

## Too little control

## Regulation is failing to keep pace with the spiralling use of nanomaterials by industry

## Power hungry?

## Smart meter manufacturer Landis+Gyr tackles energy efficiency to secure ISO 50001

## Joined-up work

## The Environment Agency's approach to the new duty on planning bodies to cooperate

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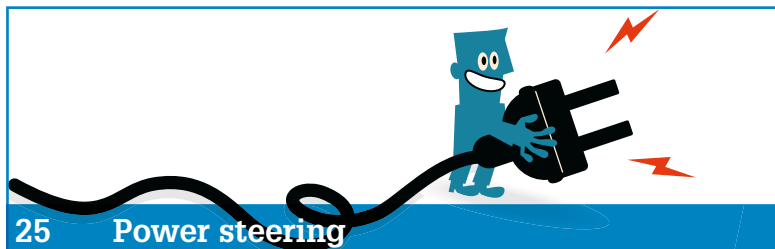
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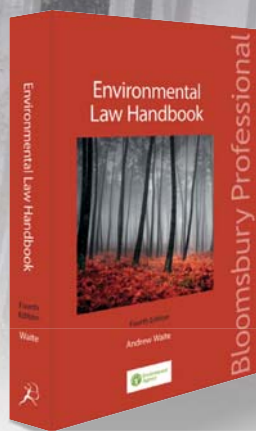
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# The waiting game

Governments tend to put off taking difficult decisions.

Procrastination is particularly common when those charged with finding a way forward are totally split on the best course of action. In the US, this situation is referred to as “kicking the can down the road”. In the UK, postponing a decision is described as “kicking it into the long grass”. The procrastinators are either hoping the road is ever winding or the grass too long, allowing them defer indefinitely, or they’re waiting for someone else to take the decision – which, to apply another US idiom, is called “passing the buck”.

The absence from the Energy Bill (p.6) of a decarbonisation target for the energy sector is a classic case of “kicking the can down the road” and, potentially, “passing the buck”. Rather than providing the certainty craved by investors in low-carbon generation by setting a target for 2030, the government has postponed the decision until 2016 – after the next general election.

**The absence from the Energy Bill of a decarbonisation target for the energy sector is a classic example of ‘kicking the can down the road’ and, potentially, ‘passing the buck’**

The coalition – one half of which was keen to set a target – has justified the delay by saying a decision in 2016 will coincide with the setting of the fifth carbon budget, from 2028 to 2032. But that ignores the fact that the government has already placed a question mark against the “agreed” fourth budget, after the chancellor wrangled from his coalition partners an agreement to review the budget in 2014.

So, rather than create the right climate for investment, the Energy Bill has simply prolonged the uncertainty that already existed around energy policy. Do you put your money into developing renewable generating capacity, into cheaper-to-build gas-fired power plants or take your money elsewhere? The answer will largely depend on who wins the 2015 general election. Labour and the Liberal Democrats have both signalled their intention to set a decarbonisation target, whereas the Conservatives – at least on current viewing – appear to favour a second dash-for-gas (p.5), which would render any target pointless and risk breaking the carbon budgets.

Of course, the outcome of the next general election, like energy policy, remains uncertain.



**Paul Suff, editor**



Short cuts

## Water ecosystems at risk

Vital ecosystems are being damaged by unsustainable water use despite the introduction of the Water Framework Directive (2000/60/EC), the European Environment Agency (EEA) has warned. According to its latest report, more than 60% of Europe's rivers and lakes, and 80% of coastal habitats have an "unfavourable conservation status", and less than half are likely to be in a "good ecological" state by 2015. Nitrate pollution levels remain too high, and competition for land use and water are resulting in damage to habitats that provide "indispensable" ecosystems services, such as flood protection and food production, says the agency. The report concludes that a coordinated, cross-sector approach is needed to ensure water security, prevent greater flood damage and protect habitats. The agency calls on the energy, transport, planning and food sectors to work together, and argues that the European Commission must fully integrate water management into its 2020 ambitions for a more resource efficient Europe.

## Habitat protection

The European Commission has added a further 235 sites to its Natura 2000 list of special areas of conservation and protection, as defined by the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC), including thousands of kilometres of sandbanks off the east coast of England. Dogger Bank is the largest and most significant of the sites to be added to the list of protected habitats this year, says the commission. The submerged sandbanks provide key spawning and nursery grounds for many of the EU's commercial fisheries. In total a further 25,000km<sup>2</sup> of habitat were included in Natura 2000, which now covers 17.9% of the EU's landmass and 4% of its seas. Newly protected areas include 10 marine sites in the Baltic Sea comprising 4,000km<sup>2</sup> of feeding grounds for seals and fish; and 109 meadow and forest sites in Romania that are vital for rare and endangered species.

# 1.4 billion ETS credits could go

**Carbon** The European Commission is attempting to rescue the EU emissions trading scheme (ETS) by proposing to lower the emissions cap by the equivalent of 1.4 billion allowances.

It is taking action because the economic downturn has seen participants' emissions fall during the second phase of the scheme, producing an excess of allowances and resulting in record-low carbon prices over the past 12 months. The commission is proposing to postpone the auction of 900 million allowances during the next phase of the scheme, which runs between 2013 and 2020, and has outlined six other potential actions it could take to ensure participants continue to cut emissions.

These include tightening the 2020 emissions reduction target from 21% to 30% – the equivalent of cutting 1.4 billion allowances – or permanently retiring a portion of phase III allowances. Another proposal is to limit the extent to which participants can use international offsets to meet emissions reductions. This move has been welcomed by campaign group Sandbag, which has calculated that during 2011 13% of emissions covered by the ETS were offset, further contributing to the surplus of allowances.

Connie Hedegaard, the European commissioner for climate action, said: "Because of the oversupply in the market,



the ETS is not driving energy efficiency and green technologies strongly enough. This is why as a first immediate step we propose to delay the auctioning of allowances. We must not flood a market that is already oversupplied."

The commission is also proposing to widen the ETS to new sectors, despite the controversy surrounding the inclusion of emissions from aviation from 1 January 2013. The expansion proposal came just days after the commission confirmed that it had temporarily suspended the inclusion of flights from outside the EU, following signs that airlines would agree an international mechanism to cut aviation emissions next year.

## Two projects launch the UK GIB

**Investment** The long-awaited green investment bank (GIB) is now operational, with the Edinburgh-based institution announcing financial support worth a total of £13 million to an anaerobic digestion (AD) plant in north east England and the retrofit of a factory in north Wales.

Opening the bank, business secretary Vince Cable, announced that £8 million would be invested in a project on Teesside to generate energy from waste. The construction by Greenlight AD Power and Earthly Energy is the first of six planned AD plants across the UK over the next five years. Cable said financial assistance for the Teesside plant was part of the GIB's £80 million investment programme for small waste projects.

A second £5 million investment will help insulation-maker Kingspan install energy-saving measures at its UK sites.

Its Holywell manufacturing plant in Flintshire will be the first to undergo a facelift, with the installation of energy metering, building management systems and a lighting upgrade designed to reduce electricity consumption by up to 15%. The investment is the first project to receive support from the GIB as a part of its £100 million non-domestic energy-efficiency investment programme.

Initially, the GIB is funded by £3 billion of public money. But the government expects the bank to mobilise additional private capital to make a significant contribution to the development of the UK's green economy.

"The GIB has the potential to be a game-changing component of the UK's low-carbon economy, and a profitable centre of excellence in specialist and renewable investment," commented Lord Smith, chair of the bank.

# Future of CRC uncertain

## Chancellor signals second dash for gas

**Autumn statement** A decision on the future of the Carbon Reduction Commitment Energy Efficiency (CRC) scheme has been put off until after the next general election, although the chancellor has announced the scrapping of the performance league table in a bid to simplify the scheme.

In his autumn statement, George Osborne said there would be a full review of the CRC in 2016 and pledged that he would remove the controversial tax element of the scheme as soon as possible. "The tax element of the CRC introduced [by the 2010] spending review will be a high priority for removal when the public finances allow," confirmed the Treasury.

The simplification plans will save participants a cumulative £75 million between 2012/13 and 2014/15.

The lack of a firm decision on the future of the CRC was criticised by Martin Baxter, policy director at IEMA. "The chancellor's statement on the CRC fails the business test for long-term policy certainty. We urgently need a consistent policy framework to provide companies with the confidence to invest in low-carbon and energy-efficient improvements. A review in 2016 undermines this."

Gareth Stace, head of climate and environment at the manufacturers' body, the EEF, described the simplification plans, including the removal of the performance league table, as a good move, but said: "Ultimately this hugely inefficient and unpopular tax needs to go."

Meanwhile, the chancellor announced that up to 37GW of new gas-fired generating capacity could be built in the UK by 2030. Launching the government's gas strategy alongside his autumn statement, Osborne confirmed that the promised



2014 review of the fourth carbon budget – covering the period 2023–2027 – will revise targets upwards if the cap on emissions imposed by the EU emissions trading scheme (ETS) is not tightened. "We will review our progress in early 2014 and if, at that point, our domestic commitments place us on a different trajectory from the one agreed by our partners in the EU under the ETS, we will revise up our budget as appropriate to align it with the actual EU trajectory," the strategy states.

David Kennedy, chief executive of the committee on climate change, criticised the strategy, particularly if investment in gas undermines support for low-carbon generation. "A new dash for gas, with very limited investment in low-carbon technologies through the 2020s, would not be economically sensible and would entail unnecessary costs and price increases. Neither would it be compatible with meeting carbon budgets and the 2050 target."

In a further move to support the expansion of gas in the energy mix, the chancellor announced the launch of a consultation on new tax incentives for shale gas and the creation of an office for unconventional gas (OUG). Osborne said the OUG would ensure shale gas operations would be safe.

### Short cuts

#### Civil sanctions limited

Business minister Michael Fallon has confirmed that fixed- and variable-monetary penalties, and restoration notices will, as a general rule, only be made against undertakings with more than 250 employees in future. Fallon explained that small and medium-sized enterprises were often less equipped than larger companies to challenge the basis for such sanctions. There will be no restriction on powers to impose enforcement undertakings, stop notices or compliance notices, however. Civil penalties have been made available to regulators like the Environment Agency as an alternative to costly criminal prosecutions. The agency started to levy civil sanctions in January 2011, raising more than £200,000 in the regime's first year. Engineering firm Invensys was the first to avoid criminal prosecution under the arrangements after agreeing in July 2011 to pay £21,000 towards environment improvement projects. The firm had breached the Producer Responsibility Obligations Packaging Waste Regulations.

#### 2012 EMAS winners

Lafarge Cement and Bristol City Council are among the winners of this year's European Eco-Management and Audit Scheme (EMAS) awards. This year's theme was water management, recognising improvements in both efficiency and water quality. Twenty-seven organisations from 14 countries were nominated, with the judges selecting six winners. Lafarge, the UK's largest cement manufacturer, won the award for large, private sector organisations after improving the water efficiency of its cement-making process by close to 90%. It used just 0.142m<sup>3</sup> of water per tonne of Portland cement equivalent in 2011, compared with 1.22m<sup>3</sup> in 2010. Bristol City Council won the equivalent public sector award for reducing water consumption across Bristol by 11% since 2009/10. Measures taken by the council to cut water use include promoting water efficiency to the public and introducing rainwater-harvesting schemes.

#### Autumn statement roundup

**EIA consultation** – A consultation on updated guidance on how to conduct environmental impact assessments (EIAs) will be completed ahead of the 2013 budget, said the chancellor. A second consultation on raising the screening thresholds set out in the Town and Country Planning (EIA) Regulations 2011 will be issued later in 2013.

**Environment Agency** – From April 2013, the Environment Agency will participate in the first phase of a new system requiring regulators to quantify and consult with industry on the scale of new impacts each regulator has on businesses, confirmed George Osborne. The scheme will cover both increases and decreases in the costs imposed on businesses by regulators.

» IN PARLIAMENT

In praise of European rules



**Chris Davies** is the Liberal Democrat environment spokesperson in the European parliament

It's rare to hear critics be specific about their objections to EU rules and regulations. Just how many affect our day-to-day lives? Well let's think of the first hour of the day.

Between the sheets before the alarm clock goes off, we give no thought to EU controls on the use of carcinogenic dyes and flame-retardants. Yawning and taking in a deep breath, we ignore the benefits of EU laws on air quality that recognise that pollution pays no respect to national boundaries.

We stagger to a bathroom stuffed with soaps and other cosmetic products, tested for safety, labelled for allergens, and soon to be produced without animal testing – all according to EU law. The shower is likely to be warmed by an efficient boiler that conforms to the Ecodesign Directive (2009/125/EC), but we probably give no thought to the Urban Wastewater Treatment Directive (91/271/EEC) when we flush the loo. The cereal poured into a bowl should conform to the requirement of EU pesticides legislation. Going to the fridge, is any thought given to EU requirements for one day removing its CFCs (chlorofluorocarbons) or to promoting the recycling of electrical equipment? Taking out the eggs, do we consider the effects of the Welfare of Laying Hens Directive (1999/74/EC) on eliminating battery cages? And the washing-up liquid we use will comply with EU legislation on detergents.

It's raining outside, but thanks to EU controls on sulphur emissions at least it's not the acid rain of the 1980s. If we catch a bus, its engine is likely to conform to EU anti-pollution requirements. Or perhaps we get into a car, but do we welcome the fact that European legislation has increased the fuel efficiency of new vehicles by 15% over the past five years (reducing CO<sub>2</sub> emissions by the same proportion).

So, how many of these "rules" from Brussels do you want to abolish?

## Government energy policy finally lights on efficiency

**Energy** Reducing demand for electricity as well as securing a future low-carbon supply will now feature in energy policy after the government belatedly listened to advice from MPs and others to focus more on energy efficiency as part of its planned electricity market reform (EMR).

While unveiling the Energy Bill, which aims to unlock £110 billion of investment in new energy supply infrastructure over the next decade, the energy and climate change secretary, Ed Davey, published a consultation on plans to reduce demand for electricity, having earlier also issued an energy efficiency strategy.

"Too often, governments have neglected the role that demand reduction can play in managing our energy system," said Davey. "Yet measures that reduce demand can contribute in a more cost-effective way to meeting our energy and climate goals than supply-side measures."

Although overall energy demand in the UK has been flat since 1970, electricity consumption has increased by more than 65% over the same period. And analysis by DECC forecasts that demand could rise by a further 30% on today's levels by 2050. The energy and climate change committee warned in July that the government's plans for EMR needed to promote energy efficiency, labelling an early draft of the Bill as "fundamentally flawed" by the lack of consideration of demand-side measures.

The Bill presented to parliament by Davey still contains little mention of energy efficiency, but the consultation on proposals to reduce electricity demand, which include the introduction of feed-in tariff and payments for investing in more efficient products, may lead to amendments to the Bill, says DECC.

David Symons, director at global environment and engineering consultancy WSP, welcomed the energy efficiency consultation but contrasted the government's plans with those of its major EU competitors. "There is a big gap between UK aspirations and targets already in place today in Europe. In Germany, for example, there is a target to reduce energy consumption by 20% by 2020 and by 50% by 2050 compared with 2008 levels."

Meanwhile, the Energy Bill itself has not completely removed lingering



uncertainty among potential investors over the direction of government policy. In a compromise among coalition partners, the government has deferred a decision on setting a 2030 target to cut carbon emissions from the power sector until at least 2016.

The Bill will enable energy firms to raise £7.6 billion by the end of the decade from consumers to help fund the development of low-carbon generation facilities, including nuclear, solar and wind, but the lack of a carbon intensity target could hinder ongoing investment.

"Uncertainties still exist due to the lack of a decarbonisation target," commented Simon Ellis, managing director, Legal & General Investments, while Mark Stewart, UK head of energy for EC Harris, warned that the delay in setting a target "means we risk losing momentum at a time when investment in renewables is needed".

Davey, however, insists the reforms will encourage investment and said the levy on consumers would add less than £100 to annual domestic bills. The government has, however, pledged to shield energy-intensive industries from rising energy costs as a result of the changes. The exemption, which must be cleared with the European Commission, will ensure the UK retains the industrial capacity to deliver a low-carbon economy, says the energy department.

The electricity demand reduction consultation ([lexisurl.com/iema14016](http://lexisurl.com/iema14016)) closes on 31 January 2013. The government expects the Energy Bill to achieve royal assent during 2013 and the reforms to start coming into effect in 2014.





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Short cuts

## MPs urge SDI rethink

The environmental audit committee (EAC) has called on the government to reconsider its proposed new sustainable development indicators (SDIs), because a lack of specific targets risks undermining the concept. "The government's proposal to measure only the 'direction of travel' on indicators will provide no insight to whether the UK is achieving, or falling short of, its economic, environmental or social requirements," commented Joan Walley, chair of the EAC. "We need clear, measurable targets; otherwise the new SDIs will fail to hold the government to account." The committee recommends that Defra applies existing commitments on air quality, emissions and renewable energy, for example, as targets for corresponding SDIs. The EAC has also criticised the new indicator to monitor the use of natural resources. Its failure to distinguish between sustainable resources, such as biomass, and finite ones, such as metal ores and fossil fuels, is described as "unhelpful".

## EU exports its waste

As local authorities in England celebrated record recycling rates in 2011/12, the European Environment Agency (EEA) warned that EU member states are increasingly exporting waste both within and outside the bloc. The EEA said stringent and harmonised waste policies in the EU had led countries to transport waste materials elsewhere. It said this was happening because some member states do not have the facilities to recycle or dispose of particular types of waste, and because demand for recyclable materials is high, both in the EU and beyond, particularly in Asian economies. The agency is forecasting continued growth in the international trade of recyclable materials. Meanwhile, Defra reports that 43% of household waste was recycled in England in 2011/12, and that local authorities recycled, composted or reused 10.7 million tonnes of the waste – more than was landfilled for the first time since records began.

# Sustainability directors lack control

**Strategy** Individuals tasked with leading companies' sustainability efforts often do not have budgetary control over initiatives and are forced to play a more advisory role in decision making, according to analysts Verdantix.

In its annual research into the work of sustainability leaders, Verdantix concludes that, despite having responsibility for a broad range of issues, including energy use, corporate reporting and sustainable procurement, senior sustainability professionals have only "weak authority".

Its poll of 250 chief sustainability officers and heads of sustainability reveals that less than 20% have autonomy over sustainability management and reporting decisions, with 36% sharing responsibility and 28% restricted to providing advice.

When it comes to budgets, just 23% have total control over finances for corporate sustainability reporting, and only 12% have sole responsibility for energy management.

The survey also asked participants about future sustainability budgets, finding that, on average, companies will be increasing spending on environmental efforts by 5-7% in 2013. The figure is



significantly lower than the 16% growth Verdantix predicted in a report in February.

"Only 11% of heads of sustainability anticipate increasing spend by more than 10% in 2013 compared with 2012," confirmed Patricia Satkiewicz, industry analyst at Verdantix.

When asked what the priority improvement areas will be next year, energy management tops the list, with respondents saying that reporting and supply chain sustainability will also be "very important".

# Fossil fuels to dominate 2035 energy mix

**Energy** Oil, gas and coal will supply 75% of the world's energy supply in 2035, despite expected growth in renewable technologies, according to the annual *World energy outlook* from the International Energy Agency (IEA).

It warns that, if current trends continue, by 2035 energy demand will increase by one-third and CO<sub>2</sub> emissions from the sector will rise by 18% on 2011 figures.

Demand for natural gas will climb by 50%, it predicts, with nearly half of the increase coming from unconventional sources, such as shale gas. Meanwhile, global consumption of coal will rise by 21%, with demand led by China and India where three-quarters of the world's 1,199 new coal-fired plants are being proposed.

Although the IEA also predicts that renewable technologies will become the second-largest source of electricity, supplying 31% of demand by 2035, this expansion is dependent on subsidies.

To ensure that CO<sub>2</sub> emissions from energy generation are kept within sustainable limits, policymakers must to do

more to cut demand, the report concludes. It states that energy savings equivalent to nearly 20% of global demand in 2010 are possible in the coming decades if action is taken now. "In the absence of a concerted policy push, two-thirds of the economically viable potential to improve energy efficiency will remain unrealised," warns Fatih Birol, chief economist at the IEA.

The agency also cautions that if global warming is to be restricted to 2°C, no more than one-third of fossil fuels reserves should be burned unless carbon capture and storage (CCS) is deployed. The warning came as the energy secretary confirmed that UK CCS projects had failed to secure any of the EU's €1.5 billion NER300 fund for the development of renewables and CCS.

Chris Davies MEP described the decision as a "slap in the face" for UK companies involved in developing CCS. "With more potential schemes in the UK than in any other European country it's also a huge blow for hopes of CCS development across the continent," he said.



# Prosecutions

## Roundup of the latest environmental cases

### CASE LAW

#### Tribunal's remediation decision

On 22 October, the first-tier tribunal general regulatory chamber (environment) concluded its first appeal against a remediation notice served by the Marine Management Organisation (MMO). The conclusion of the case, *Frieda v Marine Management Organisation NV/2012/0002*, followed a three-day hearing and, importantly, a site visit.

The appellant had rights to maintain a causeway located in a special area of conservation, special protection area and Ramsar wetland. He deposited some 300 tonnes of mixed building rubble along the edges of the causeway to keep vehicles away from the mudflats on either side. The new deposits were added to existing materials, some of which dated back to World War II. The remediation notice required the appellant to remove the material, which was deposited without a licence. The MMO was concerned that the material interfered with navigation; was a hazard to human health; and gave rise to environmental concerns. The appellant acknowledged that he had carried out the activity without a licence, but argued the new material was no more an interference or a hazard than the existing material.

The conduct of the tribunal hearing was key to the outcome of the case. After a two-hour site visit, the appellant offered to remediate the causeway. The main issue then became whether the proposed remediation was likely to have a significant effect on the protected sites and on wintering birds. If it did, the remediation would require an appropriate assessment under the Habitats Directive (92/43/EEC) and the Conservation of Habitats and Species Regulations 2010.

The tribunal decided that the proposed remediation, with built-in noise reduction and monitoring provisions, was not likely to have significant effects so did not require appropriate assessment. Its decision was informed by expert ecological evidence from both the MMO and the appellant.

Hayley Tam and George Hobson

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#### BP pays out \$4 billion for Gulf of Mexico disaster

BP Exploration and Production has agreed to pay a record \$4 billion in criminal fines and penalties for its conduct leading to the 2010 Deepwater Horizon disaster in the Gulf of Mexico that killed 11 people and caused the largest environmental disaster in US history. The UK oil company pleaded guilty to 11 counts of manslaughter and one count of obstruction of the US Congress, as well as violations of the US legislation related to water pollution and migratory birds.

"The \$4 billion in penalties and fines is the single largest criminal resolution in the history of the US and constitutes a major achievement toward fulfilling a promise that the justice department made nearly two years ago to respond to the consequences of this epic environmental disaster and seek justice on behalf of its victims," said US attorney general Eric Holder. "We specifically structured this resolution to ensure that more than half of the proceeds directly benefit the Gulf Coast region so that residents can continue to recover and rebuild."

Around 60% (\$2.4 billion) of the financial settlement will be spent on acquiring, restoring, preserving and conserving the marine and coastal environments, ecosystems and wildlife habitats harmed by the oil spill, which at its height was leaking more than 60,000 barrels a day into the sea.

BP, which will pay the criminal penalties in instalments over five years, still faces civil action over the accident. The US justice department has confirmed that a trial on liability matters is scheduled to begin in February 2013, during which it will seek to establish that the spill was caused by BP's gross negligence. BP could face billions of dollars of additional exposure in the civil lawsuit, warns the department, although the firm said it would vigorously defend itself against the remaining civil claims.

Meanwhile, in further fallout from the disaster, the US Environmental Protection Agency has suspended BP from tendering for new government contracts.

#### Record fine for animal factory

Thames Magistrates' Court has fined an animal rendering plant in Newham, east London, £120,000 and ordered it to pay £66,150 costs for failing to prevent emissions of offensive odours beyond the factory boundary in breach of its environmental permit.

Newham council said the fine is the biggest ever issued in a case brought by a local authority for an offence of this nature.

The court was told that during 2011 the council received more than 300 complaints alleging odours from the plant, which is operated by John Knight Limited. The firm has operated a rendering plant in Newham for more than 100 years, and the current factory produces tallow (animal fat) and meat meal (an ingredient of dried pet food) from waste meat.

The court found the company guilty of nine counts of failing to properly prevent offensive odours. It is the third time John Knight has been prosecuted. In 2009, it was ordered to pay £20,500 in penalties for failing to store meat in properly controlled conditions. Last year, the firm was fined £75,000 and forced to pay £75,000 in costs for also failing to control the emission of offensive odour from the factory.

"That's three times too many in our book. The company needs to get its act together," commented local councillor

Unmesh Desai, executive member for crime and antisocial behaviour at the council.

#### Penalties for ETS offences

The Scottish Environment Protection Agency has issued drinks company Diageo with civil penalties totalling more than £12,000 for failing to correctly report discharges from its bottling plant at Leven in Fife under the EU emissions trading scheme (ETS). Ardagh Glass also had to pay civil penalties of almost £850 for similarly underreporting emissions from its plant in Irvine.

Diageo's Leven site had been covered by the firm's climate change agreement until 2008. But when the opt-out ended the company failed to include emissions from heating the plant in its reportable emissions under the ETS for a further four years. SEPA issued the following civil penalties for Diageo's oversight: £2,516.12 (2008); £2,291.51 (2009); £4,206.48 (2010); and £3,099.60 (2011).

The penalties imposed on Ardagh Glass, which is based in Luxembourg, relate to its failure to report all its emissions in 2008 (£405.83) and 2009 (£440.68).

In 2010, oil company Exxon Mobil incurred a record civil penalty of around £2.8 million for failing to report 33,000 tonnes of CO<sub>2</sub> emissions from its ethylene plant in Fife under the ETS.

# Dangerous global temperature rise likely by 2100

**Climate change** With greenhouse-gas (GHG) emissions reaching record levels, global temperatures could rise by 4°C as early as the 2060s if governments fail to meet existing commitments to cut GHGs. And even if global targets are met, a 3°C increase is expected by 2100 claims a study carried out for the World Bank.

Such increases in temperatures would, said the bank, result in devastating heat waves and a rise in sea-levels of at least 0.5m, as well as an irreversible loss of biodiversity and ecosystems services.

PwC, meanwhile, believes temperature rises could be even higher. “Even doubling our current annual rates of decarbonisation globally every year to 2050 would still lead to a 6°C increase, making governments’ ambitions to limit warming to 2°C appear highly unrealistic,” said Jonathan Grant, director, of sustainability and climate change at PwC.

Initial data from the Global Carbon Project on 2012 emissions estimate that output of CO<sub>2</sub> around the world grew by



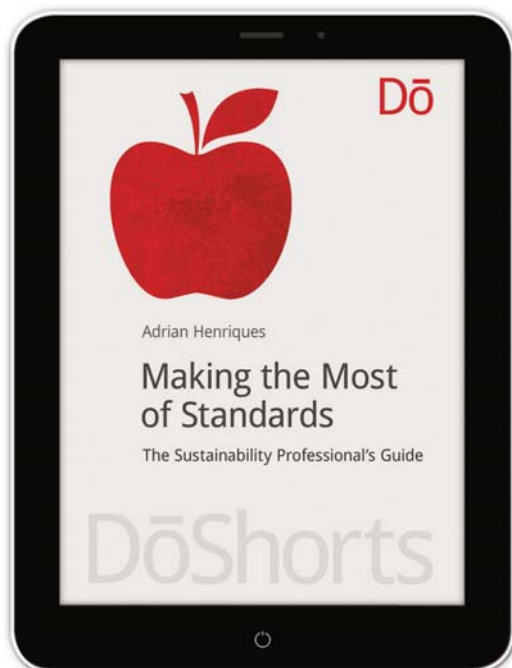
2.6%, despite cuts from Europe and the US, to levels that are 58% higher than in 1990. The latest figures from the World Meteorological Organisation (WMO) confirm that concentrations of GHGs in the atmosphere were 30% higher in 2011 than in 1990.

“Until now, carbon sinks have absorbed nearly half of the CO<sub>2</sub> humans emitted

in the atmosphere, but this will not necessarily continue in the future,” warned WMO secretary-general Michel Jarraud. “We have already seen that the oceans are becoming more acidic as a result of the CO<sub>2</sub> uptake, with potential repercussions for the underwater food chain and coral reefs.”

Jarraud’s warning came as the European Environment Agency (EEA) published a report confirming that the impacts of climate change were already being felt across the bloc, with 2002–2011 revealed to be the warmest decade on record. European land temperatures were 1.3°C warmer than the pre-industrial average, revealed the EEA, and could be 2.5–4°C warmer than 1990 levels by the end of the century.

The agency’s report also confirms that over the last decade heat waves have increased in frequency and length, causing tens of thousands of deaths; drought and floods occurred more often; and the rate at which the Greenland ice sheet was melting had doubled since the 1990s.



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## NEW REGULATIONS

In force	Subject	Details
5 October 2012 	Planning	The Town and Country Planning (General Permitted Development) (Amendment) (Wales) (No.2) Order 2012 amends Schedule 2 to the 1995 Order to clarify that permitted development rights apply to buildings on agricultural or forestry land used to house microgeneration equipment. The Town and Country Planning (Compensation) (Wales) (No.2) Regulations 2012 relate to section 108 of the Town and Country Planning Act 1990, and confirm that prescribed development now includes the installation of non-domestic microgeneration equipment. <a href="http://lexisurl.com/iema13686">lexisurl.com/iema13686</a> ; <a href="http://lexisurl.com/iema13687">lexisurl.com/iema13687</a>
29 October 2012 	Natural environment	The Conservation (Natural Habitats, etc) (Amendment) Regulations (Northern Ireland) 2012 amend the 1995 Regulations by placing duties on public bodies to comply with the Wild Birds Directive (2009/147/EC). <a href="http://lexisurl.com/iema13689">lexisurl.com/iema13689</a>
31 October 2012 	Built environment	The Building Regulations (Northern Ireland) 2012 replace the 2000 Regulations and all subsequent amendments. Changes include reference to new information on areas affected by radon. <a href="http://lexisurl.com/iema12884">lexisurl.com/iema12884</a>
1 November 2012 	Waste	The Local Government (Performance Indicators) (Wales) Order 2012 includes, in Schedule 4, three indicators for waste management: percentage of waste collected by local authorities and prepared for reuse and/or recycling; percentage of municipal waste collected and sent to landfill; and percentage of reported fly-tipping incidents cleared within five days. The indicators apply from 1 April 2013. <a href="http://lexisurl.com/iema13910">lexisurl.com/iema13910</a>
6 November/ 1 December 2012 	Natural environment	The Plant Health (Wood and Bark) (Amendment) Order (Northern Ireland) 2012 amends the 2006 Regulations by introducing emergency measures to help prevent the spread of ash tree dieback. <a href="http://lexisurl.com/iema13925">lexisurl.com/iema13925</a>
7 November 2012 	Taxation	The Capital Allowances (Environmentally Beneficial Plant and Machinery) (Amendment No.2) Order 2012 amends the 2003 Order to include the revised water technology criteria list ( <a href="http://lexisurl.com/iema13702">lexisurl.com/iema13702</a> ) and the water technology product list ( <a href="http://lexisurl.com/iema13701">lexisurl.com/iema13701</a> ). <a href="http://lexisurl.com/iema13690">lexisurl.com/iema13690</a>
10 November 2012 	Planning	The Town and Country Planning (Marine Fish Farming) (Scotland) Amendment Regulations 2012 amend the 2007 Regulations to include marine fish farms. The Town and Country Planning (Prescribed Date) (Scotland) Regulations 2012 revoke the 2007(b) and 2010(c) regulations, and alter the prescribed date from 31 March 2013 to 31 March 2014. <a href="http://lexisurl.com/iema13681">lexisurl.com/iema13681</a> ; <a href="http://lexisurl.com/iema13682">lexisurl.com/iema13682</a>
12 November 2012 	Emissions trading	European Commission Regulation 1042/2012 amends Regulation 1031/2010, allowing the UK to appoint its own platform for the auctioning of allowances for the EU emissions trading scheme. <a href="http://lexisurl.com/iema13917">lexisurl.com/iema13917</a>
12 November 2012 	Planning	The Town and Country Planning (Local Planning) (England) (Amendment) Regulations 2012 aim to ensure that section 33A of the Planning and Compulsory Purchase Act 2004 – which imposes a duty on local planning authorities, county councils and prescribed persons to cooperate with each other – works effectively. <a href="http://lexisurl.com/iema13911">lexisurl.com/iema13911</a>
23 November 2012 	Environmental protection	The INSPIRE (Scotland) Amendment Regulations 2012 amend the 2009 Regulations, specifically regulations 2, 7, 8, 9, 13 and 15, to ensure they comply with Directive 2007/2/EC, which established INSPIRE – infrastructure for spatial information in the European Community. <a href="http://lexisurl.com/iema13913">lexisurl.com/iema13913</a>

## LATEST CONSULTATIONS

4 January 2013


### SEPA funding

 The Scottish Environment Protection Agency (SEPA) is proposing important changes to how it is funded. Its suggestions, which are set out in a consultation, include: moving to a single charging framework; basing future charges on a combination of environmental risk and operator performance; and substantial increases to charges for poor performance to reflect actual costs to SEPA.

[lexisurl.com/iema13699](http://lexisurl.com/iema13699)

10 January 2013


### SEA in the North East

 The department for local government has issued a second consultation on the likely significant environmental effects of the revocation of the North East of England plan and the regional economic strategy – which together form the regional strategy.

[lexisurl.com/iema13932](http://lexisurl.com/iema13932)

11 January 2013

### Planning

 Proposals to allow businesses, educational institutions and hospitals in Wales to make more improvements to their premises without needing planning permission have been put forward by the Welsh assembly

government. The plans also include set conditions for permitted development rights, so developments are carried out in a way that minimises impact on others and the environment, and place more restrictions on permitted development in world heritage sites.

[lexisurl.com/iema13697](http://lexisurl.com/iema13697)

15 January 2013

### Sustainable development

 The European Commission is seeking views on the actions and measures it should include in a planned communication on a follow-up to Rio+20, which is due in the first half of 2013. The consultation complements an earlier one, “Towards a post-2015 development framework”, which aimed to inform the commission’s position ahead of a UN event next year looking at efforts made to achieve the millennium development goals, and what might happen after the target year of 2015.

[lexisurl.com/iema13698](http://lexisurl.com/iema13698)

18 January 2013


### Waste management

 A draft revised waste management strategy for Northern Ireland is the subject of a consultation and represents a shift from resource management to resource efficiency.

[lexisurl.com/iema13933](http://lexisurl.com/iema13933)

1 February 2013


### Hazardous substances

 The European Commission is consulting on potential exemptions under the recast Directive (2011/65/EU) on the restriction of the use of certain hazardous substances in electrical and electronic equipment. The suggested exemptions include: leaded solder in stacked area array electronics packaging in ionising radiation detectors; lead in platinised platinum electrodes for measurement instruments; lead in solders for ignition modules and other electronic controls mounted on or close to the cylinder of hand-held engines; and handcrafted luminous discharge tubes used for signs, general lighting or artwork.

[lexisurl.com/iema13930](http://lexisurl.com/iema13930)

8 February 2013

### Water pollution

 Defra is seeking views on its strategy for the management of diffuse water pollution in urban areas. Currently, only 27% of water bodies in England meet the standards necessary to support viable ecosystems and many water body failures are due to urban and other non-agricultural diffuse pollution. The consultation aims to inform the strategy Defra will publish later in 2013 on cleaning up polluted urban rivers.

[lexisurl.com/iema13931](http://lexisurl.com/iema13931)

## NEW GUIDANCE

### Energy efficiency in buildings

DECC and the department for local government have published a new resources guide ([lexisurl.com/iema13934](http://lexisurl.com/iema13934)) for local authorities on improving energy efficiency in buildings. The departments say the guide will help local authority personnel involved in climate-change mitigation in the built environment to plan and deliver projects. They also say it will support local authorities as they prepare reports required by new guidance under the Home Energy Conservation Act 1995 on measures they propose to take to improve the energy efficiency of residential accommodation. Rather than replicate other official documents, the guide is designed to bring together tools, models, case studies and datasets that can be used and adapted to meet individual local authority needs.

### Hazardous waste

The Environment Agency has updated its position statement ([lexisurl.com/iema13935](http://lexisurl.com/iema13935)) on premises exempt from the Hazardous Waste (England and Wales) Regulations 2005 and Hazardous Waste (Wales) Regulations 2005. The 2012 position statement now includes forests and other areas of countryside.

### Water discharge and groundwater activity permits

A revised guide ([lexisurl.com/iema13937](http://lexisurl.com/iema13937)) to complying with an environmental permit for water discharge and groundwater activity has been produced by the Environment Agency. It sets out why and how the agency regulates discharges, and outlines key principles on issues like the discharge of surface water run-off and the operation of cesspools. There is also guidance on how organisations can best manage their activities, while specific areas covered include: process controls; sewage-system operations, such as permitted flow limits and emergency overflows; emissions and monitoring; and compliance assessment.



## EVENTS CALENDAR

Date	Event	Location and details
23–24 January 2013	Coastal futures 2013	School of Oriental and African Studies, London <a href="http://lexisurl.com/iema13714">lexisurl.com/iema13714</a>
30 January 2013	Delivering flood and coastal schemes – project funding, and partnerships	School of Oriental and African Studies, London <a href="http://lexisurl.com/iema13938">lexisurl.com/iema13938</a>
31 January– 1 February 2013	Platts 7th annual European carbon capture and storage conference: accelerating successful deployment	The Tower, London <a href="http://lexisurl.com/iema14009">lexisurl.com/iema14009</a>
5 February 2013	Smarter sustainability reporting	76 Portland Place, London <a href="http://lexisurl.com/iema13717">lexisurl.com/iema13717</a>
12 February 2013	Water industry asset management 2013	Holiday Inn, Birmingham City Centre <a href="http://lexisurl.com/iema13718">lexisurl.com/iema13718</a>
13 February 2013	Cleantech innovate	Institution of Mechanical Engineers, London <a href="http://lexisurl.com/iema13715">lexisurl.com/iema13715</a>
20 February 2013	European environmental impact assessment proposals – putting it in context and making it fit for purpose	School of Oriental and African Studies, London <a href="http://lexisurl.com/iema14008">lexisurl.com/iema14008</a>
5–7 March 2013	Ecobuild 2013	ExCel, London <a href="http://lexisurl.com/iema13719">lexisurl.com/iema13719</a>
6–7 March 2013	World water-tech investment summit	Grange City Hotel, London <a href="http://lexisurl.com/iema13716">lexisurl.com/iema13716</a>

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# 20 20 VISION

**Paul Suff** reports on a panel discussion looking at the skills environmentalists will need by the end of the decade

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The depth of knowledge and understanding environment professionals must demonstrate is constantly changing; by 2020 the skills required by the typical practitioner are likely to be very different from those needed today. Acting as change agents and providing leadership on sustainability are likely to be core features of the role and will require professionals to become effective communicators and influencers. At the same time, employers will demand a deeper understanding of issues like resource resilience and climate change adaptation, and how they will impact the business. Changes to ISO 14001 could mean practitioners will have to adopt a more strategic focus.

By the end of the decade, it is also probable that environment professionals will increasingly have to balance technical knowledge with business acumen. If that shift occurs, what are the priorities? Can the environment professional be both a technical specialist and a broad business manager? How can the environment professional in 2020 retain control over the sustainability agenda?

To better understand the issues and to help build a profile of what the role of the environment professional in 2020 might look like, *the environmentalist* brought together five practitioners to elicit their views. They are: Bekir Andrews, group sustainability manager at infrastructure business Balfour Beatty; Claire Lea, IEMA's director of membership strategy and development; Nigel Leehane, managing director at environmental consultancy CRA Europe; Mike Peirce, director of strategy and communications at the University of Cambridge programme for sustainability leadership; and Damon Tweedie, environment assessment manager at Tata Steel.

## Separation of powers?

Claire Lea introduced the session by outlining IEMA's perspective on future skills. She highlighted the launch last year of the environmental skills map ([lexisurl.com/iema11446](http://lexisurl.com/iema11446)), which a number of organisations are currently using.

"We worked with businesses, universities and training providers to map the knowledge and skills that environment professionals need today, but it also includes some future-proofing for tomorrow and the next decade," she explains.

She adds that feedback on the map reveals that the environment people coming into organisations – particularly at the graduate level – often have great technical knowledge, but lack the soft skills that make them effective in driving the environmental, or more specifically the sustainability, agenda internally. "As a result, we are seeing people entering the profession who already have the communication, managerial and influencing skills and who are buying the technical knowledge. I think that is something we might see more of in the future."

Bekir Andrews provides evidence that the current skill set of many environment professionals lacks the requirements demanded by the rise of sustainability. "On a day-to-day basis we employ environment

professionals who work on compliance issues, provide advice on environment topics, conduct audits, capture data, and run training sessions. But they tend to have a quite different skill set to the sustainability managers, who will work strategically across the business. We find that the sustainability managers tend to be the ones who engage with different groups in the organisation, and are far more influential," he says.

Views are mixed on whether the need for a broader set of skills will result in the management of the environment and sustainability agendas diverging into separate functions over the next few years.

"That is happening in our construction division," reports Andrews. "The environment compliance and audit people sit in the health, safety and environment team, while the sustainability team is separate and focuses more on strategic thinking, positive action and disseminating information. We recognise that the skill sets of the environment professionals are around environmental limits; sustainability managers have a role through tracking performance across all three areas [of sustainability] and having overall responsibility for ensuring things get done."

Damon Tweedie at Tata agrees that a division is starting to materialise and is likely to widen, but is not sure separation is a positive development. "I think the split is inevitable, but whether that's a good thing or not is debatable," he says. "I'd still like to think they would continue to work closely together. It's paramount that the link between the two remains."

Andrews reports that at Balfour Beatty there are good communication channels between the health, safety and environment (HSE) and sustainability teams, but that dealing with the day-to-day environmental compliance issues is becoming increasingly the responsibility of the HSE team.

Tweedie explains that the marketing department at Tata Steel is currently driving the sustainability agenda, with support from the environment function. "I would be loath to see that gap widen," he says.

"Embedding sustainability at the heart of the organisation is where I think the environment function has a real role to play going forward. Certainly the awareness of sustainability in Tata is growing, and environment professionals should be helping to drive and push levels of awareness further."

Although Nigel Leehane sees no reason why environment practitioners could not take on a broader remit, disseminating knowledge and understanding, and helping to implement the sustainability strategy, he questions whether that should be the only career path to follow. "We're asking people whose skill set is mainly around operational performance to take on a strategic role, where they might not feel comfortable."

"I think it comes down to the individual. If they have the aspiration and confidence to take on that role they will get the necessary skills. Others will be happy to remain in their environment silo just dealing with operational issues," says Leehane.

Nonetheless, Leehane wants to see the environment professional deeply involved in developing and delivering organisations' sustainability strategies.

People tend to see the environment as just one area and do not understand the complexity and depth of the issues that environment practitioners have to deal with



Bekir Andrews

“Personally I think there is a risk if people with no real understanding of environment management are moving into sustainability just because of their communications background – waxing lyrical about the organisation’s environmental performance without understanding the technical issues,” he warns.

Similarly **Mike Peirce** believes sustainability gives the environment profession a way to break out of its compliance pigeonhole. “I think that even in those organisations that have taken strong leadership stances on sustainability and have made it a key strategic objective, there are still enormous gaps in knowledge about what sustainability means and the skills to actually deliver it,” states **Peirce**. “That provides a huge opportunity for environment professionals to demonstrate why sustainability is important to the business and its sector.”

**Peirce** says this will require practitioners to emerge from the confines of the environment department and become visible in the business. “You can’t make sense of something only in your own department. That doesn’t work. You don’t have the influence you need if you’re confined only to the HSE team.”

He subscribes to the view that environment practitioners should play to their strengths and build on their technical knowledge to persuade the organisation to embrace sustainability rather than take on a role that does not fully utilise their existing skill set. “They shouldn’t try to become the procurement person, for example, because that’s not their role. Rather, they should show procurers why sustainability matters.”

**Lea** asks whether the revision of 14001 – which is likely to require a closer alignment between an environment management system (EMS) and business strategy – will mean environment practitioners have to take on the kind of strategic roles that are more common in the sustainability function.

“It depends how successful the revision is in elevating environmental management to a strategic level,” replies **Leehane**. “That’s the aspiration of the ISO group working on the revision, but we’ll have to see what actually emerges in the draft standard in 2015. I do hope it succeeds in pushing the barriers and provides environment professionals with more of an opportunity to be involved at a strategic level.

“Thinking more about products and services, not just operational control, is a key feature of the revision, so could provide practitioners with a way of engaging the rest of the organisation on such issues.”

**Peirce** also accepts the idea that changes to the international standard could provide those involved in an EMS with the chance to expand their role, though he offers the following note of caution: “Most leaders will prioritise an understanding of the wider strategic context within which their organisation is operating. 14001 may be an excellent tool, but by itself is not going to transform the organisation.”

### Complex environment

The potential flip side of any separation between environment and sustainability is that the generalist role in large organisations could disappear as the

focus switches to specialist positions. The panel is seeing evidence of this already.

“From our perspective, the environmental skill sets that are acquired now are becoming more and more specific and specialised,” reports **Andrews**.

**Tweedie** too is seeing a move towards more specialist roles. “We’ve got a job family developing, with effectively a dual career path: a managerial route, with traditional environment management-type roles on the one hand, and, on the other, policy and strategy-type roles.

“At the same time, we’ve also got the more technical, and research and development type environment functions, which act as the internal consultancy.”

He uses the example of life-cycle assessment (LCA) to illustrate why more specialist roles may be emerging. “Increasingly we’re being called on to demonstrate how our products perform against rivals or how steel performs against alternative products, so we’ve had to ‘grow’ a team of experts just to deal with LCA,” he explains. “LCA is a very niche skills set.”

**Peirce** believes it is inevitable that large organisations will either develop specialist environmental roles or buy in that support. As someone working in a large global business, **Tweedie** agrees: “Multinational businesses are going to have to develop specialisms.”

As well as the emerging split between environment and sustainability, the trend towards individuals developing specialist knowledge and skills is being driven by the rising complexity of the environment agenda. “That is one of the challenges facing the environment profession,” acknowledges **Lea**. “Environmentalists have got a huge job to do in terms of clarifying the complexity.”

“People tend to see the environment as just one area and do not understand the complexity and depth of the issues that environment practitioners have to deal with,” comments **Andrews**.

“If you’re dealing with compliance issues, such as the Carbon Reduction Commitment Energy Efficiency (CRC) scheme, that’s one thing, but if you’re also asked to deal with the retrofit of a building, it is a completely different scenario, requiring a wholly different skills set. Or if you have to look into energy-servicing contracting, that’s something else entirely and not something you can quickly understand. That’s why you need specialists. I think there is a huge piece of work to do just highlighting the complexity of the environment profession. And, as it evolves, it will become more multifaceted.”

“We’ve had to separate roles precisely because of growing complexity,” reports **Tweedie**. “We have people looking at air, water or waste, for example. I think it is impossible for one individual to be fully conversant and informed on all the new legislation coming out, particularly in a fairly large organisation.”

**Leehane** can only see the demand for specialists rising further in the future, particularly in organisations with global operations. “Rather than deregulation, environment practitioners in global companies are likely to be facing more complex regulation, as developing countries are likely to introduce more sophisticated environmental regulatory regimes by 2020,” he declares.

If we want environment practitioners to be at the heart of change, they need to be able to sell the business case and get senior management on board



Damon Tweedie



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He also believes that moves in the UK and elsewhere to deregulate will not necessarily reduce practitioners' workloads in the coming years. "Even if there is a reduction in the number of regulations, will that actually impact on environment professionals in terms of ensuring their organisations are still compliant with what remains? I don't think so."

"The complexity of legislation is probably still going to be as immense. Environment practitioners will still be dealing with discharges and waste documentation, for example. It may be easier to understand the regulations, but what they require organisations to do is unlikely to be any simpler."

**Peirce** sees a future in which organisations will demand that their in-house environment professionals have the ability to make sense of the complexity for the business. "It will increasingly become a role where you do have to understand everything that is going on, as well as have the ability to engage with the rest of the organisation and explain why a particular issue is strategically relevant."

### Storytellers

Despite the emergence of specialist positions and niche skills, there is a general acceptance among panel members that all environment/sustainability roles will require a similar set of generic capabilities. "They all have very different skill sets. But common to all is the need for softer skills, which I was happy to see was included in the IEMA skills map," notes **Tweedie**.

"It's the ability to influence and negotiate. If we want our environment practitioners to be at the heart of change, then they need those skills. They need to be able to sell the business case and get senior managers on board. They need the business skills as well as the interpersonal skills."

**Peirce** too sees value in environment practitioners having softer skills, such as good communication and influencing capabilities, irrespective of whether their role focuses on one area or has a broader remit.

"Environmentalists will increasingly be expected to have these skills and they could be real assets. Being able to tell a story about the place of business in society, which is a complex one and different from the traditional business model, will become increasingly attractive to business leaders," he states. "There is a very positive story about what the environment profession can bring to businesses. That's an optimistic view on where the profession could be in 2020. Essentially, it's about becoming a change agent in the organisation."

He outlines how the executive courses and business platforms run by the University of Cambridge programme for sustainability leadership help senior managers to develop and deliver a compelling story, and says this is something all environment professionals should aim to carry out.

"Even where we work with leaders on a specific issue around climate policy, for example, there can be a tremendous amount of learning through engaging with their peers in other companies. It's the ability to explain and to talk to others about an issue that is crucial."

## TALKING POINTS

Even in organisations that have taken strong leadership stances on sustainability there are still enormous gaps in knowledge about what sustainability means and the skills to deliver it

It's all very well having the ideas and the business case, but you need to take the project and deliver. That's increasingly where there is a skills gap



Mike Peirce

Damon Tweedie

**Lea** agrees that environment professionals will have to become better storytellers. "They're going to have to take scientific and technical aspects, and deliver them into the business in a way that will make people listen and then do something different," she says.

She hopes that as the low-carbon economy emerges and all jobs are done in a "greener" way, awareness will widen of environmental issues, helping practitioners to get their message across.

**Andrews** has seen this occurring in Balfour Beatty. "We've been on a journey, having set our roadmap and 2020 vision in 2009. Our first roadmap established a clear set of sustainability targets for 2012. I've been visiting our various operating businesses with KPMG auditing performance. Although overall progress has been good, we have found that those business units that had not offered training on sustainability to all of its staff were further behind."

"Generally, where business units had completed our online e-learning course – which is about 'our collective responsibility' and is focused on our 2020 vision – there was much greater awareness in the business," he explains. "As soon as a business unit completes the online course, things change. The speed of change improves. People better understand what the company is trying to achieve. The buy-in at senior management level is greater. And progress against the roadmap targets takes a quantum leap."

In addition to improving their softer skills, the panel is unanimous in its view that environment professionals need to better understand how businesses work and how to deliver change.

"I think organisations as a whole, as well as individual practitioners, will need a complex set of skills in this





area,” asserts **Peirce**. “It will not be sufficient, other than at the most junior role, to think of yourself just as an environment practitioner. To think about the waste or water issues, for example, is also to think about social issues. It just doesn’t make sense to think of the environmental impacts in isolation.

“Essentially, if an environmentalist is going to relate water security, for example, to business needs, he or she has to be talking about the wider context or it won’t make sense in terms of the risks or opportunities for the business. Organisations will need expertise that is cross-cutting. And those experts will have to be able to tell an increasingly complex story. It’s more than being a good communicator; it’s about why it matters to your business, your industry and your region.”

**Leehane** agrees. “Yes, it’s broader than just communication skills. It’s about understanding the business imperatives. I did an MBA a few years ago because I wanted to understand more about how businesses operate and be able to communicate effectively in ‘business language,’” he explains.

From his past experiences, **Andrews** believes environmentalists are generally poor at getting across a good business case. “They often completely forget to quantify the benefits of the work that they’ve done. So they fail to effectively engage other parts of the business or clients.”

He also says they need to understand how to prioritise potential projects rather than just their value. “Just because something has a payback doesn’t mean you should do it. I really struggle at times to get people to understand that. There are other things that might have a much better return on investment and are a far greater priority.”

In terms of delivery, **Tweedie** believes many practitioners need to improve their project management skills. “It’s all very well having the ideas and the business case, but you also need to take that project and deliver. That’s increasingly an area where we see a skills gap,” he says.

### Decision makers

Although all of the panel members can envisage environment practitioners with sufficient aspiration having greater influence in their organisations as we head into the next decade, few believe more members of the profession will have a seat on the board in 2020.

“I do not yet see significant evidence of environment professionals taking board positions,” says **Peirce**. “But I do see more senior management teams saying we need more environmental expertise in the senior team.”

**Leehane** agrees that boards will need to improve their understanding of environment issues and believes the profession is well placed to help. “Environmental experts in the organisation should have a role in framing senior management training, so it is specific to the business, its activities and its operations,” he says.

“I think that’s right and is already happening,” notes **Peirce**. “Very often it has been a sustainability person that has encouraged a senior colleague to come on one of our sustainability leadership courses. Often the message from the sustainability function to senior management is that to get things done in the organisation it needs the board to fully understand the issues as well.

“I guess the key is that there has to be competence across the senior team to reflect on these issues, so they can make sensible decisions.”



# Industrial placements & internships

The Centre for Environmental Strategy, University of Surrey and the School of Engineering and Mathematical Sciences, City University, offer MSc degrees in:

- Energy and Environmental Technology and Economics
- Sustainable Development
- Corporate Environmental Management
- Environmental Strategy

Students on these programmes are offered the opportunity to undertake a placement in industry, government agencies and non-government organisations, generally undertaking a specific project chosen by their sponsor organisation.

These placements are for 30 to 60 work days undertaken between January and July on a part-time or full-time basis. Sponsor organisations normally pay the student's travel and out of pocket expenses but are not required to pay a salary. Sponsor organisations need to be located in London or within commuting distance of Guildford.

If interested in taking on a student for a placement , please contact:

**Dr. Jonathan Chenoweth**

Centre for Environmental Strategy, University of Surrey.

Email: [j.chenoweth@surrey.ac.uk](mailto:j.chenoweth@surrey.ac.uk) or telephone: 01483 689096

**Mr Alex Elkins**

Professional Liaison Unit Manager,

School of Engineering and Mathematical Sciences, City University.

Email: [sems-placements@city.ac.uk](mailto:sems-placements@city.ac.uk) or telephone: 0207 040 8561

# The little things matter

Use of nanomaterials is growing, but regulations controlling their impacts are lagging behind. **John Barwise** reports

**T**he use of nanomaterials dates back to ancient times when Egyptians introduced lead sulphide nanocrystals to the manufacturing of hair dyes. The famous Roman Lycurgus glass cup, which changes colour as light passes through it, does so because it contains nanoparticles of a silver-gold alloy. German studies of Damascus swords dating back to the eighth century AD reveal nanowires and nano-sized tubes running through the steel blade, which give the swords their legendary strength and sharpness.

Nanomaterials have been used on an industrial scale for many years. Carbon black is used as filler in the manufacture of rubber tyres because of its high surface to volume ratio. Amorphous silica is commonly used in semiconductor circuits and, because of its dielectric strength and mechanical resistance, it has become a key material in microelectronics and chromatography.

But it is only in the last 30 years, that nanoscience and nanotechnology have advanced to a level where it is now possible to manipulate atoms and molecules and intentionally modify their structures to engineer a whole new suite of designer nanomaterials,

tailored to suit a growing demand for new materials. Nanotechnology is the fresh frontier of science.

## Size matters

Nano is derived from the Greek “nanos”, meaning dwarf. A nanometre is one billionth of a metre or  $10^{-9}$  and is used to measure dimensions at the atomic scale. To put this in perspective, a strand of human DNA is 2.5 nanometres and a sheet of paper is about 100,000 nanometres thick. At this scale, atoms and molecules can exhibit unique properties and characteristics. Using surface area as an example, a 1cm cube of material dissected into single nanometre cubes increases the total combined surface area 10 million times.

Nanoscale structures exist in the natural world as atoms and molecules. Solids, liquids and gases exhibit different chemical, biological and physical properties at the nanoscale than the more conventional-sized materials with which they are associated. Surface areas per unit of mass increases, surface charge and chemical reactivity can change and electronic characteristics can be modified.



Recent advances in electron microscopy and other technologies, has enabled scientists to determine the position of atoms and molecules in materials and observe structures and processes at a scale never previously observed. Nanoscience is about understanding how these structures work and finding ways to control their natural properties. This in turn has helped to develop a whole new toolkit to characterise and catalogue nanomaterials for potential use.

Nanotechnology uses these applications to restructure, manipulate and exploit matter at the atomic and molecular scale to create new products with tailored characteristics and complex functional devices. Structured nanoparticles can be engineered to produce materials that are stronger, more magnetic or better at conducting heat and electricity than other forms of the same material. Graphene, an incredibly strong, flat layer of carbon obtained through a micro-mechanical process, is a good example.

## Mega products

Nanoscience and nanotechnologies are developing at a rapid pace and their application in engineering and manufacturing is also growing. Types of nanomaterials already on the market include nanoparticles, porous materials, nanofibres, fullerenes and graphene (carbon), nanocoatings and composites.

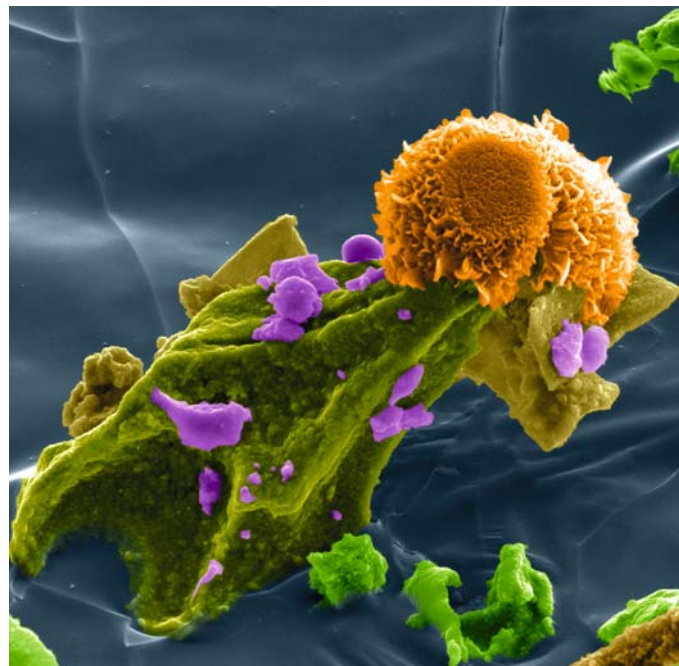
According to data published in 2012 by the project on emerging nanotechnologies (PEN) at the Woodrow Wilson international centre in the US, more than 1,300 nanotechnology-enabled products have entered the commercial marketplace around the world. This is a significant increase on PEN's 2006 inventory of just 200 products and reflects the continuing growth of nanomaterials. Product lines that dominate the market include health and fitness items, representing 56% of the product list. Nearly a quarter (24%) of the inventory includes nanoscale silver, which is used for its antimicrobial properties in medical products.

But the potential for expanding the use of nanomaterials in products is huge. Research by investment analysts Lux indicates that the markets where nanotechnology is already being incorporated into products are worth \$254 billion worldwide, and they are projected to grow to more than \$3 trillion by 2020. About 15% of global manufacturing output will incorporate nanotechnology by 2014.

## Into the unknown

Engineered nanoparticles are novel and do not usually appear in nature. But because of their unique properties they can penetrate animal and plant cells when released into the environment.

Research into nanotoxicology and the risks to human health and the environment is still in its infancy, but earlier research into vehicle exhaust gases suggests there may be cause for concern. Diesel combustion releases diesel particulate matter, containing soot and aerosols of silicates and other particulates in the sub-100 micrometre range. Short-term exposure to these exhaust gases causes headaches, eye irritation and breathing difficulties,



[Above] Nano forsterite – a synthetic mineral consisting of magnesium, silicon and O minerals

while in the long term they can lead to cardiovascular disease and lung cancer.

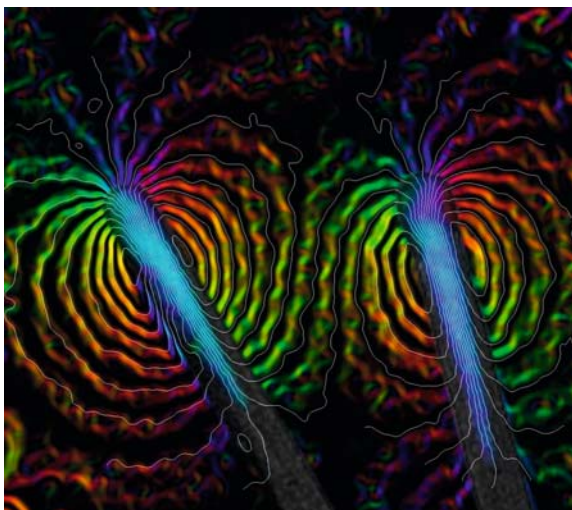
A more recent animal study undertaken by the Marshall centre for diagnostic nanosystems indicates that the diesel additive cerium oxide – a nanoparticle – can circulate from the lungs to the liver, which can lead to liver damage. Cerium oxide additives were introduced to improve diesel fuel efficiency and, ironically, cerium is also used in catalytic converters to reduce nitrous oxides from vehicle exhausts and convert harmful carbon monoxide to the less harmful CO<sub>2</sub>. “The potential effects of nanomaterials on the environment and cellular function are not yet well understood,” confirms Siva Nalabotu, the study’s lead author.

The potential for negative as well as positive impacts of nanomaterials is a major challenge for the industry. Carbon nanotubes (CNTs) are the star attraction in the nanomaterials engineering league. Characterised as single or multi-walled nanotubes, CNTs are in demand because of their extraordinary thermal and electrical conductivity, and their mechanical properties. Engineered CNTs are 60 times stronger than steel yet six times lighter and are used in a wide range of electronics, optics, sports equipment and household goods.

However, exposure to CNTs can be extremely hazardous. The thin needle-like structure has been likened to asbestos and animal experiments suggest inhalation may be capable of manifesting asbestos-like pathogenic effects. Research carried out on mice has found that exposure to long, multi-walled CNTs resulted in lesions similar to those caused by asbestos.

The occupational use of nanomaterials is regulated under the Control of Substances Hazardous to Health (COSHH) regime but, according to guidance from the Health and Safety Executive (HSE), the toxicity of





[Top] Magnetic carbon nanotubes [Below] A platinum nanowire for use as a gas sensor

CNTs has not been fully investigated and the problems of measuring airborne exposure levels make it difficult to carry out a rigorous COSHH risk assessment. Further research into environmental exposure and inhalation is ongoing.

Silver nanoparticles have anti-microbial properties and are produced in large volumes for use in a wide range of applications from medical dressings, cosmetics, fabrics and toothbrushes through to washing machine disinfectants.

The toxicological effects of nanosilver are largely unknown and, in 2009, Defra asked the advisory committee on hazardous substances for guidance. The committee's report indicated that there is likely to be wide exposure to low concentrations of nanosilver, but that it is not possible to rationalise the disparate (eco) toxicology results.

The report recommended that given these uncertainties further knowledge on both the hazard and exposure to it is urgently required. More recent monitoring of nanosilver at nine sewage treatment works by the centre for ecology and hydrology (CEH), concluded that predicted river concentrations are below levels where acute harmful effects on wildlife might be expected. The fate of engineered nanomaterials is perhaps the most important and yet least understood aspect of nanoscience and technology.

CEH is one of the lead bodies in NanoFATE, a new EU-funded collaborative project based in the UK and involving 12 partners from nine European countries. Its remit is to re-evaluate risk assessment methodologies and improve safety assessment of engineered nanoparticles. It will examine post-production life cycles of key nanoparticles from their entry into the environment, including waste treatment processes, and investigate the fate and effects of engineered particles.

### Regulating matter

Despite the wide-scale manufacture and distribution of products containing nanomaterials, the regulatory framework for processing, producing, managing, using and disposing of these materials is neither clear nor comprehensive.

It was not until October 2011 that the European Commission finally published a legal definition of nanomaterials to be used for regulatory purposes and which will also act as a common reference for various other commission provisions.

While the definition provides a regulatory framework, it is based only on the size of the constituent nanoparticles and does not cover the more pressing issues of health-and-safety risks or environmental hazard presented by the materials themselves. Instead, the commission is relying on its REACH Regulation (1907/2006) and other existing regulations to manage these aspects.

REACH – the registration, evaluation, authorisation and restriction of chemicals – entered into force on 1 June 2007 and requires manufacturers and importers of chemicals to register them with the European Chemicals Agency (ECHA) and provide data on the substance in a dossier.

There are no provisions in REACH that refer explicitly to nanomaterials, although they are covered by the “substance” definition in REACH. Under REACH, registration dossiers are only required for substances that are manufactured or imported in fairly large quantities, such as 100 tonnes a year. For most companies importing or manufacturing nanomaterials the amounts they use will be significantly less than this and so they will operate under the REACH radar, unless the materials are classified as hazardous in which case the ECHA must be notified.



A 2012 report from the centre for international environmental law, entitled *Just out of REACH*, argues, for example, that most nanomaterials will evade REACH registration until 2018, and that with the REACH schedule for registration hinging on the amount of a chemical, it essentially misses most nanomaterials, because they are generally produced in small quantities. Author of the

report, David Azoulay, says: “Three years ago, the commission declared that REACH theoretically covered nanomaterials; but they continue to enter the EU market with little or no information on their potential risks, violating REACH’s ‘no data, no market’ principle. The problem is that the regulation contains legal gaps and shortcomings that render it completely ineffective for nanomaterials.”

The ECHA can request information on a substance independent of the minimum requirements of REACH and in March 2012 issued new guidance for registering nanomaterials ([lexisurl.com/iema13983](http://lexisurl.com/iema13983)). The guidance aims to help registrants on the adequacy of test methods, for example, but the risk element

is limited by the lack of existing comprehensive toxicological data for a range of nanomaterials.

The Helsinki-based regulator accepts the commission's core definition of nanomaterials, but its own assessment of REACH registration dossiers indicates that the scope of registration is unclear and nano-specific information in terms of substance characterisation, hazards, exposure and risks shows "significant room for improvement".

The agency is now seeking a common approach with competent authorities in member states, such as the HSE in the UK, taking into account scientific uncertainties and the REACH legislative framework.

In October 2012, the commission announced that it is considering amending some of the annexes to REACH to clarify how nanomaterials are addressed and safety demonstrated in substance registrations. "REACH sets the best possible framework for the risk management of nanomaterials when they occur as substances or mixtures, but more specific requirements for nanomaterials within the framework have proven necessary," said the commission. Fundamentally, it confirmed that EU legislation does not need a radical overhaul because there is still a "considerable lack of data on exposure to nanomaterials".

## Because of their unique properties, engineered nanoparticles can penetrate animal and plant cells when released into the environment

### In the UK

To some extent, individual member states will have to rely on their own governments and agencies to regulate nanomaterials.

Both Defra and the business department (BIS) are leading the UK's contribution to international research and development. A new nanotechnologies collaboration group will facilitate coordinated research and explore industry reporting schemes, and a new public information website has been launched.

Defra's primary aim is about understanding the impacts of nanomaterials and controlling their impact on human health and the environment, but there is still a lot of work to do. Steve Morgan, from the chemicals and emerging technologies team at the environment department, explains: "It is important to bear in mind that the knowledge base on the fate and behaviour of nanomaterials is currently lacking and the methodologies required to enable an effective risk management response are not yet available."

Defra's plan is for a life-cycle approach to be taken when considering the risks posed by such materials, so that the implications of exposure throughout manufacture, use and disposal is assessed. At present, companies do not have a legal duty to report their use of nanomaterials and the range of processes and products currently in operation or under development in the UK is limited.

The environment department's industry-wide voluntary reporting scheme (VRS), initiated in 2006

to track engineered nanomaterials, attracted few participants and was scrapped.

The Environment Agency is currently working to fill the gap left by the VRS, inviting businesses to take part in another voluntary assessment of the production and use of nanomaterials. The project has been widely publicised through the Knowledge Transfer Network (KTN) and is ongoing.

The agency has also classified unbound CNTs in waste materials as hazardous waste because of their harmful properties. But with so little information about the products and pathways, trying to monitor and regulate all CNT waste arisings and disposal may be a challenge.

Elsewhere in Europe, research is ongoing. Denmark's nanoscience centre is involved in technology transfer studies, for example, and Germany's federal environment agency is studying the fate of some nanomaterials in the environment. France, meanwhile, will require manufacturers, importers, and distributors of nanosubstances to submit annual declarations of information from 1 July 2013.

At the industry level, ISO technical committee TC 229 is dedicated to developing standards for nanotechnologies. The committee has published 23 specifications and technical reports since 2008, and is currently working on another 15, including ISO/DTS 12901-2, which focuses on applying occupational risk management to engineered nanomaterials.

### Up, up and away

To date, governments around the world have invested more than \$67 billion in nanotechnology, and corporate investment in manufacturing infrastructures, new nanomaterial product lines and technology transfer is also growing. PEN estimates that if the current growth trend continues, the number of nano-based products could reach 3,300 by 2020 and could expand rapidly after that.

"The use of nanotechnology in consumer products continues to grow on a rapid and consistent basis," says PEN director David Rejeski.

Yet, there are few national regulations or international agreements in place to monitor and control nanomaterials across their life cycles and governments are reluctant to introduce new regulations until nanomaterial pathways and outcomes are more clearly defined and the risks better understood. That is likely to take several years, however.

Meanwhile, pioneering work to develop new nanomaterials continues apace. One case study highlighted in the BIS strategy document shows how nanotechnology could be used to produce food alternatives to replace fats in ice cream.

Will this require new food regulations – and what about the waste arisings? Like the rest of us, the regulators may just have to suck it and see.

**John Barwise** is a registered environmental auditor and director of QoL environmental management and communications.

# Power steering

*the environmentalist* finds that several years of improving energy efficiency at its Peterborough site has helped Landis+Gyr achieve ISO 50001

**G**lobal metering equipment business Landis+Gyr was one of the first companies to achieve certification to ISO 50001, the energy management standard, which was released in June 2011 (see panel, p.27).

Any organisation aiming for 50001 certification needs to demonstrate a track record of continual improvement in energy management before it can apply. For Landis+Gyr's Northfields site in Peterborough, successfully certifying against the international standard was the culmination of several years developing and implementing low-energy strategies, installations, recording systems and training programmes.

## EMS versus EnMS

Landis+Gyr is a market leader in electricity metering, with a particular emphasis on smart metering systems. For a company with a corporate strapline of "manage energy better" and which exists to help firms in the utility sector, and other organisations and homeowners to improve their energy efficiency, it seems obvious that Landis+Gyr would want to implement 50001.

However, achieving a perfect fit with the company's operational focus and corporate brand was not the only reasons why Landis+Gyr's Northfields site decided to implement the standard. As facilities manager Peter Garwood explains: "Managing energy efficiently is very important to us, and is becoming increasingly so when we deal with clients and subcontractors. We also

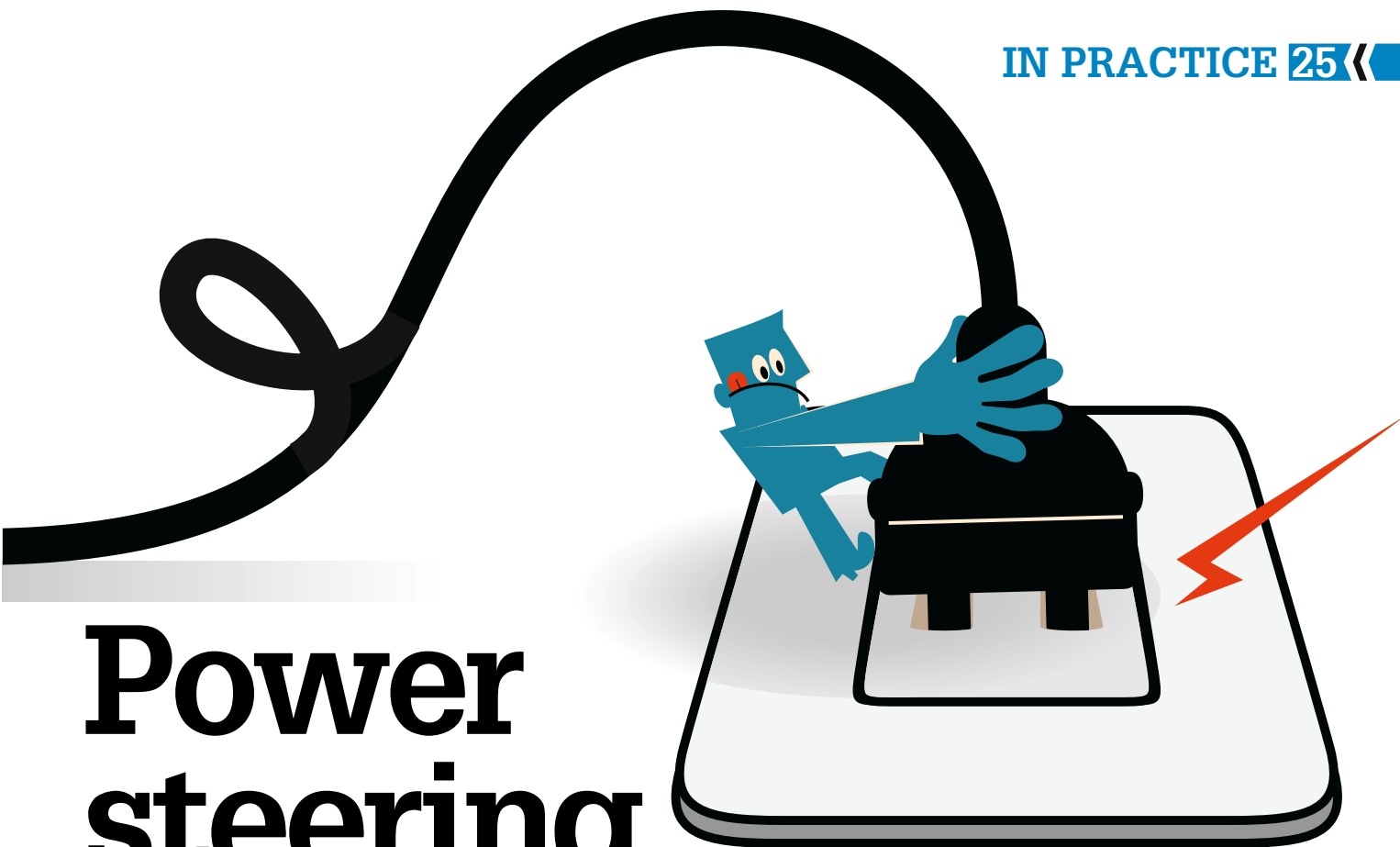
wanted to realise the financial benefits of managing energy better but, fundamentally, 50001 helps us to reduce our carbon footprint and raise awareness of that need across the workforce."

Landis+Gyr had already implemented two other management standards – the quality standard ISO 9001 and the environmental standard ISO 14001 – across its UK operations before embarking on the one for energy management systems (EnMS). Garwood says that 14001 certification acted as a trigger for the Peterborough site to go a step further and achieve 50001 as well.

The environment management standard requires an organisation to consider and manage all of its significant environmental impacts, which includes energy use. If energy is by far the organisation's greatest environmental impact, it could be that 50001 is a more appropriate option or addition.

When asked how necessary it was to implement a stand-alone management standard focusing exclusively on energy management, on top of a well established environmental management system (EMS), Garwood is unequivocal about the benefits. "14001 does not deal specifically with energy management, whereas 50001 is 100% focused on energy," he comments.

"It provides far more detail and is therefore a more rigorous approach for managing the energy side of the company's environmental impact – 50001 is a complete system, which creates an ethos of energy management in the business and aligns perfectly with 14001."





Working towards 50001 certification is not a decision that organisations should take lightly, cautions Garwood. He estimates that even two years of record keeping and implementing energy efficiencies may not be enough to satisfy the rigorous continuous improvement requirements demanded by the standard.

“All the ISO management standards are aligned to continuous improvement, but for 50001 it is essential to demonstrate a baseline in energy usage and subsequent year-on-year energy performance enhancements,” Garwood says. “It would be impossible for a virgin site to obtain certification in a short timescale.”

Prior to implementing 50001, Landis+Gyr spent more than three years compiling historical energy management data to demonstrate the quantifiable improvements it had made in energy consumption and efficiency. This was facilitated by the company’s long-standing work in this area and the initiatives it had put in place towards achieving the Carbon Trust Standard.

### Implementing 50001

Garwood says that with two management standards in place there was a framework to follow for implementing 50001. Once the company had spent several years establishing a baseline of energy usage, developing low-energy initiatives and recording any subsequent energy-performance improvements, gaining certification was a relatively straightforward process. In that sense, the hard work had already been done.

One of the first steps was establishing an “energy management team” comprising Garwood as energy manager and representatives from key functions in the business, including health and safety, facilities and the environmental team. Its remit is “to identify and drive energy-efficiency initiatives and provide an integrated organisation-wide response to energy management”.

50001 stipulates that achieving the buy-in of senior management is vital, and Garwood agrees: “We couldn’t have achieved certification without the top-level support we received.” This assistance was readily



Landis+Gyr’s Peterborough factory was one of the first sites to achieve ISO 50001

available because of the high priority that is given by the business to environmental issues.

A key part of attaining certification involved undertaking a gap analysis, which was carried out by Garwood and an ISO contractor. Garwood knew that, overall, the site was in a good position to achieve 50001; he had designed the building himself in 2006, using energy-efficient technologies and installations. Also, the team had the data to demonstrate continuous improvement and the company already had a lot of the necessary systems in place.

Nonetheless, the gap analysis was a useful exercise and while it did not identify any serious shortfalls, it did highlight a few areas for improvement. These focused mainly on documentation, for example drafting an energy management strategy, policy and action plan, and some accompanying procedures.

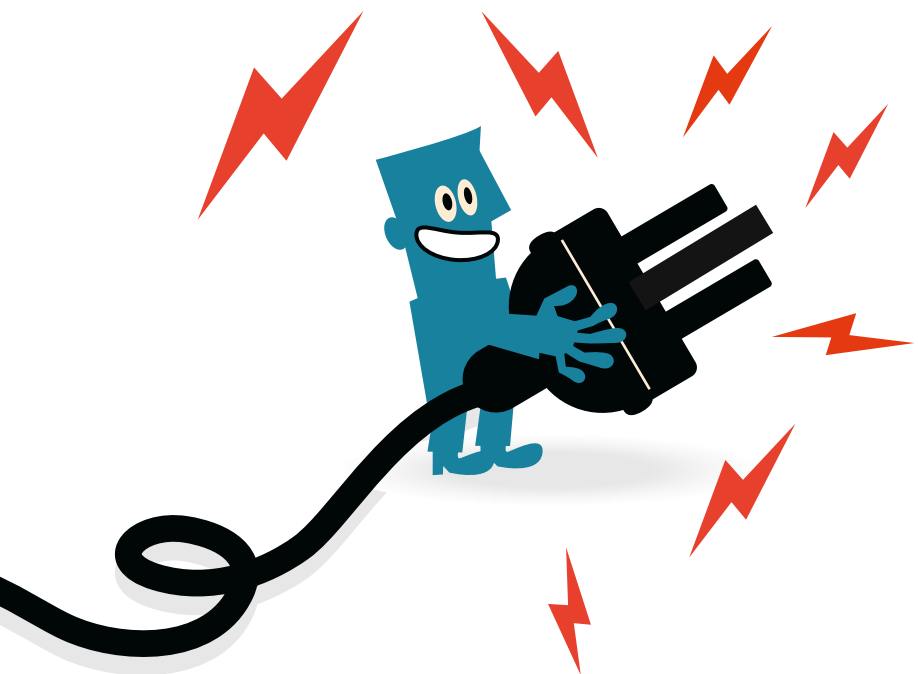
The analysis also helped to establish a framework for training. “Raising awareness and changing employee behaviour around energy conservation is an integral part of the EnMS,” points out Garwood. “Following the gap analysis we introduced appropriate training for staff as part of their induction and introduced bi-monthly energy-efficiency sessions.”

### Energy efficiency in practice

50001 provides a framework for managing a range of potential energy-efficiency projects, including technological ones, such as voltage optimisation and low-energy lighting, and others that encourage behaviour change on the part of energy users. Landis+Gyr has embraced both types of project.

Because the Peterborough site was built only five years ago, Garwood had the opportunity from the outset to incorporate as many high-spec, low-energy elements as were viable, basing some installations on the recommendations of the Carbon Trust Standard. These included solar photovoltaics, a heat-recovery system, a greywater system and energy-efficient boilers.

Adapting the behaviour of “energy users” – employees – is also high on the 50001 agenda. As well as the regular training that is now in place, the energy management team helps to foster a culture of switching





## ISO 50001 – THE ENERGY STANDARD

ISO 50001 is the international management systems standard for energy. It was published in June 2011 and replaces the British and European standard BS EN 16001. The request to ISO to develop a global energy management standard came from the industrial development organisation of the United Nations, which had recognised the need for industry to mount an effective response to climate change and harmonise the different national standards.

ISO, in turn, had identified energy management as one of the top five fields for the development standards. 50001 draws on numerous national or regional energy specifications, regulations and management standards – including 16001.

50001 specifies requirements for establishing, implementing, maintaining and improving an energy management system (EnMS). Certification to the standard confirms an organisation's commitment to achieving continual improvement in energy performance, including energy efficiency, energy use and consumption.

50001 applies to all variables affecting energy performance that can be monitored and influenced by the organisation but it does not prescribe specific performance criteria for energy. Although designed for independent use, 50001 can be aligned or integrated with other management systems.

50001 follows the same “plan-do-check-act” process as ISO 14001 and provides for continual improvement of the EnMS setting out a framework for organisations to:

- develop a policy for more efficient use of energy;
- fix targets and objectives to meet the policy;
- use data to better understand and make decisions concerning energy use and consumption;
- measure the results;
- review the effectiveness of the policy; and
- continually improve energy management.

Source: iso.org

off any item that requires energy when not in use. There is clear signage around the manufacturing plant and offices, and regular emails are sent reminding people of the benefits of good practice on energy usage.

“It may not happen immediately, but in around 12 months the training sessions and ‘toolbox’ talks will yield an improvement in employee behaviour around energy management – it is a case of constant reinforcement of the messages,” says Garwood.

“The aim is that staff do not limit their energy-saving behaviour to work hours, but take the same approach home with them.”

A key element of 50001 is demonstrating continuous improvement and Landis+Gyr's energy management strategy reflects this by making a statement of intent to “establish and continuously adjust achievable energy-reduction targets for each department and manufacturing site”.

In its energy policy, the company commits to reducing its dependence on fossil fuels by 3%–5% each year through “energy conservation and efficient working practices”.

This year-on-year reduction represents an increasingly challenging target for the company, as it will become harder and harder to realise further energy savings, says Garwood. Having a new building that incorporates many energy-efficient measures has done a lot to combat the company's carbon footprint, but the flipside means that its baseline for reliance on fossil fuels is already at a relatively low level. Achieving annual energy performance improvements is that much more challenging.

The 2012 target has already been achieved through measures such as the installation of LED lighting and by increasing the temperature in the server room. Although it was established practice to keep the temperature at 17°C, following an investigation by Garwood and his team it was agreed that a temperature of 23°C was perfectly acceptable, significantly reducing energy use associated with cooling the area.

The company has also capitalised on situations where equipment or installations have come to the end of their natural life by replacing them with more efficient

models. For example, early in 2013 the Landis+Gyr site will complete the last of what Garwood describes as the “big energy-efficiency changes” by swapping four old air compressors with new low-energy ones.

Garwood says the energy management team has to demonstrate a strong business case for implementing energy-saving measures, with a clear timeline for return on investment (ROI). Landis+Gyr's energy policy stipulates that the ROI on any efficiency upgrades must be three years or less. In some cases, a shorter payback period can be achieved.

### Bigger firm: smaller impact

Landis+Gyr's 50001 certification and associated energy-saving initiatives are already having a significant effect.

The Peterborough site has managed to sustain its overall energy use at previous levels despite employing more people and increasing productivity by 35% during recent years. This corresponds to a saving of around 12% in potential energy use. Garwood says that the financial savings from lower energy bills following implementation of the EnMS are significant.

For organisations considering 50001 certification, Garwood says that the certification process is not onerous, particularly for those with an EMS already in place. “But it is essential that there is a serious commitment to save energy and the environment because demonstrating continuous improvement means having detailed historical data,” Garwood advises.

“Successful implementation requires the right infrastructure, mentality and documentation.”



# Planning on collaboration

**Gerard Stewart** and **Chris Saville** describe the role of the Environment Agency in the new duty on planning bodies to cooperate

**N**atural processes do not respect political boundaries. It is essential to plan properly for sustainable development and for most environmental infrastructure this requires cross-boundary working and management on a larger-than-local scale.

The statutory “duty to cooperate” in the preparation of local plans, as set out in the Localism Act 2011 and described in the national planning policy framework (NPPF), acknowledges that some social, environmental and economic issues can only be addressed effectively through strategic planning across multiple local authorities.

The duty requires local planning authorities and other public bodies, including the Environment Agency, to cooperate in the plan-making process to ensure strategic priorities, such as managing flood risk, waste management and water scarcity, are reflected in local plans. It provides an opportunity to improve strategic planning by building on cross-boundary ways of working that are, in many instances, already well established. The agency has recently published

case studies ([lexisurl.com/iema13893](http://lexisurl.com/iema13893)) to help share understanding of how successful cross-boundary working can be effective in achieving environmental outcomes as part of sustainable development.

## Remit and aims

The agency is a consultation body for local authority development plan documents and supplementary planning materials, as well as a statutory consultee under the Strategic Environmental Assessment (SEA) Regulations. In 2011/12, it provided advice to 295 strategic plan documents in England, and, together with Natural England, is a primary source of environmental evidence and advice for local plans.

The regulator already works with local authorities on a range of environmental issues, including flood and coastal risk management; waste management; land and water quality; climate change; emergency planning; and environmental health. Its aims are:

- to create better local environments that enhance people’s lives and support a sustainable economy;
- to ensure that new and existing developments have





a reduced environmental impact and well-planned environmental infrastructure; and

- that spatial and economic planning meets environmental standards and objectives, and considers climate change.

### Working together

The Localism Act did not change the regulator's role as a consultee on local plans and SEAs. The duty to cooperate does, however, alter stakeholders' expectations. The requirement in the Act to "engage constructively, actively and on an ongoing basis" steers public bodies, such as the Environment Agency, to seek opportunities to work more closely with local authorities and proactively provide information and advice that helps the decision-making process.

Local authorities are keenly aware that plans risk being found unsound by the planning inspectorate if they do not demonstrate adequate cooperation between parties, as illustrated recently by the north London waste plan. Following an examination of the plan, an inspector concluded there had not been "constructive, active and ongoing engagement during the plan's preparation between the north London councils and the planning authorities to which significant quantities of waste are exported".

As a national organisation with a local presence, the agency is well placed to contribute to strategic planning. This is illustrated through its published case studies, which show how cross-boundary collaboration can work in practice. The studies demonstrate how the regulator has been engaging with planning authorities and others to tackle strategic issues.

For example, in its work with the Partnership for Urban South Hampshire (PUSH) – which is made up of 10 local authorities, from Havant in the east to New Forest in the west – the agency provided advice and data that helped the partnership to create a strategic flood-risk assessment and unlock £50 million of private-public funding for flood defences.

Also, by working with the Forestry Commission and Natural England, the organisation has helped PUSH to develop a green infrastructure strategy that will deliver 14 sub-regional projects and an action plan that will enable the area to ensure sustainable water supply and sewage treatment.

The Environment Agency is also collaborating with the local authorities, businesses and other partners involved in the Atlantic Gateway project, including the city regions of Manchester and Liverpool, to adapt the area for green growth. It is advising on the Atlantic Gateway's business plan and is working with the project's partnership board to oversee proposals for:

- the Atlantic Gateway landscape park;
- the Mersey to be the "cleanest river in an urban setting in the world";
- the development of the gateway's landscape adaptation programme; and
- projects for managing future waste, water and flood risk, as well as green infrastructure, that build on existing large-scale projects, including the Irwell River park and Mersey waterfront park.

These collaborative initiatives illustrate how the agency is already engaging with planning authorities and other bodies in a cross-boundary way, and it believes the new duty can help it to build on such existing relationships and approaches.

### Evidence and advice

The regulator's evidence and advice is crucial to sustainable strategic planning. DataShare ([lexisurl.com/iema13883](http://lexisurl.com/iema13883)), the agency's data download and live feed portal, has more than 3,500 registered users who have direct access to spatial data. This includes nearly 120 agency, Ordnance Survey, Defra network and third-party data layers.

The agency's water, flood and coastal strategic plans inform decisions in areas where cooperation is needed, as well as setting out location constraints, potential opportunities and long-term needs (see panel, p.30).

The Environment Agency already outlines on its website how it can help with SEAs and sustainability appraisals ([lexisurl.com/iema13882](http://lexisurl.com/iema13882)), and details the evidence and advice it can provide on biodiversity (including flora and fauna); climatic factors (such as strategic flood risk); material assets (for example, geological and infrastructure assets); soil (including waste and contaminated land issues); and water (quality and available resources).

The organisation also contributes significantly to environmental plans prepared by others. It formally advises water companies, for example, on their plans to manage water resources, and it provides vital evidence to local authorities for waste management plans, including the types and quantities of waste being handled in an area, helping local authorities balance waste arisings with the waste infrastructure capacity they need.

For local authority strategic flood risk assessments, which inform local policies and application of the sequential approach, the Environment Agency provides data and advice, including quality assurance review.

## ENVIRONMENT AGENCY-LED PLANS

**River-basin management plans** – are required by the Water Framework Directive (2000/60/EC) and describe the river-basin district, as well as the pressures on and the status of the water environment. They also show what actions will be taken to address the pressures.

**Catchment flood management plans** – give an overview of flood risk across a river catchment. They recommend ways of managing those risks now, and over the next 50–100 years.

**Shoreline management plans** – provide large-scale assessment of the risks associated with coastal processes and help reduce risks to people and the developed, historic and natural environments. They provide a route map for local authorities and others to meet future needs.

**Catchment abstraction management strategies** – provide a framework to control water abstraction. They assess how much water is reliably available and introduce time-limited licences, ensuring impacts on water resources and the water environment are managed together.

### Aiding infrastructure

Environmental infrastructure comprises the services that protect people and organisations from flooding; deal with waste and sewage; and provide clean water and natural spaces. Development plans require consideration of environmental infrastructure needs, and collaborative working across boundaries is often the best way to achieve this.

Environmental infrastructure studies, such as water-cycle studies, used to plan water infrastructure, need cooperation between organisations such as water companies, local authorities and the agency.

These studies draw on evidence to understand environmental and infrastructure capacity and plan to accommodate growth, for example, by establishing:

- the best location for new development;
- a long-term planning framework for infrastructure – providing through efficient planning the necessary infrastructure when it is needed;
- ways to manage and reduce demand for new environmental infrastructure, while protecting environmental and service capacity;
- integrated solutions – for example, multi-use options that will provide water resources, flood-risk management, water quality, recreation and biodiversity benefits together;
- funding and delivery systems and incentives; and
- the means to plan for climate change adaptation and resilience.

Joint working and addressing issues collaboratively at the strategic level can reduce costs, save time and resolve issues earlier in the plan-making process. Prioritised environmental outcomes agreed at a strategic level may also pave the way for delivery in partnership with others.

In addition to public organisations to which the duty applies, others such as utility providers, including water companies, and local nature partnerships can also make important contributions to the process.

For example, in the Gatwick sub-region the agency has worked with four local authorities and various water companies to steer a collaborative infrastructure planning water-cycle study. This has resulted in an agreed framework to deliver the environmental infrastructure needed for planned growth, including 36,000 new homes by 2026. At the same time it has protected the already pressured environment through

targets on improving water efficiency and sustainable drainage. The cross-boundary approach has given each authority an understanding of neighbours' goals, as well as those of the agency and water companies, and the confidence that they have satisfied the duty to cooperate. It has also saved money, for example through collaborative evidence compilation.

### Streamlined planning

The duty to cooperate does not apply to local enterprise partnerships (LEPs), businesses and groups of local authorities. However, it does require public bodies to "have regard to the activities" of LEPs when preparing local plans.

The creation of local enterprise zones (LEZs), which aim to foster growth through simplified planning, has been an important impetus for such collaboration.

This is illustrated in the Tees Valley, and at Great Yarmouth and Lowestoft, where the agency has worked with relevant local authorities to agree protocols for local development orders (LDOs). These orders allow local authorities to extend permitted rights for certain forms of development. In the Tees Valley, a joint protocol was agreed to streamline processes for developers and investors to get faster planning consent from local authorities and environmental permits from the agency.

The Tees Valley LEZ has the potential to create 1,200 jobs and up to 60 new businesses by 2015. Environmental protection has been maintained in the area for both sensitive, internationally recognised bird habitat and vulnerable ground waters. And, to tackle flood risk consistently while saving money, the Environment Agency has worked with five local authorities to form a strategic flood-risk management group and agree a single brief for strategic flood-risk assessments.

In Great Yarmouth and Lowestoft, the agency cooperated with four local authorities on the development of enterprise zone LDOs in a coastal area where flood risk, sensitive aquifers and contaminated land are important. On flood risk, the regulator developed a bespoke design guide and a light-touch flood-risk assessment framework for developers.

### Building on good practice

The new duty to cooperate recognises the need to address cross-boundary issues strategically and in partnership. It provides an opportunity to plan effectively for environment infrastructure and sustainable development.

The agency has a crucial role in implementing the duty, providing evidence and advice so that decision makers can ensure that environmental limits are respected when planning for sustainable development.

However, as illustrated by the recent agency case studies, cross-boundary collaboration in strategic planning is not new. Much good practice on cooperation already exists on which to build.

**Gerard Stewart** and **Chris Saville** are senior advisers at the Environment Agency. More information is available at [lexisurl.com/iema13884](http://lexisurl.com/iema13884).



# A brighter outlook?

After a year of turmoil, **Jonathan Gifford** looks at what lies ahead for the European solar sector

**T**he dreary weather seemed to reflect the mood. On 24 October, the industrial east German landscape was shrouded in thick autumn fog as Q.Cells, a company that had been one of bright lights of Germany's solar sector, officially came under Korean control. The Saxony-based company was once one of the largest solar photovoltaic (PV) manufacturers in the world. It is now officially Hanwha Q.Cells, with the original company having descended rapidly into bankruptcy early in 2012.

While Q.Cells' fall from grace demonstrates just how perilous a market it is at present for solar manufacturers, its acquisition by Hanwha should not be considered as a disaster for the European solar industry. The firm's German, Malaysian and Chinese plants manufacture enough PV panels each year to generate 2.3 gigawatts (GW) – just short of double the total amount of installed solar-PV capacity in the UK.

Hanwha's acquisition of Q.Cells is, however, indicative of just how fast the PV manufacturing landscape is changing, and what impact these changes could have for consumers of PV and for the larger-scale implementation of solar on the global stage.

## Political will

In most of the world, PV remains a subsidised industry. This is changing rapidly, however, as the price of solar panels drops spectacularly – around 50% in 2012 alone – and the cost of installing PV falls as economies of scale become established. However, in key markets in continental Europe, government subsidies are still required for solar to compete with established energy technologies. Because of this, the solar PV industry

remains exposed to changes of government, or sudden alterations to energy policy. This is exactly what has happened throughout Europe, particularly in Germany, Italy and Spain.

In Germany, the Renewable Energy Act (EEG), the legislation that brought in the feed-in tariff (FIT) scheme that underpinned the growth of solar, has undergone a major shake-up. Germany remains the world's biggest market for solar PV, with half of global solar-PV capacity installed in the country – very close to 30GW, as of 31 July 2012, according to the German Federal Network Agency. However, recent changes to the EEG are seen as delivering a fatal blow to the domestic PV manufacturing sector, which was already struggling to compete with imports from China.

The key changes, and what the Deutsche Bank describes as the "third phase" of the EEG, are: reduced FIT payments; a market premium option; a 90% cap on FIT-eligible PV electricity; and the addition of a 52GW capacity threshold for PV. Additionally, and perhaps decisively for large solar developers, PV installations bigger than 10MW will no longer qualify for FITs.

A second ominous sign for solar in Germany was delivered in August, with the announcement of another fundamental revision of the EEG as part of a new energy and environment plan. One of the anticipated outcomes will be a greater emphasis on the production of renewable energy when it is required – rather than simply when there is sun or wind available. Another will be a reassessment of the cost of the FITs and how that cost is borne by taxpayers. The German FITs, for wind and PV, are predicted to cost €12.7 billion in 2012 and environment minister Peter Altmaier has signalled that the EEG surcharge should be increased further.





Conergy is installing PV panels at the La Sal Varador restaurant in Barcelona

The changes will mean that the amount of solar installed each year in Germany will fall from now on. The latest figures from the German electricity network agency show that between July and September 1.85GW of new PV capacity was added to the grid. It is a remarkable result, but shows that developers and installers are rushing to connect projects before the EEG is changed forever. "I would say that in Germany we will never have a single month again where it will have 900MW or more [of solar PV] installed," says Goetz Fischbeck, founder and chief executive of Smart Solar Consulting. "This is not really a surprising or a positive result, just the logical consequence of the way that the EEG was changed." Fischbeck anticipates a decline by as much as 50% for the German PV market in 2013.

Italy is the only European nation to come close to Germany's application of solar PV. Figures from the Italian network agency in October showed that 15.9GW of solar capacity has been created, spread across 450,000 installations, and that the annual subsidy cost for the past five years amounts to €6.4 billion.

Under the most recent iteration of the legislation underpinning renewable energy development, the Conto Energia, the funding limit for the legislation is €6.7 billion. Fischbeck believes that there is sufficient funding for another 2GW of capacity. "That's going to last until the middle of next year," he predicts. After this date, it is plausible that new solar development under subsidies could come to a shuddering halt.

A classic and well-documented example of a solar market collapsing is provided by Spain. In 2008, overly generous FITs – and ample sunshine – lead to a solar bubble forming almost overnight. In that year more than 40% of the world's installations were in Spain, following 2007 legislation that paid €0.44 for every kilowatt-hour (kWh) of solar energy generated. It led to a rampant and overheated market, and suspension of the solar support scheme was inevitable. As the Spanish PV market had the regulatory brakes applied, manufacturer Q.Cells was one of the first to cut back manufacturing staff, shedding 500 employees in August 2009.

### Solar 3.0

While Spain's solar past is instructive in terms of what not to do, it is also demonstrating a future without FITs – where a solar installation can be justified without subsidies from the state. This was always the stated goal of solar subsidy programmes, but the transition from the simple FIT calculation to a more nuanced equation, where PV is a genuinely competitive source of electricity, has not been an easy one.

Formerly, developers and investors could consider a FIT of X, multiplied by Y years, at Z initial cost. Without FITs, however, calculating return on investment is a more complex matter incorporating savings through the self-consumption of PV electricity, the wholesale price received for any energy sold back to the grid and, for large-scale utility PV developers, negotiating contracts with utilities.

"The key message at this time is that PV companies are delivering clean power solutions to people," explains Gerard Reid, a partner and founder of green-energy investment consultants Alexa Capital. "But ultimately 'solar 3.0' is that you are delivering power solutions to people." This adjusted sales pitch for solar PV to potential clients and investors is taking time to evolve, but pilot projects are emerging.

In October, German company Conergy announced a small project in Spain that makes economic sense, entirely without subsidies. The installation is located on the roof of the La Sal Varador beachside organic restaurant, in Barcelona Province. The 8kW project covers much of the restaurant's roof and has been designed to allow the restaurant to consume 95% of the power produced during daylight hours. The cost of the electricity from the roof, calculated over the 25-year life of the system, will be around €0.10 per kWh, while the utility charges €0.15 to €0.17 per kWh – delivering considerable savings during the day. The fact that the technology's green-energy credentials align with the environmental ethos of the business is also a factor behind the installation. "The solar plant represents a further element of our overall concept, allowing us to use green electricity for our restaurant in the day and reduce our electricity bill at the same time," says owner Ricard Jornet. "But, above all, we will also reduce our vulnerability to future electricity price rises."

It's worth noting that the fit between a solar array's energy production and the demand profile of the user is essential, and Conergy studied the usage patterns of the restaurant before designing its system. When they do align well, the economic viability for solar becomes simple. Load shifting – taking measures to align a PV installation's generation and supply – could help also.

Conergy is not alone in working on unsubsidised PV projects in Spain; Gehrlicher Solar has also announced projects in the country, although on a larger scale.

One of the projects is a 250MW utility-scale power plant in the south-west of Spain. The project will cost around €250 million to build. The German developer says that it plans to sell the electricity directly on the wholesale electricity market, into a pool or directly to a company trading on that market.

Fischbeck is unsure that the long-term electricity price stability required for a solar PV power plant, which has a minimum working life of 20 years, can be guaranteed, however. "By selling the PV electricity at around €0.06/kWh, they expect to be profitable," says Fischbeck. "But with more and more wind and solar power in the grid – which have almost zero variable cost – it could be that eventually expecting to achieve a sales price of €0.06/kWh for PV electricity at peak production times could turn out to be too ambitious."

## Falling costs

The cost of €250 million for 250MW of installed solar PV capacity is worth noting in the Gehrlicher Solar proposal as it hits the €1 per watt of installed cost, which has long been a milestone goal for the PV industry. Underpinning this is the rapidly falling price of PV modules and the reduced costs associated with installing them.

The collapsing price of PV modules, itself a symptom of a vastly oversupplied market, is causing manufacturers considerable problems, as is evident in Q.Cell's woes. And it's not just the European manufacturers that have been hit. GTM Research released a report in October indicating that 180 existing PV panel makers globally will go under or be acquired by other firms by 2015.

"Profitability in the PV supply chain will continue to be extremely challenging until and unless there is significant capacity rationalisation in China," wrote Shyam Mehta, senior analyst at GTM and author of the report. "We expect this to start taking place in 2013."

The price war and the continuing difficult period for manufacturers could also have a more profound impact on the market. With nonexistent profits, the quality of PV modules produced could fall.

Research and development (R&D) programmes also run the risk of being cut, undermining much of the good work done by firms to bring module efficiencies up and prices down.

Market analyst Paula Mints, from Navigant Consulting, has long been arguing that a reduction of R&D could be a fatal error for manufacturers and badly damage solar's long-term prospects. At the PV Power Plants conference in Vienna in 2012, Mints said that rapidly falling prices could result in solar PV becoming an unsustainable industry. "Prices are held down now by very high levels of inventory, very high levels of capacity and reduced incentives," said Mints. "The rumours of extremely low prices, that is really the reselling of inventory, and that is held down by manufacturers that are selling it below cost ... Companies don't have the money to make improvements."

Consequences for solar PV's reputation if modules and installations start underperforming with warranties from companies that no longer exist could be dire. It could represent a disaster for the industry and a blow to renewable energy proponents. Despite this, and the problems being faced by PV manufacturers, consultant Gerard Reid remains hopeful that the transition to a sustainable, unsubsidised market for PV in Europe will occur. "It's a painful process to revolutionise the world," he says, "but you can't have a revolution without pain. It's not a revolution otherwise."

**Jonathan Gifford** is a freelance journalist based in Berlin specialising in the European solar industry.

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# 2012 graduate award winner revealed

**Graduate award** Lorna Pilbin has been named the IEMA graduate award winner for 2012. The finalists all attended the Edie sustainability leaders awards in London on 5 December where IEMA's Jan Chmiel and Neil Pennell from the award's sponsor Land Securities announced Pilbin as the winner of the £1,000 prize, and named Lucy Barrett and Hayley Jewitt as this year's joint runners-up.



## Winner – Lorna Pilbin

Pilbin is an environmental assistant at British Gypsum (part of the Saint-Gobain group), a global company with close to 1,000 manufacturing and distribution sites in the UK and Ireland.

Having originally joined British Gypsum in 2007 for her gap year, Pilbin returned to work at the organisation each summer to gain experience during her degree. She became a full-time member of staff in September 2011 after graduating with first-class honours in environmental science from the University of Plymouth.

In her role, Pilbin focuses on water management, becoming the first employee to implement Saint-Gobain's global water-use policy. This involved researching, understanding, developing and applying relevant tools and techniques. As a result, Pilbin has spent much of 2012 leading group work on the water policy, developing tools and methodologies to gauge usage and waste across several operational sites. Part of this project involved a pioneering and highly successful pilot study, which led to the roll-out of Pilbin's evaluations across all priority sites in the UK.

The success of the pilot led to Pilbin being asked to present her work and lead a practitioner workshop at Saint-Gobain's global safety, health, environment and risk

forum in Germany. A further opportunity to establish her methodologies as best practice came at the company's 2012 UK, Ireland and South Africa environment, health and safety forum, where Pilbin presented the work to other brands and businesses that operate under the Saint-Gobain name.

**Nominator's comments:** "Lorna personifies the type of young people we need to encourage into the organisation. Lorna's professionalism in her conduct and in the way she communicates with her colleagues at all levels of the business bring a level of respect and credibility both to her personally and the subject area, allowing both her and ourselves to make real progress against our environmental targets." *Allen Gorringe, head of environment, Saint-Gobain*

**Judges' comments:** "Lorna's nomination and supporting evidence clearly demonstrates not only her passion for the environment, but also her professionalism and ability to innovate and lead projects. Her range of skills is impressive, enabling her company to achieve its targets and, by working at a strategic level, she has effectively engaged colleagues and stakeholders to make change happen."



## Runner-up – Lucy Barrett

Barrett was initially employed on a six-month contract as an environment management system assistant at Stockport Homes, which manages the housing stock owned by Stockport Metropolitan Borough Council. She has an MSc in environmental management and sustainable development from Manchester Metropolitan University.

Through her environmental, research, engagement and communication skills,

Barrett successfully implemented innovative and creative approaches to managing and reducing waste on housing estates in Stockport. Part of her project involved procuring a new waste contractor, which should reduce expenditure on waste by 50%.

Her contribution to the organisation has proved to be so valuable that her line manager applied for additional funding in order to secure her position for a further six months.

**Nominator's comments:** "I am delighted with Lucy's development while working at Stockport Homes. She arrived as a shy, inexperienced student and has progressed very well to competently oversee multiple workloads." *Joe Keating, environment and energy manager, Stockport Homes*

**Judges' comments:** "The amount Lucy has achieved in just six months, particularly in a first role, is commendable. Her methods for engaging residents in Stockport Homes' waste segregation and reduction scheme are remarkable and she is evidently an asset to the organisation."



## Runner-up – Hayley Jewitt

Jewitt received her nomination as a result of a short placement with Manchester Metrolink (MPT), which she undertook while studying towards her Laing O'Rourke-sponsored degree in environmental management.

During her three-month spell with MPT, Jewitt became a key member of the health, safety, environment and quality team. Her ability to learn fast and take on responsibility for representing MPT at important meetings, communicating recommendations, reporting and liaising with stakeholders proved invaluable.



Jewitt also headed award-winning corporate responsibility efforts and organised environmental training forums to ensure the involvement and engagement of staff.

In her current role as graduate environmental adviser at Laing O'Rourke, Jewitt now supports 10 sites across the North West of England. She has recently passed her IEMA environment management systems auditor training.

**Nominator's comments:** "Hayley has developed to become a proactive, confident professional. She has simultaneously studied to gain a first-class degree, undertaken two-years' work experience at MPT and gained AIEMA status. She has been able to take on more responsibilities due to her knowledge and training, and continues to extend her capabilities." *Andrew Campuzano, MPT*

**Judges' comments:** "Hayley was chosen as a runner-up due to the dedication she has shown to her field of work, studies and professional development. Her leadership – not only during the placement, but in chairing focus groups and in mentoring undergraduates – is inspiring."



#### Graduates commended – Joseph Clark and Agnieszka Chuchla

Clark is engineering team leader and deputy environmental manager at SPP Pumps, a leading manufacturer of centrifugal pumps and associated systems. He has applied his knowledge of the environment in a voluntary support role, enabling the firm to achieve targets, save money and reduce its impacts.

Chuchla is a student environmental health and safety practitioner at Milliken and Company. She is described by her nominator as "the role model for anyone wanting to pursue a career as an environment professional".

## New member of the board

**Non-executives** As announced in the November issue of *the environmentalist*, IEMA has appointed to two new non-executive directors to its board – the governance committee providing oversight and support to the chief executive in developing and implementing the Institute's strategy.

Here *the environmentalist* profiles one of the new additions, **Richard Powell** (fellow new non-executive board member, Terry A'Hearn, will be profiled in next month's issue).

Powell has more than 30 years experience in environmental, leadership and director-level roles. An earth science graduate from Oxford Brookes University with a background in geology, Powell has a "firm grounding in how the natural world works". Through his professional roles with the RSPB, Heritage Lottery Fund and most recently the National Trust, Powell is able to demonstrate clear and thorough experience and understanding of environmental protection, heritage, sustainability and leadership in various sectors. His voluntary chair and board positions at a number of organisations, including the Institute of Directors, give him a valuable perspective on understanding the challenges and opportunities that not-for-profit organisations like IEMA face.

Further to his professional and voluntary experience, Powell was recognised for his considerable personal

contribution to sustainable development when he was successfully nominated by Defra for an OBE in 2002.

Powell believes that good environmental skills are extremely important in the current and future economy. "Environmental sustainability – and the people who implement practice and policy – underpins the entire economy; we can't have an economy without the environment," he says.

Through his desire to see "joined-up thinking" in everything he applies himself to, Powell says he aims to ensure that IEMA members continue to benefit from clear, rational and ambitious leadership from the board.

#### Powell's experience

**2011–12:** National Trust, East of England director

**2010–12:** Institute of Directors, chair of Norfolk region

**2011:** Union of University of East Anglia Students, chief executive

**2006–11:** Sustainability East, chair

**1994–2011:** RSPB, regional director

**2000–10:** Heritage Lottery Fund, chair

**2002–06:** Go East, chair

**2002–05:** Renewables East, chair

**1998–2003:** EEDA, board director

**1988–94:** RSPB, senior reserves manager

**1979–83:** MAFF, research field officer

### IEMA EVENTS

Date	Region/Time	Topic
<b>Regional events</b>		
24 January	London	Leaders' forum
28 January	Lancaster	Knowledge exchange
<b>Membership workshops</b>		
17 January	Midlands	Full and CEnv workshop (Lincoln)
24 January	South East	Full and CEnv workshop (Oxford)
5 February	North West	Full and CEnv workshop (Manchester)
12 February	Midlands	Full and CEnv workshop (Nottingham)
26 February	Central Scotland	Full and CEnv workshop (Edinburgh)
14 March	South East	Full and CEnv workshop (London)
14 March	East of England	Full and CEnv workshop (Peterborough)

# 2013 IEMA practitioner survey launched

**Pay and benefits** IEMA's annual research into the state of the environment profession has commenced, with more than 14,000 members from Graduate, Affiliate, Associate, Full and Fellow levels invited to contribute over the coming month.

Carried out every year since 2005, the IEMA survey of members' pay and benefits investigates how and at what rate the environment profession is developing. As with other professions, the salaries of the Institute's members, the staff benefits they receive, their qualifications and levels of professional satisfaction are

barometers of progress. We also gather evidence of individual successes to gauge how much money our members save their organisations and how they contribute to business in other areas.

The 2013 survey went live on 14 December and has already achieved a very good response rate.

The survey, which is completely anonymous, typically receives a high number of contributions, with thousands of IEMA members keen to give details of their experiences, and every response helps us to establish what can be considered typical for an environment professional.

For last year's survey ([lexisurl.com/iema14004](http://lexisurl.com/iema14004)), IEMA received more than 2,200 responses and the Institute aims to top that with the 2013 research.

The survey is open for five weeks, until 18 January, so look out for the email from [research@iema.net](mailto:research@iema.net) entitled "IEMA practitioner survey: what's your story?" in your inbox to access your unique survey link. A final reminder will be sent out in the new year.

The results of the survey will be published in a special supplement with the March 2013 issue of the *environmentalist*.

## REMINDERS

Last month, IEMA relocated its head office. Telephone, fax, email and website details remain unchanged, but please update any records of the postal address to: Saracen House, Crusader Road, City Office Park, Tritton Road, Lincoln, LN6 7AS.

Post sent to IEMA's previous address will be redirected in the coming months, but this will result in a delay in processing applications or renewals.

IEMA's head office will be closed from 5pm on 21 December until 9am on 2 January 2013. To ensure your membership does not lapse, renewal payments due should be made early – by phone, cheque or online – or paid online during the closure at [lexisurl.com/iema13977](http://lexisurl.com/iema13977). Postal payments will not be processed until after 2 January.

## New EIA Directive briefing released

**EIA** On 26 October 2012, the European Commission launched its proposals to amend Directive 2011/92/EU on environmental impact assessment (EIA) ([lexisurl.com/iema14005](http://lexisurl.com/iema14005)).

The original EIA Directive 85/337/EEC and its three amendments (97/11/EC, 2003/35/EC and 2009/31/EC) were consolidated into a single "new" Directive (2011/92/EU) in December 2011. This codification process was undertaken in preparation for the commission's proposals to make substantive amendments to the EIA process.

The suggested changes include linking EIA to other assessments required under EU legislation, such as the Habitats Directive; combining EIA screening and scoping into a single process; imposing a 12-week time limit on local planning authorities to deliver a final consent decision for EIA projects; and requiring



that accredited competent experts are involved in all EIAs.

The proposals are the focus of a new six-page briefing note for IEMA members, outlining the key procedural changes and what they will mean for EIA practice. The note also provides the background to the commission's review and explains the next steps in the process. To download a copy visit [lexisurl.com/iema13978](http://lexisurl.com/iema13978).

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## MORE SUCCESSFUL ASSOCIATE MEMBERS IN 2012

<b>Ashley Carton</b> Alexander Hughes, Oxford Brooks University	<b>Matthew Redgrove</b> Joshua Remi, Valpak	<b>Anna Starbuck</b> , RPS Group	<b>Erica Ward</b> , Temple Group
<b>Ogechukwu Obidi</b> , University of Sunderland	<b>Wei Ren</b> , Oxford Brookes University	<b>Stavros Stavrikkos</b>	<b>Christine Weiler</b> , Amec Asset Support
<b>Ituna Okusanya</b>	<b>Danielle Riley</b> , GroundSure	<b>Matthew Stephenson</b> , Cable & Wireless	<b>Martin Welburn</b> , First Quality Solutions
<b>Tania Palk</b> , Kings College Hospital	<b>Penny Roberts</b> , Environment Agency	<b>James Summers</b>	<b>Megan Welch</b> , Canon UK
<b>Stephanie Palmer</b> , RPS Energy	<b>Nicola Robinson</b> , Sellafeld	<b>Alexander Sutton</b>	<b>Carys White</b> , Valpak
<b>Richard Parkhouse</b> , Really Green Credentials	<b>Oliver Rosevear</b> , Costa Coffee	<b>Duncan Taylor</b> , Muirden Energy	<b>Duncan White</b> , RSK Group
<b>Barry Paschali</b> , Paschali Greener Working Solutions	<b>Nawzet Rouf</b> , Repsol YPF	<b>Mark Taylor</b> , Argyll Environmental	<b>Anastasia Whitelegg</b> , Viridor
<b>Andrew Pearson</b> , Reigate & Banstead Borough Council	<b>Barry Ryan</b> , J Murphy & Sons	<b>Mudzunga Thangavhuelelo-</b> <b>Lucas</b> , University of Strathclyde	<b>Terry Wilcock</b> , Premier Technical Services Group
<b>Roberto Peralta</b> , LCC Support Services	<b>Mark Saunders</b> , United Sustainable Energy Agency	<b>Jason Thomas</b> , Tulip	<b>Philip Williamson</b> , Royal HaskoningDHV
<b>Catherine Queen</b> , The Environment Partnership	<b>Robert Sellen</b> , Hampshire County Council	<b>Stephanie Towers</b> , Resource and Environmental Consultants	<b>Rebecca Wood</b> , Ron Smith Recycling
<b>M S Radhika</b> , Gulf Precast Concrete	<b>Neil Sephton</b> , Groundwork	<b>Alexandra Turner</b> , Environ	<b>Marcus Wright</b> , Resource and Environmental Consultants
<b>Cristina Raventos</b> , Carbon Clear	<b>Daniel Shepherd</b> , BHR Hospitals	<b>Emmanuel Udo Ndubuka</b>	<b>Fuchao Xu</b> , University of Algarve
<b>Theresa Redding</b> , Royal HaskoningDHV	<b>Catherine Shiers</b> , GroundSure	<b>Pavelas Venediktovas</b> , Sheffield Hallam University	<b>Rehan Yunus</b> , Raven Housing Trust
	<b>David Smith</b> , Environ UK	<b>Carl Waddington</b> , East Coast Mainline	<b>Akbar Ziauddin</b> , Akbar HSE Training and Consultancy Services
	<b>Richard Sobey</b>	<b>Lisa Walls</b> , Xodus Group	<b>Robert Zvikonyaukwa</b> Elijah, STAA
	<b>Nicholas Spellissy</b> , Balfour Beatty Mott MacDonald	<b>Colin Wardle</b> , Resource and Environmental Consultants	
	<b>Alison Stanton</b> , Argyll Environmental		

## THANK YOU TO THE ASSESSORS

IEMA would like to thank all of its members who have been Associate assessors and supported the Associate open book assessment (OBA) until it close this year.

The people listed here contributed their time and expertise in marking the thousands of OBA exam papers received by IEMA each year. Without their dedication and commitment the Institute would not have been able to award AIEMA status to so many successful candidates. The Associate assessors also contributed to the development of the exam to ensure it was up to date, balanced and suitably testing for candidates. We would also like to thank the professional standards committee members who over the years have verified papers as part of the marking process.

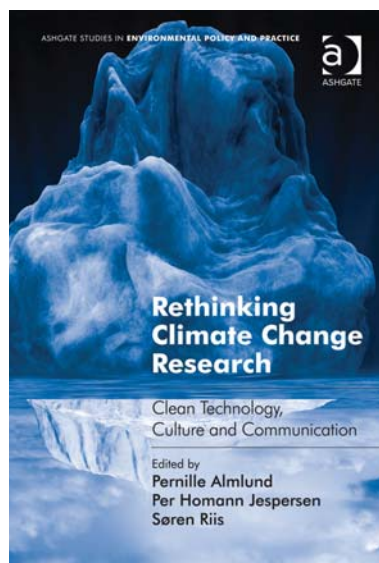
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Alan Beal  
Carol Brass  
Andrew Bright  
Marek Bidwell  
Martin Bigg  
Peter Birch  
Sean Byrne  
Ewan Campbell-Lendrum  
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Helen Woolston

"I'd like to thank all of those who have so generously given their time and expertise to make the Associate standard what it is today; internationally recognised, unrivalled in its accessibility and the hallmark of a knowledgeable environment professional," said Claire Lea, IEMA's director of membership strategy and development. "It's been a privilege to work alongside so many dedicated members committed to supporting the profession's development."



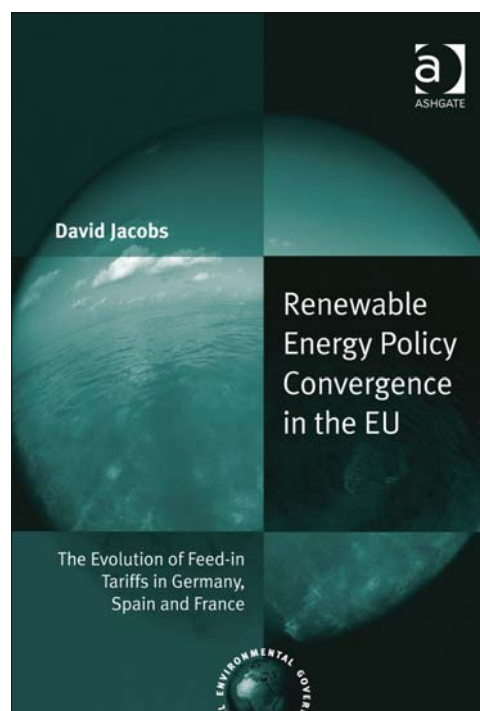


### **Rethinking climate change research**

Pernille Almlund, Per Homann Jespersen and Søren Riis / Ashgate / Hardback £65 / ISBN 978-1-4094-2866-4

**BOOK** For the most part, this is a thought-provoking book for environment managers. It brings together papers exploring a broad range of climate-change themes, including clean technology; the effective communication of climate change science to the public; and the concepts of mitigation and adaptation. However, in many cases the authors use detailed sources to support their arguments and this precision seems to contradict the book's aim of remodelling attitudes towards climate-change research to a more strategic perspective. In some of the papers, anecdotal research is used to discuss the efficiency of, and attitudes towards, upcoming clean technology. Many of the novel examples cited, such as hybrid lighting, could offer immense benefits if practically implemented. Of particular note is a study of non-fossil-fuel energy systems, which includes an excellent summary of the development of the Kalundborg Symbiosis (the buying and selling of waste products from industrial production in a closed cycle), and a paper discussing the impact of multisite occupancy on climate change. For those with a background in environment sciences, this book offers a detailed discussion of themes that will be of interest to many. However, it fails to make a cogent argument or offer practical guidance for rethinking climate change on a national or international scale.

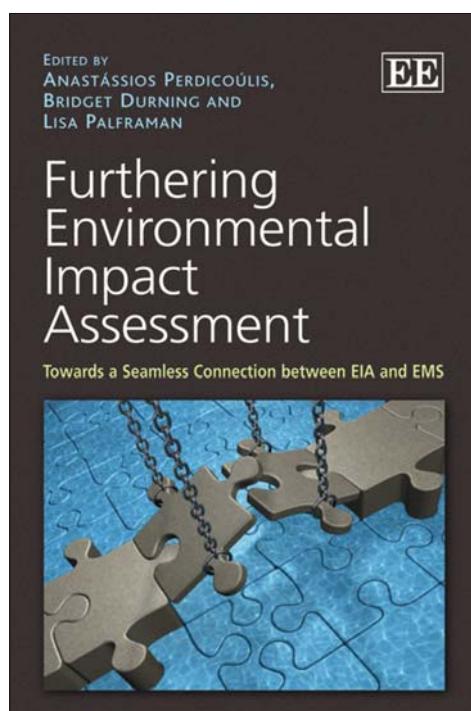
*Review by David Dowson, environmental and sustainability advisor at Skanska*



### **Renewable Energy Policy Convergence in the EU**

David Jacobs / Ashgate / Hardback £50 / ISBN 978-1-4094-3909-7

**BOOK** As a politician in the 1970s, I spoke out in favour of renewable energy. Wind, wave and solar power together seemed to offer an alternative to the official enthusiasm for all things nuclear, but it's taken 40 years for renewables to start to play a significant part in the energy mix. A 20% by 2020 target has been set at the European level, and member states are force-feeding the development of renewables by throwing subsidies at them. Feed-in tariffs (FITs) have become the instrument of choice and this book explains how they were designed and how they have evolved in Germany, Spain and France. Despite the absence of a legal obligation for governments to meet EU policy objectives in a particular way, a great deal of cross-border policy coordination has developed. Jacobs shows how the different schemes have converged, stimulated in part by European Commission reporting procedures. Jacobs says his book will be of interest to academics and renewable energy experts. More superficial politicians wanting a quick, best-practice guide to FITs will prefer the information distilled into a 20-minute PowerPoint presentation. Now if only Jacobs had identified a way of keeping costs down... *Chris Davies is the Liberal Democrat environment spokesperson in the European parliament*



### **Furthering environmental impact assessment**

Edward Elgar / Hardback £70 / ISBN: 978-0-8579-3327-0

**BOOK** In many ways this book cuts to the crux of effective environmental impact assessment (EIA) practice: how to ensure design and mitigation promises are delivered in reality. This isn't a practical "how to" guide; it goes deeper, providing a series of papers setting out real-life examples and concepts. The book is good for practitioners wanting to develop an understanding of the interface between EIA, environment management plans, environment management systems and sustainability management. The book's chapters break the information down into chunks that can be fitted into the busiest schedule. And, while rather academic in style, the chapters from IEMA members ensure a practical slant is retained and sector-specific examples are included. Researchers examining EIA follow-up or the environment management of developments should have ready access to this book, but it also holds value for practitioners in consultancies, contractors and large developers who would like a better understanding of how to manage environmental risk during the design, consenting, construction and operation of EIA developments. *Review by Josh Fothergill, IEMA's policy and practice lead on EIA*

# Stephen Asbury

Managing director, Corporate Risk Systems

## Why did you become an environmental professional?

I actually qualified in law, and my first job was with a construction company where I dealt with many serious injuries and insurance claims. I recall thinking how much better things would be if we focused on prevention rather than compensation, and protecting people in the workplace became my life's work. I came to environment management later when it was incorporated into my role.

**How did you get your first environmental job?** In 1990, when I was the group health and safety manager of polymer engineering group BTR, my boss thought that I would be the best person to understand the hazards we were emitting into the atmosphere, and gave me responsibility for ensuring that rubber processing at our plant in Coalville met requirements under the Environmental Protection Act.

**How did you progress your environment career?** I completed the NEBOSH specialist diploma in environmental management at Aston University in 1996, and joined the forerunner of IEMA, as an Associate. I have continued to progress my membership and, I'm proud to say, became a Fellow in 2007.

**What does your current role involve?** As managing director of Corporate Risk Systems (CRS), I have to lead and support our team of 30 specialist health, safety and environment (HSE) consultants. I also remain an active HSE consultant, instructor and conference speaker. Assignments take me all over the world and I have been lucky enough to consult with some of the world's largest organisations. I have worked in 55 countries on six continents, and in 2011, I even spoke on a cruise ship in China! I am also an author and write for journals and magazines, as well as publishing my own books. I am currently writing a second edition for my first book *HSEQ audits – a risk-based approach*.

**How has your role changed over the past few years?** My role has evolved. I used to take on virtually any HSE-related assignments where I had the competency to deliver a solution. These days, I have a staff to work with, and my own assignments tend to be more specialised, or where the client has asked for my personal involvement.

**What's the best part of your work?** I love working with company directors and their line managers to help them to understand that incidents can be prevented by effective use of HSE management systems. Showing them how continual improvements can be achieved and helping them to track their performance over several years is very satisfying.

**What was the last development event or training course you attended?** I became a certified neuro-linguistic programming coach and practitioner at the start of 2012.

**What did you bring back to your job?** A better understanding of how the brain works, and how I can help my colleagues to be the best they can be.

**What are the most important skills for your role and why?** Time management is very important, as well as the ability to prioritise my workload. I also think that enthusiasm is crucial. I really enjoy the dynamic in a seminar where the participants are expecting a drab lecture and I deliver a learning experience like a rock show. Helping people to enjoy their jobs and deliver exceptional performance is like a drug for me!

**Where do you see the environment profession going?** On the rise and rise! But it does need to be repositioned to be more mainstream and better aligned to business objectives.

**Where would like to be in five years' time?** We have a five-year vision for CRS, and I'd like to be a part of the



## CAREER FILE

### Qualifications:

FIEMA, Chartered environmentalist, Chartered fellow of the Institution of Occupational Safety and Health, MBA in risk management, ILEX (Law), NEBOSH specialist diploma in environmental management

### Career history:

**2001 to now** Managing director, Corporate Risk Systems

**1999–2001** Director and company secretary, Corporate Risk Systems

**1998–1999** Associate director, Aon Risk Services

**1995–1998** Head of liability consulting, Royal and Sun Alliance Insurance Group

**1991–1995** Group health, safety and environment manager, GKN

**1990–1991** Group health safety and environment manager, BTR

**1984–1990** Health and safety manager, John Carr

delivery of that. We have an excellent management team, and helping them to achieve their aspirations is very important to me.

### What advice would you give to someone considering entering the environment profession?

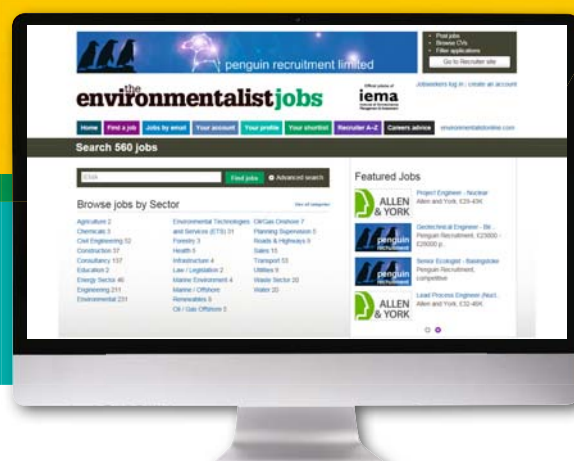
Gain the best qualifications that you can, and network as much and as often as you can. Clichés aside, I have discovered that it really is who you know, as well as what you know that can help you to progress in your career.

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<p><b>Junior Environmental Acoustic Consultant – Maidstone</b> <b>£17,000–£30,000</b> Location: South East England Ref: AG/2012/12/Jbs</p>	<p><b>Regional EHS Account Manager</b> <b>To £59,000 + Car/Car allowance + Bonus + other benefits</b> Location: Middlesex Ref: 20264JH</p>
<p><b>Environmental Assurance Manager</b> <b>£Dependent on skills &amp; experience</b> Location: Canary Wharf Ref: CS380</p>	<p><b>HSE Consultant</b> <b>£200 per day</b> Location: East Sussex Ref: 441101167LC</p>

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Abingdon

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You will need to hold a degree in a relevant environmental subject and have experience of writing Reports in support of planning applications. You will also need to have excellent communication skills and the ability to work both independently and as part of a team.

Ideally, you will be degree qualified and have between 2-5 years experience of working within a Consultancy environment. Any experience of carrying out BREEAM assessments, or knowledge of Environmental Impact Assessments, would be a distinct advantage.



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