segments to form the lining. The 2.6km tunnel C310, which links North Woolwich and Plumstead, is being bored about 15m below the river bed. Mary and Sophia are 110m long, weigh about 980 tonnes and drill at a rate of 100m a week.

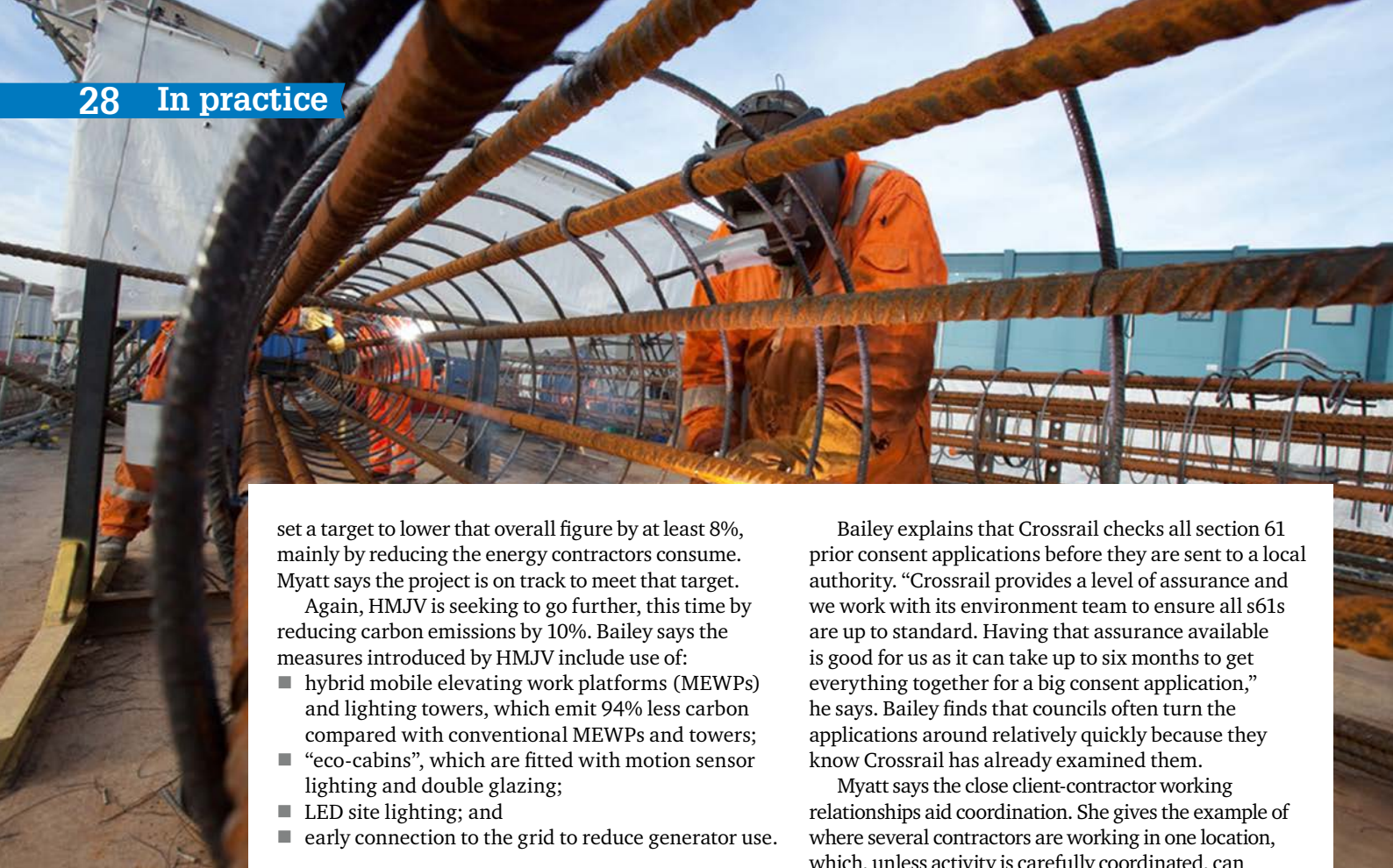
Hochtief Murphy Joint Venture (HMJV) is the main contractor for C310. Environment manager Phil Bailey says HMJV is committed to preventing pollution and minimising the negative impacts of construction work. "HMJV aims to go beyond environmental compliance and meet best practice across all activities," he says. Achieving its environment objectives requires HMJV to innovate. An example is its proposal to increase the size of the pre-cast tunnel segments, so fewer need to be shipped from the manufacturer in Ireland. "Making the segments slightly larger means the overall number that will be installed across the project is reduced by 7%," explains Bailey.

Material (80% of which is chalk) excavated by Mary and Sophia is piped back as slurry to the C310 base at Abbey Wood where there is a separation treatment plant. After being separated from other materials, chalk passes through a filter press. This squeezes out the water and compacts, or presses, the chalk into "filtrate cake" at the rate of 15 tonnes an hour. These cakes have a moisture content of less than 35%.

A large proportion of the excavated material from the Crossrail project will be used to create a huge wildlife reserve at Wallasea Island, eight miles north of Southend-on-Sea, which the RSPB will transform into 1,500 acres of tidal wildlife habitat. The chalk from C310 is not suitable for Wallasea, so most of the material from that tunnel will be transported to Veolia's Pitsea landfill facility at Holehaven Creek to help transform the site into high-quality land for public access and a chalk-grassland habitat.

The other excavated materials, such as gravel, are transported to a washing and grading centre at Tilbury for separation. Larger aggregate is sold for use in the construction industry, with finer graded material sent for use in landfill restoration.





set a target to lower that overall figure by at least 8%, mainly by reducing the energy contractors consume. Myatt says the project is on track to meet that target.

Again, HMJV is seeking to go further, this time by reducing carbon emissions by 10%. Bailey says the measures introduced by HMJV include use of:

- hybrid mobile elevating work platforms (MEWPs) and lighting towers, which emit 94% less carbon compared with conventional MEWPs and towers;
- “eco-cabins”, which are fitted with motion sensor lighting and double glazing;
- LED site lighting; and
- early connection to the grid to reduce generator use.

To encourage those working on the project to identify improvements and solutions to problems, Crossrail operates its Innovate 18 programme. “It’s about helping Crossrail to be better, but it’s also about the project’s legacy,” says Myatt. Ideas that are accepted are also eligible for funding to develop them. These include the trial of low-carbon concrete in the reconstruction and refurbishment of the Connaught tunnel, a 550-metre link between Royal Victoria Dock and Royal Albert Dock in east London, which dates from 1875 and was closed in 2006. Another is the reuse of excavated clay as an aggregate.

Myatt also points out that many contractors have implemented initiatives to save water, although Crossrail has not set a target. At Whitechapel station rainwater is captured on the operating platform and gravity-fed via a sediment interceptor into retention tanks for reuse. On the C310 tunnel, HMJV is reducing its use of potable water for tunnelling operations by using surplus groundwater from a dewatering scheme, saving more than 2 million litres a week.

Coming together

The final component of the Crossrail approach to environment management is “sharing” across the project. “All contractors have to be certified to ISO 14001 and employ an environment manager,” says Myatt. She explains that these requirements have the benefit of creating a community of environment practitioners across the project, which has helped to establish a cooperative culture. “We get them all together every other month to discuss issues,” she adds.

Crossrail has also installed a member of its environment team to work alongside contractors in their main site offices. “It’s the first project I worked on where you’ve got the client and contractor working in the same office,” says Bailey. “Their presence keeps you on your toes as they can see what you’re doing, but they can also be a great source of help.”

Bailey explains that Crossrail checks all section 61 prior consent applications before they are sent to a local authority. “Crossrail provides a level of assurance and we work with its environment team to ensure all s61s are up to standard. Having that assurance available is good for us as it can take up to six months to get everything together for a big consent application,” he says. Bailey finds that councils often turn the applications around relatively quickly because they know Crossrail has already examined them.

Myatt says the close client-contractor working relationships aid coordination. She gives the example of where several contractors are working in one location, which, unless activity is carefully coordinated, can exacerbate environmental problems, such as noise. “At these sites, we’ve put in place cumulative noise management plans to identify the combined noise impacts so we can take steps to reduce the impacts on the local community.” Close cooperation is also the hallmark of how Crossrail and its contractors work with local authorities and the Environment Agency. “We have a single point of contact at each of the two councils [Greenwich and Newham] in the areas where we’re working as well as at the agency,” says Bailey. “It’s easier to keep one person in the loop. When the tunnelling machine broke through at North Woolwich, for example, I was in daily communication with the council contact in Newham, so they knew what we were doing day to day.”

Positive environment message

A key goal for Crossrail is to promote a positive environmental culture throughout the project and put in place the legacy of an environmentally aware workforce. Crossrail’s “Greenline” recognition scheme and environment awards support this objective, rewarding individuals and teams on construction sites who go beyond their normal job requirements in tackling environment issues and encouraging positive behaviour.

The Greenline scheme, Myatt explains, is aimed at communicating environment information to everyone on the project to provide the knowledge of what needs doing and the motivation to get involved. “It demonstrates that the recipient has shown high-level commitment to the environment through leadership and guidance, and in their decision-making,” she says. HMJV has achieved Greenline status. Bailey says such recognition will help HMJV when it tenders for future contracts.

Driving up environmental standards across the industry so that future major construction projects, such as HS2, start from a higher level is the underpinning objective for Crossrail. As Myatt says: “The next project will hopefully build on what Crossrail achieves and take environment standards a step further.”

Support systems

Simon Best reports on a project to improve resource efficiency among small firms in Norfolk

There is a significant body of evidence that small and medium-size enterprises (SMEs) continue to exhibit low levels of awareness about the value of clean technology and green business strategies. The challenge for those working with smaller businesses is to change this perception and help them realise the benefits from reduced energy consumption, waste minimisation and water conservation in terms of lower costs, improved competitiveness and business growth.

In response to the general failure by local SMEs to access “off-the-shelf” solutions to improve resource efficiency when the economic downturn was causing the scaling back or consolidation of important sources of support, including national programmes, in 2010 Breckland council rolled out REV ACTIVE – the Rural Enterprise Valley Active initiative. The three-year package of free, confidential, impartial support focused on helping smaller businesses to become more efficient and drive economic regeneration. Most of these SMEs were sited along the A11 corridor in Norfolk between Thetford and Norwich.

Targeting effort and resources

The REV ACTIVE financial model required businesses to commit to invest in efficiency measures to become eligible for public funding – £440,000 was made available by local authorities and £1.23 million by the EU regional development fund (ERDF). So, recommendations made to SMEs after business reviews had to be robust, practicable and cost-effective, with clear timescales for payback.

Overall, 429 SMEs received an onsite review and £2.5 million – considerably more than the target of £1.49 million – was invested by companies in 326 environmental initiatives. These projects ranged from reducing water and energy use to programmes involving transport and waste management. They secured cost savings of nearly £10 million for participants and reduced carbon (equivalent) emissions by 75,675 tonnes. Also, a predicted 230 jobs have been safeguarded against a target of 50, while a further 137 are estimated to have been created against a target of 26.

REV ACTIVE was predicated on established latent demand, but was not demand-led. Instead, the team actively identified, screened and prioritised SMEs with the potential, means and appetite to progress efficiency initiatives.

Initially, it was intended to use aerial thermal imaging data to identify SMEs best placed to benefit from intervention. In broad terms, the magnitude and distribution of heat radiation from business premises is indicative of inefficiency, and a range of technologies – from insulation to heat capture – is available to address this. However, delays of more than a year in acquiring and processing data meant the technique was not reliable enough to be the primary targeting tool for such a fixed-duration project. Instead, suitability criteria were applied on top of ERDF eligibility criteria, making use of new and existing business data, such as weighted sector, location and turnover information. This enabled the REV ACTIVE team to focus resources on SMEs that were most likely to assist in the achievement of targeted outputs.

These targets included saving participating companies a cumulative £1.49 million and cutting carbon emissions by 150 tonnes.

Selected companies were offered an intensive one-to-one intervention managed by dedicated resource efficiency facilitators. These provided systematic reviews of a firm’s operations as well as “hands-on” assistance, and fully costed business cases for change. These characterised, quantified and prioritised the various opportunities and their paybacks.

The focus of the recommendations tended to be on quick wins, low-cost or no-cost opportunities, bottom-line benefits and short payback periods. An examination of how

£1.49
million
invested by SMEs

Target

£2.5
million
invested by SMEs

Verified

REV ACTIVE in action

**East Bilney Coachworks**

East Bilney Coachworks is a family-run company specialising in the repair and painting of vehicles. The largest cost to the company, both financial and in carbon emissions, was the paint-curing ovens powered by liquefied petroleum gas (LPG). The REV ACTIVE team evaluated cost savings associated with the paint-curing process, and identified and examined alternative technologies. The company installed a bespoke mobile spray oven, replacing LPG with infrared and UV paint-curing technologies, which has significantly reduced operating costs and curing times.

The cost of installing the new oven was £10,000, but the company has achieved annual cost savings totalling £66,400 – £44,000 in fuel costs and £16,400 from reduced staff time – and a payback period of just two months. Carbon savings total 35 tonnes a year.

**Foulger Transport**

Snetterton-based Foulger Transport operates a lorry fleet and owns several sites with offices, workshops and large warehouses. An environmental review by the REV ACTIVE resource efficiency facilitators, focusing on fuel consumption, driver awareness and electricity consumption at Foulger's distribution centre, identified potential savings of £280,000 and 790 tonnes of carbon. Opportunities included fuel-efficient driving courses, upgrading to motion-sensitive warehouse lighting and installing a rainwater harvesting system for the vehicle wash.

As a result, the logistics and warehouse business has saved £250,000. Carbon savings amount to 694 tonnes. Measures introduced include installing voltage optimisation controls on lighting circuits. This cost £2,500, saved £4,250 a year and reduced annual emissions by 18 tonnes. The upgrade to energy-efficient lighting, meanwhile, has saved £14,010 a year, so the £30,660 investment will be repaid in three years. It also saves 61 tonnes of carbon a year.

75,675
tonnes
CO₂e

150
tonnes

Target

Verified

£1.49
million
saved by
SMEs

Target

businesses light and heat their workspace was common to almost all reports. Such onsite reviews are not new – the now defunct small business advisory body Envirowise offered a similar service, for example.

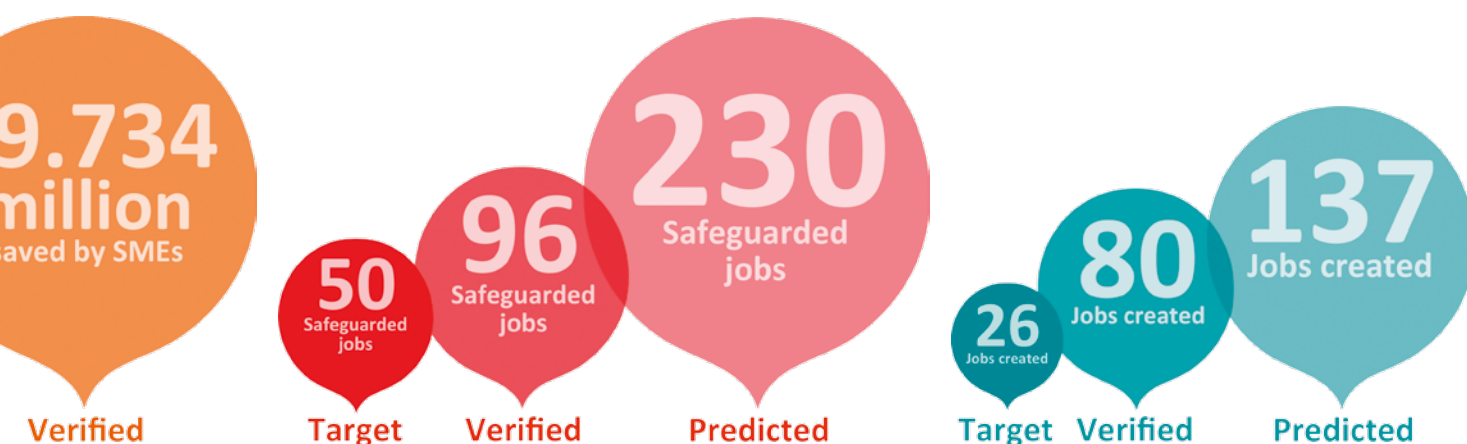
A key differentiator between REV ACTIVE and other programmes, however, was its delegated discretionary grant scheme, which encouraged SMEs to invest to save. The grant acted as a catalyst for investment in efficiency and growth, rather than offsetting existing or planned expenditure. The financial viability of the whole project hinged on the capture of companies' own co-investment in initiatives – typically upwards of 70% – and matching this to ERDF and local authority funding. It was therefore critical that the resource efficiency facilitators could communicate opportunities to SMEs and express them in terms of costs, carbon savings and other less tangible benefits.

A framework

Accessing ERDF money is not for the faint-hearted and the granting of it confers several highly prescriptive duties. ERDF was neatly summarised during one of the innumerable audits as “helpful but ultimately unforgiving”. Funding applications were repeatedly checked and reviewed for eligibility, “cross-contamination” with other public sector funding and finance, contribution to project targets, equality, additionality, value for money and practicability. Due diligence also included scrutiny of applicants' accounts.

Overall, 37% of the 400-plus onsite review recipients applied for grants to progress one or more initiatives. Two-thirds of these applicants were successful, sharing nearly £600,000 of grant aid. Coupled with follow-on support, this eliminated many of the traditional barriers to change, including SME access to finance.

A project management framework known as PRINCE2 was used by REV ACTIVE and its principles were embedded from the outset, ensuring a phased approach that broke down the initiative into well-defined and manageable items with delivery profiles and clear demarcation of responsibilities. This approach was key to effective project monitoring by the REV ACTIVE management team and stakeholders, particularly when combined with tools, such as near real-time monitoring and workflow bulletins generated for members of the operational team from across two local authorities – Breckland council and Norfolk county council.



Specialist consultancy support was procured to develop robust, secure methodologies for impact assessment to ensure that benefits were fully captured, evidenced and reported. Baselines were identified for each SME at the outset of intervention, and the opportunities presented to the companies were essentially a comparison of the performance of a pre-existing system to a range of alternative options – for example, the transition from T12 workspace lighting to LED lighting. The same process was applied during verification. Evidence was gathered on initiatives that had been fully or partly implemented by beneficiaries – with or without grant assistance.

The savings during the whole useful economic life of an asset or initiative were then calculated, ensuring the consistency and provenance of reported impacts from initial onsite review data, through to implementation and follow-up, and finally verification.

Learning points

REV ACTIVE explicitly linked business efficiency and cost-saving to reduced energy consumption, waste minimisation and water conservation. Its advice and grants delivered economic benefits and, in some cases, truly transformative changes (see examples in panels, left and right).

REV ACTIVE also demonstrated the principle and underlying methodology for calculating cost and carbon savings over the whole lifetime of specific initiatives. This has clear implications for future projects in terms of how they communicate the benefits to businesses and report the impact to stakeholders.

The principle of using businesses' own investments in initiatives as a match for EU structural funding and assistance from local authorities is also highly significant. In the absence of other significant sources of public sector match funding, this model could be appropriated by other capacity-building initiatives.

From an ERDF perspective, the model, while innovative and uncommon, was low risk. New EU funding programmes represent a huge opportunity for local authorities to further drive economic growth and efficiency. Two other messages emerged: there is a clear, if latent, demand for business resource efficiency support; and SMEs will respond to robust and practical opportunities for cost savings and environmental improvements derived from close partnership working.

Simon Best was REV ACTIVE project manager and is now low-carbon business growth programme manager at Breckland council. The REV ACTIVE initiative has now been replaced by the Grants4Growth scheme.

REV ACTIVE in action



Ripblast

Metals finishing company Ripblast, which specialises in shotblasting and painting steel structures, had plenty of scope to reduce energy consumption in its use of compressed air and space heating. The REV ACTIVE team identified opportunities in lighting, fuel-efficient driving and more energy-efficient plant amounting to savings of more than £60,000 a year and 90 tonnes of carbon. The company's £1,600 investment in replacing its lighting systems is producing annual financial savings of £2,070 (10-month payback) and has reduced carbon emissions by 6.5 tonnes a year. Sending staff on a fuel-efficient driver-training course has resulted in annual savings of £4,200 (six-week payback) and saved 11 tonnes of carbon a year.

Warren Services

Warren Services in Thetford is a precision engineering company employing 50 people. REV ACTIVE identified several possible ways to save around £20,000 a year. These included: a Carbon Trust interest-free loan to install an energy-efficient heating system and low-energy lighting with passive infrared sensors to automatically turn off lights when areas are not used; IT to support a paperless office system; fitting all radiators with thermostatic valves; replacing paper towels for hand-drying with electric air blade units. The latter costs £3,118, saving £1,953 a year, with payback just 1.6 years. It also saves 756kg of carbon a year. Retrofitting the lighting system (T5) cost Warren Services £5,315, but will save the firm £2,685 a year in energy costs and cut its annual carbon footprint by 15.2 tonnes.

Barkers Print and Design

The lithographic and digital printing company occupies 30m² across three units dating from the mid-1970s on a long-term lease in Attleborough. There were no windows or rooflights on the shopfloor and the lighting system comprised 1.8m T8 fluorescent strip lights. The REV ACTIVE review in 2011 presented Barkers with six options. Of these, a lighting upgrade seemed best, offering an annual saving of almost £2,000 and a reduction in carbon emissions of around 10 tonnes. Using a REV ACTIVE grant, Barkers installed low-energy lighting throughout its premises, which has resulted in a brighter workplace and a reduction in power consumption. The company has also reviewed its electricity supply contract to make further substantial savings.

Taking control of your energy

Robert Cohen discusses how best to improve the energy performance of commercial properties



Buildings in the UK offer the most cost-effective and largest opportunity for carbon abatement. The fourth carbon budget review for buildings, published in December 2013 by the committee on climate change, forecasts that emissions from public and commercial buildings could be close to zero by 2030.

That is the scale of the challenge facing owners and managers of non-domestic buildings. Yet, over the past 20 years, the energy performance of commercial properties in the UK has failed to improve at a rate commensurate with the acknowledged potential for cost-effective savings. Although energy use for heating has typically fallen, albeit by less than might have been expected, this has been counteracted by growth in electricity use, with its higher primary energy and carbon factors.

Information shortfall

A primary reason for the shortfall has been the over-emphasis by policymakers on computer models of theoretical energy use, specifically how much energy is needed to create a comfortable working environment under standard conditions of use. But the carbon at stake in this approach represents a diminishing proportion – often well under half – of a non-domestic building's carbon footprint in operation.

There needs to be more focus on operational energy use: measuring how buildings perform, making all stakeholders aware of how that compares with the design-stage assessment and what is causing the differences, aka the notorious performance gap. Persuading everybody to engage with reality rather than, or at least in addition to, a contrived metric is the only rational way to deliver on expectations.

The Building Regulations 2002 introduced a requirement to install energy sub-meters in new non-domestic buildings. However, this is too often treated as a tick-box exercise, with the meters forgotten when the building opens. Unsurprisingly, this has led to poor quality delivery – for example, meters that are faulty or incorrectly commissioned, and a lack of resource to interpret the data they provide (which is difficult to recover in any case) to identify the improvements needed. As a result, the energy management of most new buildings is no better than it was before the requirement for sub-meters was introduced.

Such behaviour is not inevitable. Supermarkets, for example, routinely deploy an array of energy sub-metering to monitor targets, and have delivered remarkable improvements in their energy performance as a result. Their behaviour is not altruistic; they know that energy efficiency helps their business to avoid the negative impacts associated with a poorly performing building, even before taking into account the financial savings from lower running costs.

Why has this not become standard practice across the non-domestic sector? Partly because energy costs are higher for supermarkets and partly because it is a sector dominated by well-honed, pattern-book specifications delivered by suppliers that are often long-term partners and focused on retaining the repeat business. Supermarkets expect bug-free sub-metering systems, know how to capitalise on them, and in many cases use sub-meter data to support evidence-based rolling programmes to determine which new energy-saving approaches or technologies are worthwhile.

Spreading the word

Energy measurement is a powerful and indispensable tool for identifying energy and cost reduction, but it is critical to limit the number of sub-meters to match the energy management capacity available. Make the meters useful and they will be used. Ensure sub-meters are fully commissioned, calibrated correctly and delivering data in a suitable format.

Once a system is handed over, it is important to include the sub-meters in maintenance schedules and ensure there is a user-friendly infrastructure for processing sub-meter data. If only to cope with staff changes, a sub-metering system should always be described by a short “start-to-end” guide, which tells the person taking over responsibility everything they need know to continue delivering the appropriate level of energy management.

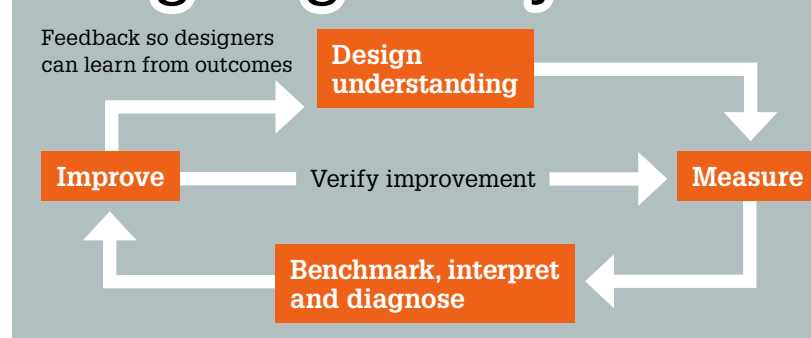
It is exasperating how common it is for there to be doubt about which plant or equipment is on each sub-meter. The meters are at best marked on complex electrical distribution diagrams, often with opaque descriptions of the loads being measured, such as motor control centre, building management system (BMS) control panel, and landlord meter. And it is not unusual for reality to be slightly different from what is shown on design drawings.

System design

The cause of the problem is that many mechanical and electrical engineers and contractors install a sub-meter system without anticipating how to do so to ensure energy management is relatively easy. A better approach is to define first the energy management system and the necessary sub-metering, and then design a system, clearly documented by a meter tree, to deliver that strategy (see panel above). The electrical distribution diagram should be the last resort to confirm which equipment is fed from each sub-meter.

CIBSE, the Chartered Institution of Building Services Engineers, has developed a tool called TM22 to enable energy managers to understand a building's energy

Designing the system



use and diagnose improvements. At a building's design stage, it can also be used to define an optimum sub-metering arrangement.

The key to effective energy management is to know how much energy you are expecting a sub-meter to measure – this could be over a day, week, month or year – and to determine if and why use is exceeding this level. TM22 can tell you this if you enter the power ratings of the main equipment, such as chillers, pumps, fans, and small power and lamp asset registers, and their expected hours of use. It can also benchmark each energy end use's roots of consumption (installed power and service levels and hours of use), leading to diagnoses of excess and then to energy-efficiency improvement measures.

Half-hourly electricity (and gas) data are increasingly available and an unerring guide to waste, especially that occurring during the long periods when many buildings are unoccupied. It is always worthwhile to benchmark the base load in watts per square metre (W/m^2). If this is too high, a night survey would identify the sources of out-of-hours energy use and check whether they should be switched off – for example, by fine-tuning the BMS controls.

Transparency

Transparency and understanding about energy use are critical drivers. Establishing an effective reporting hierarchy can create appropriate levels of engagement.

Start by encouraging supportive behaviour by the building's occupants – this may take some determination and charisma. Instil a sense of purpose and even fun, while recognising the importance of occupant satisfaction with their working environment. Display screens in the reception area are increasingly popular for reporting energy performance and motivating improvement.

More formal reporting should be at the following three levels:

- reports for the internal team with energy management responsibilities;
- annual report to the main board, ideally receiving director sign-off and budget approval for making improvements; and
- public transparency – for example, producing annual corporate responsibility reports and displaying energy certificates.

Robert Cohen is technical director at Verco Advisory Services.

Policy update



Moving to a more circular economy

Sustainable resource management (SRM) is one of IEMA's policy priorities. The launch of the Institute's new report, *From waste to resources* (see article, pp.20–22), and online resource hub (iema.net/rm) as well as a new member network – at resourcenetwork@iema.net – demonstrates what IEMA is doing to further SRM. This approach allows members in different job roles and from different sectors to develop a common understanding of the key issues and opportunities related to improving the management of resources. This will help create knowledge exchange, allowing improved organisational performance to be made rapidly and holistically.

The need for integrated action to manage resource security risks and create the opportunity to move to a more circular economy is not just an issue for organisations; governments must also respond.

IEMA, as a founding member of the materials security working group (MSWG), has been promoting the need for enhanced cross-government action in recent years. This month the MSWG will publish a paper calling for the government to take action to ensure the UK keeps pace with other countries in responding to resource security risks.

The paper highlights advanced and coordinated actions already being taken in China, Japan, Germany and the US, which go well beyond the UK's existing efforts. Although the UK is making good progress in some areas, the biggest barrier is a lack of joined-up thinking across the government, leading to uncoordinated actions.

The MSWG paper calls for the creation of an office of resource management in the business department. The remit would include providing advice and communication to the government on resource management to help deliver a more integrated approach.

Josh Fothergill is policy and engagement lead on resource management at IEMA. Follow Josh on Twitter @jfothergilliem.

Prepare to engage



Members will be aware of the work the Institute does to gather views to develop consultation responses and reports on important policy and practice issues.

Most recently IEMA engaged members – through workshops held around the UK and Ireland – in revising its position statement on climate change, which was first published in 2012. It will set out the policy directions IEMA would support and work to address through engagement with the government and other organisations as well as help build urgency across society for tackling global warming.

IEMA's efforts to collaborate with members and ensure that governments, industry and employers worldwide benefit from the knowledge of environment and sustainability practitioners are about to take a big step up with a series of workshops during the remainder of 2014.

There are four main themes IEMA will be exploring with members over the next few months. These are:

- **Views on the ISO 14001** draft international standard – giving members the opportunity to feed into both IEMA's and the UK's response to the public consultation phase of the review of the EMS standard, which is due to take place in the autumn.
- **Skills for a sustainable economy** – discussing the themes of what a sustainable economy needs to deliver. IEMA wants member feedback on what this means for skills to drive and deliver this change.

- **Sustainability** – following feedback last year from members and its merger in April with GACSO, IEMA is developing a stronger focus on sustainability. These workshops are an opportunity for members to help IEMA develop its activity in this critical area and its work with GACSO – for example, on the professionalisation of corporate sustainability.
- **Environmental impact assessment** – with the communities department (Dclg) soon to launch a consultation on increasing schedule 2 thresholds – which will reduce the number of EIAs in England – and Dclg implying that EIA is unlikely to be required in most cases for “brownfield” redevelopment, IEMA will seek members' views via webinars and workshops.

Attending one or all of these workshop sessions will not only give members the chance to influence emerging policies but also to develop their knowledge and provide opportunities to network with likeminded professionals as well as be updated on other areas of IEMA activity.

There are more ways to engage with the IEMA's activities beyond the hugely popular webinars and the above workshops, including the new sustainable resource management network (iema.net/rm). This increased emphasis on member engagement is a key theme for IEMA and will develop over the coming months. IEMA looks forward to seeing members at these events.

Cambridge conference to focus on sustainability

Sustainability is high on the IEMA agenda, with a dedicated conference due later this year, just months after the Institute's amalgamation with the Global Association of Corporate Sustainability Officers (GACSO).

Throughout last year's Vision 2020 consultation, members were adamant that sustainability should become a key theme in IEMA's programme of activity, delivery and influence. Taking on board that feedback for 2014's activities, IEMA acquired GACSO in March, boosting the membership's count of sustainability professionals, while the Institute's inaugural conference on sustainability will be held in the autumn.

Entitled "How can IEMA professionals enable sustainable growth?", this event will be held on Wednesday 24 September in Cambridge. The conference will provide members with the opportunity to learn about critical challenges in sustainability through an economic lens, with a focus on climate change and energy economics, natural resource dependencies, risks, externalities and the economic mega trends.

Delegates will benefit from hearing from and meeting sustainability professionals and leaders to discuss, test and develop their own solutions to leading sustainability challenges.

IEMA has secured a number of leading sustainability experts to speak at the event, which was planned by the Institute's East of England and South East regional steering groups. Speakers and topics include:

- **Dr Alan Knight**, GACSO founder and chair, and general manager, corporate responsibility, at ArcelorMittal – "Setting the scene for GACSO and IEMA – our challenge".
- **Dr Julia Baker**, biodiversity specialist at Parsons Brinckerhoff – "How numbers (not offsetting) can achieve the ideal – development with a net gain in biodiversity".
- **Colin Braidwood**, global procurement, sustainability manager at National Grid, and **Ian**



Heptonstall, director at Action Sustainability and project director at the Supply Chain Sustainability School – "Sustainable procurement".

- **Bekir Andrews**, group sustainability manager at Balfour Beatty – "Non-financial mandatory reporting: reaping the business value from the numbers".
- **Paul Toyne**, director of sustainability at Balfour Beatty Construction Services UK, and **Mat Roberts**, head of sustainability at Landmarc Support Services – "The Social Value Act and its implications for public tenders".
- **Penny Walker**, sustainability professional and facilitator – "Engaging stakeholders: from firefighting to a strategic approach."
- Speaker TBC, Mott MacDonald – "Climate risks and dependencies: IPCC report and developments in climate change adaptation".

Other topics to be covered at the conference, due to be held at the City Hotel in Cambridge, include:

- "Developing and building the business case for sustainability".
- "Commercial sustainability – increasing the top line".
- "Ecosystems approach and biodiversity offsetting".

The full conference timetable is set to grow further, with more names and sessions being added in July.

IEMA members can secure their seat for the special early bird rate of £120 when booking before 31 August 2014, a saving of £36 on the full rate. To book a place and to view the full conference programme of keynote speakers, workshops and networking opportunities, visit iema.net/conference-sustainable-growth.

More conference dates for members' diaries

16 October – Resource and waste management

Following the launch of IEMA's *From waste to resources* report in June (see pp.20–22), the Institute is offering members the chance to learn more about sustainable resource management (SRM) at this one-day event in Leeds.

Without effective action, the cost of the materials on which organisations rely will grow, as will the expense of managing waste. Organisations can feel trapped by these spiralling costs and this can lead to a missed opportunity to save money and prepare for changing regulation. Effective management of resource use and waste production delivers improvements that are good for business and the environment. Only environment professionals with knowledge of the latest developments can make the most of such opportunities.

The resource and waste management conference provides an opportunity to ensure members are up to date to help deliver SRM in their businesses and public sector organisations.

To find out more and to book your early-bird place go to iema.net/conference-rwm-programme.

26 November – EMS Forum 2014

With the draft of the revised ISO 14001 standard for environment management systems (EMS) available from September 2014 ahead of its full implementation in 2015, IEMA members worldwide will need to update their knowledge and understanding of how they are becoming central to modern business practice.

The ever-popular and informative EMS Forum is returning to the IEMA calendar. The 2014 forum, which will be held in London, will give members working with management systems the opportunity to hear the latest updates on EMS practice, as well as learn new techniques and discover how the revision to ISO 14001 will change the landscape.

As a member of the ISO working group responsible for the updating ISO 14001, IEMA's executive director of policy, Martin Baxter, will deliver a progress report on developments. To find out more and to book your place go to iema.net/conference-ems-forum.

More successful IEMA members

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

Associate

Ali Abdorabo Mohammed
Alsayad, Total E and P Yemen
Hussam Al Eddin Al Barodi
Neil Akehurst, Siemens
Rail Automation
Gemma Andrews, Nuclear
Graduates
Liam Barr, National Skills
Academy for Food and Drink
Lucy Bevan, RPS Group
Frank Blande, Balfour
Beatty Group
Lindsey Booth-Huggins,
MMO
Hannah Bowen
Simon Cable, University of
Central Lancashire
Alessandro Demarco,
Johnson Controls
Automotive UK
Natalie Diggory, Siemens
Anna Durai Sengadir, Al
Futtaim Group
Jessica Ferrow, Low Carbon
Research Institute
Tridibe Ghose
Megan Gilfillan, Nestle (UK)
Chris Hill, Royal Marines
Lisa Holland, Imperial
College
Euan Houghton-Bell,
Shanks Waste Management

Joseph Hulme, Greater
Manchester Fire and Rescue
Nicholas Johnn, Aardvark EM
Hywel Jones, Atkins
Patrick Keane, GroundSure
Ray Kelly, McCarthy and
Stone
Matthew Kinmond, MMO
John Kyle, AGR Petroleum
Services
Courtney Lockyer,
Telefonica UK
Graeme Lornie, NCS
Property Consultants
Fergus O'Regan,
URS Infrastructure &
Environment UK
Keara Masrani, Argyll
Environmental
Donald McArthur
John McKenniff, William
Hare
Laura Middlemass
Victoria Morgan, MMO
Alex Munro, Technip
Offshore UK
Ian Mutch, Jas Bowman &
Sons
Joe Nightingale, ISG
Jenny Pielow, Argyll
Environmental
Mansoor Poozhithodi,
Nexen Petroleum UK
Al Rasul, Jas Bowman & Sons
Leslie Scorgie, Swire Pacific
Aditi Singh
Paul Smith, Bel Valves
Adam Steele, Royal
HaskoningDHV

Melanie Swann, Ergonomic
Solutions
Elizabeth Thompson,
Nottingham Trent
University, Loreus
Gregory Tomlinson, MMO
Mohi Uddin Ahmed
Tom Venables, Argyll
Environmental
Paul Wellings, SKF (UK)
Andrew Wells, Eurostar
International

Full

Olukunle Ade-Alade, PAR
Medical & Environmental
Consulting
Donald Cheyne, Welsh
government
John Dronfield,
Environment Agency (NEAS)
Ehikori Edobor Osondu,
Environment Agency (NEAS)
Paul Entwistle, Focused
Safety Solutions
Olivia Preston, BBC
Stanley Rodgers, Shemsi
SDN BHD
Julie Stevens, Smurfit
Kappa UK

Full and CEnv

Peter Bruce, Environ UK
Andrew Campuzano,
VolkerRail
Jane Cassidy, Peter Brett
Associates
Helen Davies, ADAS
Environment

Nishil Dhanani, Clancy
Docwra
Eddie Dunn, Jacobs
Engineering UK
Julia Faure Walker, Hyder
Consulting
Neil Goudie, Environment
Agency
John Halsall, Corus Railway
Infrastructure Services
Sarah Handley, Siemens
Lucy Hicks, Spelthorne
Borough Council
Nichola Maher, SFS Fire
Services
Graeme McCallum,
MacFarlan Smith
Linda Murray, Babcock
Dyncorp
Mark Phelpstead,
Gloucestershire Hospitals
NHS Foundation Trust
Niall Revell, Metokote
Europe
Claire Warman, ABB Asea
Brown Boveri
Louise Wood, WSP
Environmental

Upgrading your IEMA membership is key to you gaining the professional recognition you deserve. It can help you secure the job you want and may even help you achieve a higher salary. Learn more at iema.net/membership-upgrade or call +44 (0)1522 540069.

IEMA events

Date	Region/Time	Topic
7 Aug	South East	Social (London)
20 Aug	South West	Social (Exeter)
3 Sept	Wales	Open forum and social
4 Sept	South East	Social
17 Sept	South West	Social (Exeter)
18 Sept	North East	SITA Tees Valley energy-from-waste plant, lines 1–3
24 Sept	East of England	Sustainability conference 2014
2 Oct	South East	Social
16 Oct	Yorkshire and Humber	IEMA resource and waste management conference
6 Nov	South East	Social

Seeking views on membership grades and structure

More details have emerged of the review of IEMA's membership structure, announced by chief executive Tim Balcon in June's edition of *the environmentalist*.

It follows greater integration of environment and sustainability into organisational activity in recent years and an increasing eagerness among businesses to enhance their sustainability and financial performance based on the inputs of IEMA members.

The current structure, which serves 15,000 members, has been in place since 1999 and IEMA is keen to know if that framework remains relevant. "In 2014 and beyond, what does 'Associate' or 'Full' mean to employers? Anything? Everything?" asked Balcon last month.


To ensure the membership structure continues to be fit for purpose and the competences and value of members are clear to businesses, IEMA is launching a consultation. As well as shaping the




review, the online survey will allow members to highlight what they need from the new arrangement and give them the chance to raise any issues with the current format. This is a great opportunity for members to have a say on their own

professional development and that of other practitioners entering the field.


The feedback from the consultation will feed into the review process and members will be updated on progress throughout 2014.





Institute of Environmental
Management & Assessment

MARY PERSUADED
HER COLLEAGUES TO
SWITCH OFF THE LIGHTS
AND SAVED HER
COMPANY £20,000



**People
like Mary
say:**

I'm an Energy Manager and I've been looking at our wider sustainability strategy to introduce a more holistic approach. It's a shift from thinking about environment as a compliance issue to ensuring that sustainability is at the heart of what we do.

We've been massively creative in our approach and linked our sustainability performance to our bonus scheme. We basically said "Turn off the lights, print on both sides of the paper, take the train and you'll get

a share of the savings." Along with a range of other initiatives – some of which were suggested by staff members – we're making a real difference. It's a brilliant way to raise awareness of how every individual can have a positive impact within a business and can make change happen.

It's definitely working. Just one of the changes I've introduced - reusing the card cores within our product packaging - has saved £30,000!

**Keep making a difference. Renew your membership
at www.iema.net/mystory**

Damien Smith

Head of client services, Ecodesk



Career file

Qualifications:

BA (Hons), MSc, AIEMA

Career history:

2012 to now Head of client services at Ecodesk

2010–12 Environmental consultant

2009–10 Studying (MSc)

2006–09 Environmental adviser

2000–06 Managing director – printing and advertising

Why did you become an environment/sustainability professional? I know it sounds a bit clichéd but I wanted a career move that would make positive change a daily occurrence. My main motivation was to apply learning to innovative programmes, which could leverage the transformative power of organisations. Also, I see behaviour change as a critical component in addressing environmental issues and I wanted to support, nurture and encourage pro-environmental behaviour.

What was your first environment/sustainability job? My first assignment was drafting an environment policy for a very small event management company. I also had to manage the firm's environmental permits and implement low-level initiatives to get it thinking about the way it ran its business.

How did you get your first role? I started by volunteering with Walsall Countryside Services, implementing biodiversity plans, conducting wildlife surveys, species identification, constructing SuDS and learning basic woodland management. Working in the environment sector opened conversations and dialogue with common-interest stakeholders, enabling me to connect with like-minded people.

How did you progress your environment/sustainability career? I selected an MSc course that would sit at the heart of environment policy, governance and sociology to formalise my learning. I then used my spare time to broaden my environmental horizons and refine my world view while seizing “extra-curricular” opportunities to attend events and network.

What does your current role involve? Project management for clients requesting environmental data from suppliers to be reported to Ecodesk using GRI protocols. Managing and developing my team of sustainability experts, and helping to evolve the Ecodesk platform to focus on emerging topics, such as conflict

minerals, compliance and risk. Working with, and presenting to, organisations in the supply chain to help them understand their reporting duties and data collection.

How has your role changed over the past few years? There is now less advisory content from a reporting perspective; familiarity with the GHG protocol and maturing environment management systems mean that organisations know how to collect their data. Increasingly, I'm involved with data analysis and starting to build supplier engagement programmes. Auditing of the datasets is also a central feature of the role.

What's the best part of your work? Conversations and sharing knowledge with colleagues and peers – it's the kind of work that is gaining traction with procurement leaders and to be able to engage them as a new audience is exciting. Equally rewarding is the fact that I learn about innovative projects and voluntary initiatives from around the world.

What's the hardest part of your job? Convincing some organisations of the merits of reporting environment data can be tough. Too often, the default response is to look at the financial benefits and base a decision to provide data purely on that.

What was the last development/training course/event you attended? An online course on lifecycle assessment (LCA), which focused on the underlying principles, methodologies and applications of LCA.

What did you take back to your job? Reinforcement of how critical LCA is to sustainability and that there are significant gains to be made by coupling it with supplier engagement.

What is/are the most important skill(s) for your role and why? Strong communication skills and commercial awareness are key. Data analysis and interpretation skills are vital to ensure measurable change can happen.

Where do you see the profession going? Chief sustainability officers (CSO) becoming more central to operations and a greater emphasis on value chain disclosure and environmental, social and governance reporting. I think we'll see the migration of other business professionals to the sector and, with that, far more strategic influence and steering of corporate strategy.

Where would like to be in five years? I've set my sights on achieving CEnv and would like to think I'll get there. The evolution of the CSO role is very exciting and I'd like to steer my learning and experiences in that direction.

What advice would you give to someone entering the profession? As with any career, if you have passion and demonstrate your enthusiasm to people they will help you. As it's a far-reaching sector, I would recommend staying targeted on the sub-sector or topic area you really want to know more about and work in.

How do you use IEMA's environmental skills map? It was vital in helping me determine where I wanted to get to and the milestones I needed – or still need – to reach.

Qatar



Harry Sealy describes how Qatar is helping to advance sustainability in the Gulf region

Qatar is a small nation that became independent from Britain in 1971 and has achieved incredible development over the past 20 years. Yet it is a paced development that has drawn on the experiences of other nations in the Gulf region.

Few modern countries share the range and intensity of Qatar's social and environmental challenges – including water and food security, poor urban air quality and limited waste management facilities – all of which are critical to the country's sustainable development (SD).

In 2008, Qatar's "National vision 2030" introduced "human development" – that is, development of all its people to enable them to sustain a prosperous society – as a fourth pillar to the traditional SD trio of social, environmental and economic. It

recognises that the population itself is a key resource to be nurtured as custodians of the nation's sustainable development. The 2009 document, *Advancing sustainable development* (gsdp.gov.qa), takes this further and provides a status report on Qatar's marine environment, water resources, air quality and economy. Delivery of the 2022 World Cup will be a major milestone en route to 2030, but the overriding vision is to move the emirate from a hydro-carbon economy to a knowledge-based one.

Comprehensive environmental regulation is relatively new in Qatar. For example, Law 30, the foundation of environmental protection, was introduced in 2002, followed by environmental by-laws in 2005. The ministry of the environment (MoE), which replaced the environment and natural resources council (SCENR),

was established in 2007. Today scores of mega-projects are under way in Qatar (including road, rail, port and waste management) as the country strives to achieve legislative compliance and raise standards. Progress includes banning trawling, cutting gas flaring and strictly controlling marine discharges.

"Hima" is an ancient Arabic word meaning protected area and reflects an ability to live sustainably with the surrounding environment. Qataris are realising the importance of revitalising this knowledge. Sustainability will be "re-achieved" in Qatar, albeit at a rate that is right for the country, and which does not disrupt the delicate balance between development and preservation of culture and heritage.

Harry Sealy, MIEMA, chair of IEMA Middle East, is a consultant at CH2MHILL International. These views are his personal opinions.



the environmentalist

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Over the last three years Temple has consistently outperformed the environmental consultant market in the UK. As such, we are continuing to develop our in-house multi-disciplinary team, technical and management capability and are now looking for candidates with strong project management skills and a proven track record of delivery on challenging and demanding assignments. You will be based in our London office located at St Katharine Docks.

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