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the environmentalist

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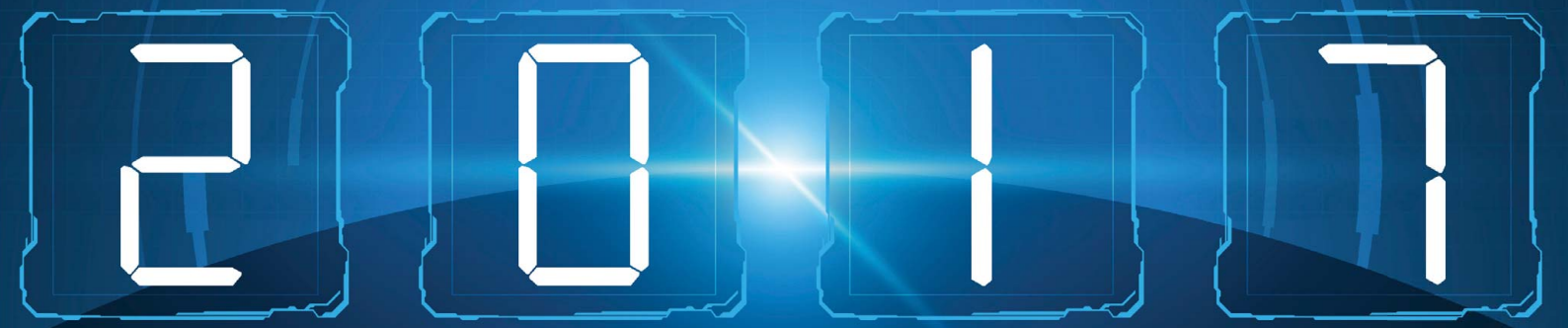

Looking ahead

Professionals outline policy priorities

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January

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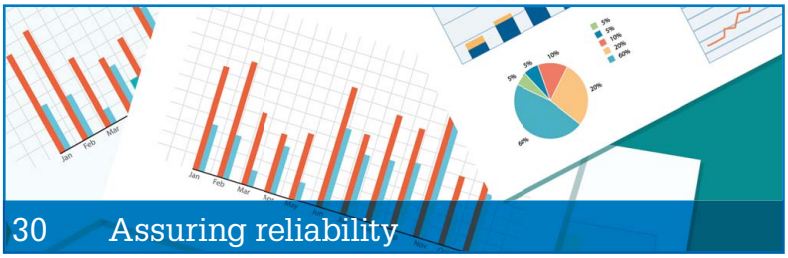
With disclosure of non-financial information mandatory for a growing number of firms, *the environmentalist* puts reporting software to the test

Italian company Novamont has refurbished a former fermentation plant to produce bio-butanediol for bioplastics. David Burrows pays the site a visit

From Brexit to regulation, policy specialists and environment professionals outline what will be the main focus of their work over the next 12 months

Can thinking differently now help environmentalists plan for the future? Catherine Early reports on a recent IEMA debate that explored the issues



ISO is developing a new standard aimed at improving the reliability of data in corporate environmental reports. Nigel Leehane reports on progress

2017: the year of opportunity

I think it is safe to say that last year was eventful, and 2017 shows no signs of being any different. It would be easy to go into this year thinking it could be a year of difficulty, but I think it is a year of opportunity for us all to get together, speak up and make our mark.

There are some big challenges looming on the horizon – politically and socially – and the environment and sustainability profession will have a lot to keep up with. Dealing with the legislative changes associated with the UK's departure from the European Union and challenging new US president Donald Trump on his stance on environment and climate change will give the profession the chance to raise our game and our voice.

Of course, we would rather that we did not have such massive issues to tackle; we all have enough to do with our day-to-day jobs as it is. But when our beliefs, passions and livelihoods are threatened we must stand up and shout loud about what is true, not what is convenient or easy to understand. There will be a lot of misinformation, confusion and cynicism floating around during this period of change and I feel it is our job as a profession to be the voice of reason and to fight for what is right.

There will be a lot misinformation, confusion and cynicism floating around during 2017 and this period of change, and I feel it is our job as a profession to be the voice of reason, and to fight for what is right

We must take hold of the agenda on anything concerning environment and sustainability, and take it away from the naysayers; those who either do not fully understand the impact of inaction or deny the fundamental facts about our changing climate and diminishing resources. How do we do that? It is easy for me to yell a rallying call but it does not mean much without collaboration and action. In practice, it means we must all work together more than ever. This year, our networks will produce guidance that will help us traverse some tricky issues. Our regions will pull members together to tackle local issues and give their perspective on global impacts. We will introduce new methods to help you connect and collaborate with other members. You will also have better ways of tracking your own learning and development so you have the confidence and credibility to make changes in your own organisation and community.

Let us make this the year of opportunity by working together on our shared and individual goals. IEMA will be with you all the way.

Tim Balcon, CEO of IEMA

IEMA is the worldwide alliance of environment and sustainability professionals, working to make our businesses and organisations future-proof. Belonging gives us the knowledge, connections and authority to lead collective change, with IEMA's global sustainability standards as our benchmark. By mobilising our expertise we will continue to challenge norms, drive new kinds of enterprise and make measurable progress towards our bold vision: transforming the world to sustainability.

IEMA
City Office Park, Tritton Road
Lincoln, Lincolnshire
LN6 7AS
tel: +44 (0) 1522 540069
fax: +44 (0) 1522 540090
info@iema.net | iema.net

Editor
Paul Suff
paul.suff@lexisnexis.co.uk

Deputy editor
Catherine Early
catherine.early@lexisnexis.co.uk

Managing editor
Louis Wustemann
louis.wustemann@lexisnexis.co.uk

Sub-editors
Mike McNabb; Angela Partington

Display and recruitment advertising
Harry Toomey
tel: +44 (0) 20 8212 1989
harry.toomey@lexisnexis.co.uk

Ceyda Ceylan
tel: +44 (0) 20 8212 1913
ceyda.ceylan@lexisnexis.co.uk

Marketing campaign manager
Rakhee Patel
rakhee.patel@lexisnexis.co.uk

Design
Jo Jamieson
jo.jamieson@lexisnexis.co.uk

Advertisement production
John Woffenden
john.woffenden@lexisnexis.co.uk

Publisher
Chris Jones
chris.jones@lexisnexis.co.uk

IEMA PR and communications manager
Katrina Pierce
k.pierce@iema.net

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Cities to improve air quality

Diesel-powered vehicles will be banned from the roads of Athens, Madrid, Mexico City and Paris by 2025 as part of a pledge by the cities' mayors to improve air quality.

Decarbonising transport systems and promoting other options, including walking and cycling infrastructure, would help cut pollution and help deliver on the ambition of the Paris Agreement, the mayors said in a joint statement at a meeting of the C40 Cities Climate Leadership Group in Mexico.

They want manufacturers to stop producing diesel vehicles by 2025 and to support a rapid transition to electric, hydrogen and hybrid vehicles. 'Mayors have already stood up to say that the climate change is one of the greatest challenges we face,' said Anne Hidalgo, mayor of Paris and new chair of the group. '[Now] we also stand up to say we no longer tolerate air pollution and the health problems and deaths it causes – particularly for our most vulnerable citizens.'

The C40 also agreed to join with the World Health Organization and UN Environment Programme's Climate and Clean Air Coalition (CCAC) to support a campaign to halve the 6.5 million deaths from air pollution by 2030. The BreatheLife campaign will support city governments to reduce harmful emissions from the transport, waste and energy sectors, as well as mobilise citizen action to reduce air pollution while slowing climate change. 'Ninety-two per cent of the world's population live in places where air pollution levels exceed the WHO safe level for air pollution,' said Helena Molin Valdés, head of the CCAC.

Police controlling cars allowed into Paris

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Meanwhile, London mayor Sadiq Khan has announced plans to more than double, to £875m, investment in improving the quality of the capital's air until 2021–22. His predecessor, Boris Johnson, had pledged £425m. Khan's plans include introducing the world's first ultra-low emission zone a year early, in 2019, and extending it to the North and South Circular roads for all vehicles, and potentially London-wide for lorries, coaches and buses.

MEPs propose tighter ETS rules

The European parliament environment committee has backed plans to tighten the EU emissions trading system (ETS) from 2020.

They include reducing the number of allowances to be auctioned each year and doubling the capacity of the market stability reserve (MSR) to absorb excess credits. The European Commission had sought a 2.2% increase in the so-called 'linear reduction factor', the yearly contraction in credits available for auction. MEPs have proposed a 2.4% rise. Under their proposals, when the MSR is triggered from 2019, it would absorb up to 24% of the excess of credits in each auctioning year, for the first four years, which is double the current capacity. MEPs also agreed to remove 800 million allowances from the MSR from 1 January 2021.

Conservative MEP and ETS rapporteur Ian Duncan said: 'We have endorsed an agreement that honours the EU's Paris commitments, while also protecting vital industries. The journey has not always been easy but the commitment of my fellow MEPs who negotiated the dossier has been unstinting.'

The committee backed measures to account for emissions from shipping and aviation. MEPs want carbon emissions in EU ports and during voyages to and from them to be accounted for, while revenues from auctioning of allowances in the aviation sector would be used for climate action in the EU and countries outside the bloc.

The proposed legislation will be put to a vote of parliament in February.

Meanwhile, a study for Carbon Market Watch has found that heavy industry in 20 European countries made more than €25bn in 'windfall profits' from the ETS between 2008 and 2015. According to the report, iron and steel made €8.4bn, the cement sector €5bn, refineries €4.6bn and the petrochemical industry €1.7bn.

Shortcuts

Waste panel closed

A service that advised businesses on whether they could create new products out of their waste has been suspended indefinitely. The Environment Agency's Definition of Waste panel consisted of up to eight agency experts who helped businesses submit evidence that materials such as scrap iron, steel, copper and glass do not need to be treated as waste under the EU End of Waste Regulations. The agency suspended the service in October for three months. The agency now says the panel is closed 'until further notice' while its role in its waste regulation strategy is reviewed. The Environmental Services Association said it was disappointed that the closure had occurred without industry consultation. Continued closure would stifle future innovative proposals from industry to convert waste materials into resources for the circular economy, said the trade body's policy adviser, Roy Hathaway.

Call for EU tax shift

Switching taxes from labour to pollution and use of natural resources could increase GDP and jobs as well as reduce harm to the environment, economists say. The scenario follows 'the polluter pays' principle by introducing additional excise duties on fossil fuels and taxes on carbon, water and electricity for bulk users. The combined revenues would lower the tax burden on labour, the economists believe. Independent Dutch think tank the Ex'tax Project Foundation worked with Cambridge Econometrics, Trucost, Deloitte, EY, KPMG and PwC to analyse the impact of such changes across the 28 EU member states. By 2020, the shift would raise GDP across the bloc by 2%, create 6.6 million jobs and reduce carbon emissions by 8.2%, the study found. Trucost calculated that the shift would be worth more than €1.1bn in avoided health problems from air pollution, greenhouse-gas emissions, land and water pollution, and health improvements from better water conservation. Social benefits worth more than €17bn would also be created, it said.

Businessplans

Google has announced that it will reach its goal this year to power its global operations using only renewable energy. The internet firm said it was now one of the world's largest corporate buyers of renewable power, with commitments to purchase 2.6 GW of wind and solar energy. These commitments will result in infrastructure investments of more than $3.5bn globally, about two-thirds of that in the US, Google said.

To achieve its aim of having a positive impact on people and the planet, furniture retailer **IKEA** has a €3bn fund to become resource- and energy-independent. This includes a new €1bn commitment to secure a long-term supply of sustainable materials by investing in forestry as well as companies active in recycling and developing renewable energy and biomaterials. Since 2009, IKEA has invested €1.5bn in wind and solar energy projects and it has allocated a further €600m to become energy-independent by producing as much renewable energy as it consumes in its own operations by 2020.

Spanish telecoms firm **Telefónica**, which operates **O2** in the UK, has announced that half the electricity used in its operations will come from clean sources by 2020 and 100% by 2030. It estimates that energy-efficient projects and the use of renewable energy will generate savings of €90m, halve the energy consumption per traffic unit, and cut greenhouse-gas emissions by 5% in absolute terms.

Renewable energy procurement and consultancy service **Almach Energy** has achieved B Corp certification. B Corporations aim to use the power of business to solve social and environmental problems. Certification involves an assessment of all aspects of the organisation, including social and environmental performance, accountability and transparency. Almach scored 86 in its assessment.

PepsiCo UK and Ireland has halved the water and carbon used to grow potatoes for **Walkers Crisps** in water-stressed areas as part of its '50 in 5' commitments, launched in 2010. It said that around 100 British farmers were now equipped to grow more potatoes using less water and emitting less carbon.

Energy efficiency focus for 2017

Energy-efficiency measures boosted the UK economy by £1.7bn between 2010 and 2015 but the government needs to do more to generate further savings, according to new analysis.

The 2016 UK Energy Productivity Audit, published jointly by nine organisations, including the Association for Decentralised Energy, the Energy Institute and the Institution of Mechanical Engineers, found that the industrial, services and domestic sectors saved enough energy to heat 13 million homes over the five-year period.

However, business and domestic consumers still spent £140bn on energy in 2015, equivalent to 7.6% of the UK economy. The audit said the efficiency of electricity supply had remained broadly unchanged, improving only 2% since 2010. It also found the UK lagged many of its European peers on developing energy-efficiency policies. The group called on the Department for Business, Energy and Industry to address the policy gap and prioritise helping businesses to make energy productivity investments and improvements as part of its new industrial strategy.

Improving energy efficiency is a key objective of the industrial strategy published for consultation at the start of January by the Labour Party

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(bit.ly/2hXOPEU). It states: 'It is imperative that we refashion our economy so that it alleviates rather than exacerbates the mounting global climate crisis, with a just transition to reduced energy consumption, a balanced energy policy, and meeting our commitments under the Paris agreement.'

Meanwhile, Zero Waste Scotland has found that organisations in the country could save £2.9bn a year by using energy, water and raw materials more efficiently. Its research revealed that small and medium-sized enterprises waste around £19,000 on average each year that could have been avoided by improving energy efficiency.

Fracking can harm water, finds EPA

A US study has found that activities associated with hydraulic fracturing or fracking can pollute drinking water.

The US Environmental Protection Agency identified cases, ranging in severity from temporary changes in water quality to contamination that made private drinking wells unusable. One cause was due to spills during the management of fracking fluids and chemicals that resulted in large volumes or high concentrations of chemicals reaching groundwater resources. Another was the injection of fracking fluids into wells with inadequate mechanical integrity, which allowed gases or liquids to mix with groundwater.

'The EPA's assessment provides the scientific foundation for local decision makers looking to protect public health and drinking water resources and make more informed decisions about hydraulic fracturing activities,' said the regulator's science adviser, Dr Thomas Burke.

Fracking for oil and gas is common in the US and the EPA study was published as Cuadrilla began preparing a site in Lancashire for fracking later this year. In October, communities and local government secretary Sajid Javid overturned the county council's refusal to grant the onshore energy exploration company permission to extract gas from the site near Preston.

The government and regulators in the UK are confident fracking can take place without harming the environment and polluting water. John Barraclough, senior adviser in the Environment Agency's onshore oil and gas programme, told *the environmentalist* (see next month's issue for more): 'We understand the oil and gas industrial process and techniques, and have been through a rigorous learning process on fracking and assessed the risks. We have expert hydrogeologists and other technical people to assess applications and enforce permits.'

MPs query Defra's Brexit resources

MPs doubt that the environment department (Defra) has the resources it needs to deal with the workload associated with the UK's departure from the EU.

Publishing the results of its inquiry into the impact of Brexit on the environment, the Environmental Audit Committee (EAC) said staff and funding cuts in recent years had reduced Defra's capacity significantly. This had disproportionately affected the parts of the department involved in negotiations to leave the EU and design future policy. 'We are unconvinced that the department has sufficient resources to manage the much larger workload faced as a result of the referendum decision. The government must urgently examine the Defra resource necessary to deliver its environmental objectives for exiting the EU,' the report states.

In a letter to the commiteee, environment minister Thérèse Coffey (pictured) said Defra had launched a recruitment drive to deal with the workload expected from the Brexit process. Senior positions had been filled, and the number of staff seconded to the Department for Exiting the EU (DexEU) was small, she said. Defra is now recruiting seven deputy directors to work on Brexit, according to advertisements on the Civil Service's job website.

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A report published in December from the Institute for Government think tank pointed out that Defra's budget was 17% smaller than in 2010, and will be almost 35% smaller by March 2019. It warned that job cuts would result in a failure to deliver existing commitments or to plan properly for Brexit.

The EAC also called for a new environmental protection Act to be passed before the UK leaves the EU to plug any gaps left by the Great Repeal Bill. Environment secretary Andrea Leadsom had told MPs that one-third of more than 800 pieces of environmental legislation could not be simply copied and pasted into UK law.

Licensing reform worries ecologists

Conservationists have voiced their concerns over changes to the licensing system governing how developers can deal with protected species on their sites.

Regulator Natural England announced the changes in December, saying they would save developers time and money while increasing investment in habitats for species, such as great crested newts, dormice, bats and water voles. It introduced four new policies, including: not requiring developers to relocate species if there is a programme to enhance or create sufficient alternative habitat in the plans; and allowing developers to create new habitat away from the development site. Also, developers will be able to scale back surveys and rely more on the judgement of ecologists.

However, the Wildlife Trusts said the new policies put developers' interests over those of fauna. Director Stephen Trotter said: 'Natural England is clearly under huge pressure to make the planning process simpler for developers. I am deeply concerned that their untested policies, budget cuts to ecological expertise and over-simplifying of "expert" advice will be at the expense of the rare species that Natural England is meant to protect.'

Stewart Priddle, director of habitats and ecology at consultancy Blackdown Environmental and NBC Environment, said: 'We will be moving from a system that is known and mostly understood to a new set of rules that have no guidance or are yet to be proven.' Although the changes could reduce the burden on small developers, costs for meeting some of the requirements could be the same or higher, he warned.

In a statement, Natural England said the policies had been crafted by specialists, tested and adjusted after feedback. Delaying implementation could hold up the benefits to wildlife because field trials would take many years, it added.

Short cuts

Zero waste standard

The Carbon Trust has launched a certification for organisations that send zero waste to landfill. The Standard for Zero Waste to Landfill is designed to recognise an organisation's achievements in reducing its environmental impact through actively diverting its non-hazardous waste streams from landfill, typically through a combination of reducing waste, finding ways to reuse materials, increasing recycling or sending waste to energy recovery. The trust said the standard provides a framework for improving operational efficiency as well as securing tangible economic benefits, such as a reduction in disposal costs and increased revenues from the sale of recyclable materials. One of the first firms to achieve certification was lock manufacturer ASSA ABLOY. Sustainability manager Charles Robinson said: 'Minimising and ultimately eliminating waste generation across all of our waste streams, where possible, is a real opportunity to greatly reduce our environmental impact. Working with the trust was a good chance for us to verify our zero waste to landfill achievements.'

Wellbeing in buildings

BRE is reconfiguring a building at its Innovation Park in Watford to create a 'healthy research' facility to test the real-world health and wellbeing of occupants. The organisation is aligning the requirements of BREEAM, its environmental assessment method and rating system for buildings, with the WELL Building Standard, a performance-based approach for measuring, certifying, and monitoring the impact of the built environment on people. The refurbished building will adhere to BREEAM and WELL certifications and, when completed, staff will be monitored to gauge their health and wellbeing. Martin Townsend, director of sustainability at BRE Global, said. 'It has been claimed that we spend over 90% of our time indoors, and in an office environment 90% of the cost is the people inside. It is vital that we better understand the effects that indoor environments are having on their occupants.'

DCLG ducks definition of competence in EIA

EIA practitioners are concerned that the government's failure to define who qualifies as a 'competent expert' in preparing environmental statements (ES) could lead to delays or legal challenges.

The revised EIA Directive states that a developer must ensure the ES is prepared by competent experts and that the authority deciding the outcome of a planning application must have 'sufficient expertise' to examine the statement. But in its consultation on transposing the directive, the communities and local government department (DCLG) has omitted any definition of the phrase. Instead, it says responsibility for deciding whether an ES has been prepared by someone with 'sufficient expertise' lies with the local authority deciding the outcome of the application.

Josh Fothergill, IEMA policy and practice lead on EIA, said the approach carried significant risk of delays and costs for a developer should the planning officer disagree with an EIA professional's credentials. This view was echoed by James Alflatt, planning partner at consultancy Bidwells and registered EIA practitioner, who said: 'We believe this remains poorly defined, and could therefore be susceptible to challenges.'

The consultation document also states that no definition is needed because the term is sufficiently clear, and is also likely to depend on the circumstances of each case. The DCLG believes that most decision-makers either have staff with enough expertise to examine the environmental statement in their teams, or could easily access expertise, including through Natural England and the Environment Agency.

But Rufus Howard, director of renewables and marine development at consultancy Royal HaskoningDHV and chair of IEMA's impact assessment network, said council budget cuts might have left many planning authorities without the relevant expertise. 'They can hire a consultant but that's not cheap. The Environment Agency and Natural England have also had massive staff cuts [and] I've heard it's very hard to get meetings with them,' he said. Howard did not believe the DCLG's wording transposed the directive correctly, since it uses the phrase 'sufficient expertise' to describe the person preparing the environmental statement, while the directive uses this phrase to refer to the person assessing it.

However, Richard Harwood, QC at 39 Essex Street, doubted that the lack of definition for the phrase 'competent expert' would be problematic. 'Really it just means that they're properly qualified, which isn't usually an issue in EIA cases. It reflects good practice and what the law and

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secretary of state would reasonably expect.' It was likely the phrase had been included in the directive to prevent bad practice in other EU member states, he said.

Simon Marsh, head of sustainable development at the Royal Society for the Protection of Birds (RSPB), said much of what the directive required was already best practice in the UK. 'The consultancy sector is well established in issues such as use of competent experts and avoiding conflict of interest,' he said.

Other changes proposed include extending to 30 days consultation on a statement. Scoping will remain voluntary for developers but the ES must be based on the most recent scoping opinion. Developers must consider potential risks of major accidents or disasters, including those caused by climate change. There is also greater emphasis on mitigation during screening and monitoring of significant environmental impacts post-consent.

Update on transposing the EIA Directive by IEMA's Josh Fothergill

England – town and country planning. The consultation from the communities and local government department (DCLG) on transposing the EIA Directive includes a discussion document and a copy of the proposed regulations. The new regulations will come into force on 16 May 2017. An IEMA consultation workshop was held in Birmingham on 12 January and another is planned for 23 January in Manchester (iema.net/events). IEMA's response will also include feedback from the pre-consultation workshop and the roundtable with senior EIA professionals, both held in October 2015. The consultation closes on 1 February.

England, Wales and cross-border – development consent orders. The DCLG has also launched a consultation on replacing the National Infrastructure (EIA) Regulations related to DCO applications. The IEMA workshops focus on how EIAs for future DCO applications have already been considering the forthcoming changes. This consultation also closes on 1 February.

Northern Ireland – town and country planning. The Department for Infrastructure has launched a comprehensive consultation document on transposing the new directive. It includes draft regulations. IEMA will respond by the 9 February deadline.

England, Northern Ireland, Scotland and Wales: Defra and the devolved governments are consulting on five other EIA regimes – forestry, agriculture, water resources, land drainage and marine works. IEMA plans to respond to these consultations by the 31 January deadline.

EIA webinar – IEMA is hosting a webinar on 18 January. It will cover all the consultations and identify forthcoming changes and challenging areas for EIA practice. Members with views on the consultations can email IA policy lead Josh Fothergill with their comments (j.fothergill@iema.net).

Forthcoming IA webinars:

- 23 Feb – ESIA series
- 22 Mar – Towards digital EIA*
- 12 Apr – ESIA series
- 25 Apr – EIA in enabling development*
- 17 May – The UK's new EIA Regulations: what you need to know

* Presenting slots in these webinars are open to bids from IEMA members. Visit bit.ly/2iDl8h4 for details.

IEMA Futures

Entering the Brexitocene

From Brexit to Trump, 2016 was a socio-political rollercoaster, and the hard reality is that last year's uncertainty is a long way from being resolved. I admit that I, and the rest of the IEMA Futures team, have found it incredibly difficult to consistently stay positive about what lies ahead.

But we cannot dwell on that. Positivity from the environment and sustainability profession and this generation is vital going into this year. We must learn from 2016 and evaluate our approach to environment and sustainability issues to make sure we achieve the world we want.

Now, more than ever, sustainability needs a pro-business, pro-growth focus. It should be about growing and innovating, creating new business opportunities, and challenging the status quo – everything the IEMA Futures generation embraces and celebrates.

One area that will drive significant carbon reduction and have a positive impact on the environment and society is investment in sustainable infrastructure. Meeting climate change targets rests on the capacity to create and invest in infrastructure, in cities and elsewhere, that will enable the transition to a low-carbon economy. This requires joined-up systems thinking and a creative approach to tackling some of the challenges ahead.

IEMA Futures believes that young environment and sustainability professionals are well placed to be the future innovators, helping to lead the way towards achieving sustainable infrastructure solutions. That is why we have chosen this challenge as our focus for 2017 and look forward to hosting discussions and events on this topic. We would encourage all IEMA Students, Graduates and early career professionals to follow us on social media and get involved.

Here's to a year of innovation and action to save our world for future generations – join the movement.

Dr Sophie Parsons,
IEMA Futures, @iemafutures

IEMA shines spotlight on the top five policy opportunities for 2017

This year promises to be critical for environment and sustainability policy, with the early part marked by a series of important changes.

Principal among these is the triggering of article 50, which should happen before the end of March and will begin the UK's departure from the EU.

Chief policy advisor Martin Baxter said policy activity is likely to focus on a long-term strategy, which will 'lock in the direction of travel' for many years. 'Getting it right and maintaining momentum will be a challenge in the face of short-term competing demands,' he warned.

'It is essential that we grasp the opportunity to accelerate the transition to a low-carbon, resource-efficient and sustainable economy. IEMA will ensure that the environment and sustainability profession makes a positive contribution in these policy areas, helping to set the conditions to unlock investment, enhance natural capital and provide employment and export opportunities for UK business.'

Baxter explains the significance of five key policy areas members should look out for in early 2017:

- **Industrial strategy** – 'This will provide the opportunity to embed the transition to a low-carbon, resource-efficient economy – one that is flexible and agile and gives a progressive outlook for a future outside the EU.'
- **Reform of corporate governance** – 'This move is about ensuring an effective corporate governance framework is in place, and is critical to re-establishing trust in companies. Key areas being looked at include executive pay ratios with other workers, strengthening the employee, customer and supplier voice in corporate decision-making; and exploring whether to enhance reporting and transparency requirements for the UK's largest privately-held businesses.'
- **Carbon emissions reduction plan** – 'Achieving the UK's fifth carbon budget (2028–32) requires comprehensive action to tackle greenhouse-gas emissions from heating, transport and electricity generation. We also need to go much further and faster to significantly enhance energy efficiency. A credible plan with cross-government support is critical to unlocking low-carbon investment.'
- **25-year environment, and food and farming plans** – 'Delivering on the long-term vision to enhance the value of natural capital over a generation, these plans will need to be mutually supportive in both setting high levels of environmental protection and enhancement, while setting a long-term framework for land management and food production when the EU Common Agricultural Policy no longer applies in the UK.'
- **Great Repeal Bill** – 'Due to be announced in the Queen's Speech – assuming article 50 notification for the UK to leave the EU is issued in line with the government's Brexit timetable – the Bill will transpose EU law into UK law "wherever practical" and be enacted immediately when the UK exits. For those aspects of EU environmental law that cannot be directly converted into UK law, there will have to be some quick thinking.'

New Foundation course dates confirmed

The first dates for IEMA's new course from combining a formal qualification with Associate (AIEMA) membership have been confirmed.

The IEMA Foundation Certificate in Environmental Management has been developed to provide learners with a firm basis of environment and sustainability knowledge, on which they can build as their career progresses. It has been mapped to match the new Associate membership standard, and successful completion of the course results in AIEMA status.

The course has international relevance and can be tailored by providers to suit an organisation's training needs. It covers:

- The implications of global trends for the environment, society, the economy and organisations.
- Sustainable business and governance principles and their relationship with organisations, products and services.
- Environmental principles and their relationship with organisations, products and services.
- The role of innovation and other leading practices in developing sustainable products and services and providing sustainable solutions.
- Major environmental policies and legislation, and their implications for organisations, products and services.
- Tools, techniques, systems and practices used to improve sustainability performance.
- Collection of data, performing analysis and evaluating information.
- Research into, and planning for, sustainable solutions.
- Delivering effective communication and capturing feedback.
- Engaging with stakeholders.
- Outline tools and techniques that identify opportunities and risks.
- Identifying and proposing ways to improve performance.
- Supporting change and transformation to improve the sustainability or an organisation.

Approved training partners EEF and Mabbett are now running the new course (see right), and several other providers will roll out their course dates in the months ahead. Go to training.iema.net to find out more about the course and book your place.

Course dates for your diary

6 Mar	EEF	Sheffield
6 Mar	Mabbett	Belfast
6 Mar	EEF	Bristol
13 Mar	EEF	Cambridge
20 Mar	EEF	Leamington Spa
20 Mar	EEF	Reading
20 Mar	Mabbett	Glasgow
27 Mar	EEF	Warrington
3 Apr	EEF	Gateshead
3 Apr	Mabbett	Edinburgh
24 Apr	Mabbett	Aberdeen
12 Jun	Mabbett	Belfast
26 Jun	Mabbett	Glasgow

Recruitment

Looking back, 2016 was a strong year for the recruitment industry, despite it being a challenging time in the wider world. Forecasts for 2017 show that this is unlikely to be a one off; there is further predicted growth industry-wide in the year ahead.

An increase in UK environment and sustainability vacancies is predicted this year due to the relatively large number of major infrastructure projects emerging from the pipeline and edging towards delivery. With the HS2 rail project ramping up, major highway upgrades due and the ongoing development of London's infrastructure and its built environment, the outlook for demand for the profession is extremely positive. So much so that Shirley Parsons is going through a rebrand, to Environment Works. It will support the increased demand for IEMA members and your skills. Exciting times ahead for us all!

After the fall out and continuing uncertainty over Brexit, prospects are also looking better than initial reports suggested when it comes to boosting numbers of environment and sustainability roles across the economy. Huge importance is now being placed on sustainability and environmental roles in companies and projects. I think this signals an encouraging level of new understanding and uptake of what the profession offers to businesses. As a result of these factors, coupled with the growth of recruitment across all industries, we are anticipating a surge in the demand for practitioners and IEMA members specifically. This makes the start of the year the perfect time to start a job search.

Overall, there looks to be a very positive outlook for the recruitment industry. The months ahead will prove interesting as Brexit is triggered, but right now, the forecast looks bright.

Matthew Bransby, Shirley Parsons Associates and Environment Works

Correction: membership prices for 2017

A list of the membership renewal costs for 2017 was published in the December edition of *the environmentalist*. Unfortunately, it featured errors relating to the fees for Chartered environmentalist. Full membership with Chartered environmentalist membership was stated as £170, while Fellow membership with Chartered environmentalist was listed as £200. The SocEnv and administration fees were not included in either – £41 and £10 + VAT respectively.

We apologise for any confusion caused by this error. All members affected who have a renewal due this month have already received details with the correct amount.

Moreover, the Fellow membership fee has officially changed to £200, but during this year of transition for this grade IEMA is holding the renewal fee for 2017 at £180 for all existing Fellow members.

For an easy, at-a-glance look at the correct 2017 subscription details plus a handy list of FAQs, visit bit.ly/2gOmd3S.

What is the state of the profession?

IEMA's annual survey on the progress of the profession has just closed, and an early results show some encouraging signs.

The annual State of the Profession survey takes place over December–January each year and is a detailed look at how the profession progressing, and where challenges on pay, employment and equality perhaps remain.

This latest round of research opened on 21 December and closed on 20 January, and examined members' experiences of:

- salaries, bonuses and commission;
- promotions and team expansions;
- education and qualifications;
- employer commitment to training and development;
- job satisfaction;
- age and gender differences;
- the jobs market for students and graduates, and career progression opportunities for those already in the profession; and
- industry sector and regional comparisons across the UK.

Because the survey has been broadened from looking solely at the salaries of working professionals, this year all members of all grades, including Students, were invited to participate.

Last year, almost 1,000 members took part. Highlights included:

- the median – or midpoint in the range – annual salary for IEMA members at the start of 2016 was £38,180 with the mean or average at £43,812;
- IEMA members working in business or industry to earned a median annual salary of £40,000. This is more than their public sector counterparts (£34,000), whose pay continued to suffer from the effects of public spending cuts and government restrictions on pay increases;
- job satisfaction was high, with 82% scoring it four, five or six on an ascending six-point scale; and
- almost one respondent in five (18%) had moved to a more senior role in the 12 months before the poll, while 59% were in a managerial or leadership position.

To find out how the profession compares 12 months on see next month's magazine for early results. A full report will be published in the March edition.

In court

Case law

EU court rules on access to environmental documents

The European Court of Justice (ECJ) has confirmed the concept of 'information on emissions into the environment' should not be interpreted narrowly. Both *Commission v Stichting Greenpeace Nederland* and *PAN Europe and Bayer CropScience and Stichting De Bijenstichting v College voor de toelating van gewasbeschermingsmiddelen en biociden* address the right of access to environmental documents – under Regulation 1367/2006 in *Stichting* and Directive 2003/4/EC in the *Bayer CropScience* case.

In *Stichting*, a request was submitted to the European Commission for access to documents relating to the initial authorisation for placing glyphosate, one of the most widely used herbicides, on the market. In *Bijenstichting* a request was submitted for disclosure of documents relating to marketing authorisations issued for plant protection products and biocides. In both cases, courts authorised disclosure even though the documents contained commercially sensitive information. The decisions were referred to the ECJ.

The ECJ found in both cases that the concept of 'emissions into the environment' includes the release of products or substancesto the extent that it is actual or foreseeable under normal or realistic conditions of use. The court said the concept could not be restricted to emissions from industrial installations. It should also cover emissions resulting from the spraying of a product, such as a plant protection product or biocide, into the air or its use on plants, in water or on soil. Such limitations would be at odds with the objective of disclosing environmental information as widely as possible.

Sophie Wilkinson

Lexis®PSL

Record fine for illegal sewage discharge

Southern Water has been fined a record £2m for polluting beaches and the sea with raw sewage during the Queen's diamond jubilee bank holiday in 2012.

The penalty is almost twice the previous record for illegally discharging sewage and was imposed because the Worthing-based utility firm was considered a serial offender. At Maidstone Crown Court Judge Adele Williams said: 'The message must go out to directors and shareholders that repeated offending of this nature is wholly unacceptable. Pollution of beaches in this manner is wholly unacceptable behaviour.'

The court was told the company's wastewater pumping station at Margate suffered a series of failures in late May and early June 2012. The problems resulted in untreated and partly-screened sewage being discharged on to the beach and into the sea on numerous occasions. Thanet District Council closed several beaches in the area for nine days, including the bank holiday weekend.

Julie Foley, area manager at the Environment Agency, said: 'Southern Water unlawfully discharged huge volumes of sewage on to the beach and into the sea. [This] resulted in risk to public health, polluted a considerable length of coastline, including numerous beaches, and resulted in a negative impact on Thanet, which is an area heavily reliant on the tourism economy.'

The regulator said clean-up and compensation costs were more than £420,000.

Southern Water apologised for the incident. Director Simon Oates said the firm had invested £4m in the site since 2012 and planned a further £6m outlay.

Problems with pumps at the Margate station in 2011 led to several discharges of untreated sewage between January and June for which Southern Water was fined £200,000 in August 2013. Further incidents occurred between May and September 2014, resulting in more beach closures.

Fines for environmental offences have increased since tougher sentencing guidelines were introduced in 2014, according to the Sentencing Council. In April 2016, Yorkshire Water was fined £1.1m for illegally discharging sewage that polluted the River Ouse near York, while Thames Water had to pay £1m last January for repeatedly polluting the Grand Union Canal in Hertfordshire between July 2012 and April 2013.

Chemical leak proves costly

Failure to comply with an environmental permit for its Sunderland site has cost Tradebe Solvent Recycling almost £39,000 in fines and costs.

Sunderland Magistrates' Court was told that, in January 2015, around 4,000 litres of isopropyl alcohol (IPA) leaked from a pump because the valve had not being properly closed. Although IPA is not regarded as hazardous, some of the liquid seeped into groundwater at Hendon Dock.

The incident occurred when 23,500 litres of IPA was transferred from a road tanker into one of the site's fixed storage tankers. During the operation, three valves were opened, one of which was left partly open after the transfer was completed. The leak was not spotted until the next day. Tradebe Solvent Recycling, which processes and recycles various waste chemicals, many of which are flammable, toxic or hazardous, immediately told the Environment Agency. An investigation by the agency found management systems and operating procedures to be deficient. There were formal inspections for pipes and sumps, and an inadequate operating procedure for the transfer of liquid chemicals.

District Judge Roger Elsey said the incident had occurred due to an unfortunate combination of circumstances. He added there was significant mitigation and he was impressed by the efforts of the company to make changes, and the acceptance that further work was needed.

Andrew Clark, pollution prevention and control officer at the agency, said that, although IPA is considered a low risk to health and the environment because it rapidly biodegrades in water, if the leak had involved a more dangerous chemical the results could have been far worse.

The company was fined £27,000 and ordered to pay costs of £11,960.

New regulations

In force	Subject	Details
29 Oct 2016	Emissions	The Climate Change (Limit on Use of Carbon Units) Scotland Order 2016 sets a limit of zero on the net amount of carbon units that may be credited to Scottish emissions accounts between 2018 and 2022. The limit will not apply to carbon units credited to or debited from the net Scottish emissions account under the EU emissions trading system. bit.ly/2huHC3F
30 Oct 2016	Emissions	The Climate Change (Annual Targets) (Scotland) Order 2016 set annual greenhouse-gas emissions reduction targets for Scotland between 2028 and 2032. The annual targets, expressed in tonnes of carbon dioxide equivalent (tCO2e), are: 29,854,000 (2028); 28,958,000 (2029); 28,089,000 (2030); 27,247,000 (2031); and 26,429,000 (2032). bit.ly/2gCZo2N
2 Nov 2016	Energy	The Contracts for Difference (Allocation) (Amendment) Regulations 2016 extend the period in which CFDs can be allocated (delivery years) from the current end date of 31 March 2020 to 31 March 2026. bit.ly/2hkQ70N
14 Nov 2016	Ecolabels	European Commission Decision 2016/2003 extends the period of validity of the ecological criteria for the following categories to 31 December 2017: televisions; detergents for dishwashers; laundry detergents; hand dishwashing detergents; all-purpose cleaners and sanitary cleaners; industrial and institutional automatic dishwasher detergents; and industrial and institutional laundry detergents. bit.ly/2f73Xl7
24 Nov 2016	Planning	The Town and Country Planning (General Permitted Development) (England) (Amendment) (No. 2) Order 2016 introduces and extends permitted development rights in relation to electronic communications infrastructure. bit.ly/2ehNxD7
15 Dec 2016	Environmental protection	The Petroleum Licensing (Exploration and Production) (Landward Areas) (Amendment) (England and Wales) Regulations 2016 amend 2014 regulations. The model clauses and conditions for onshore petroleum exploration and development licences have been altered to ensure licensees do not carry out high-volume hydraulic fracturing from a well if the well pad is in a protected area in England or Wales. bit.ly/2gCZDLz
16 Dec 2016	Waste	The Waste (Fees and Charges) (Amendment) Regulations (Northern Ireland) 2016 increase registration and renewal fees for waste carriers, brokers and dealers. They also exempt some waste activities. bit.ly/2hokKzN
20 Dec 2016	Packaging	The Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations 2016 amend the 2007 regulations by setting new targets for plastic packaging (for 2016–20) and for glass (2018–20). bit.ly/2gC0n1z
1 Jan 2017	Energy	The Combined Heat and Power Quality Assurance Regulations 2016 update legislation to include reference to the *Combined Heat and Power Quality Assurance (CHPQA) Standard and Guidance Note 44* (issue six). The energy efficiency requirements that underpin the CHPQA programme were revised in 2015 and have been incorporated into the new Standard and guidance. The guidance focuses on the relationship between the CHPQA and low-carbon energy subsidy schemes under the Contracts for Difference and Renewables Obligation. bit.ly/2fjuV9j
1 Jan 2017	Water	The Water Resources (Scotland) Act 2013 (Commencement No.4) Order 2016 brings into force s33 of the Water Resources (Scotland) Act 2013. Section 33 requires owners of non-domestic properties to notify the licensed water/sewerage supplier of occupancy changes. bit.ly/2heUZnq

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

Latest consultations

22 Jan 2017
Transport fuel
The Department for Transport (DfT) is consulting on changes to motor fuel greenhouse gas (GHG) reporting regulations and the Renewable Transport Fuel Obligation Order (RTFO). Changes to the regulations include: the introduction of a certificate trading scheme to reduce transport fuel emissions; and allowing suppliers to capture credits from reductions in upstream emissions associated with fossil fuel extraction and production. Proposed changes to the RTFO focus on increasing the obligation level, the appropriate level for the contribution of renewable fuels created from agricultural crops, and greater use of advanced renewable fuels.
bit.ly/2ga8CVM; bit.ly/2fRoQ4m

25 Jan 2017
Air quality
NICE, the National Institute for Health and Care Excellence, is consulting on draft guidelines on road traffic-related air pollution and its links to ill health. The guidelines, which should be finalised in June, aim to improve air quality to prevent a range of health conditions and reduce the number of deaths. It recommends taking various actions as multiple interventions, each producing a small benefit, to produce significant overall change. These measures include changes to driving style, selection of vehicles by the public sector, and the introduction of cycle lanes, clean air zones and congestion charging.
bit.ly/2gabUrX

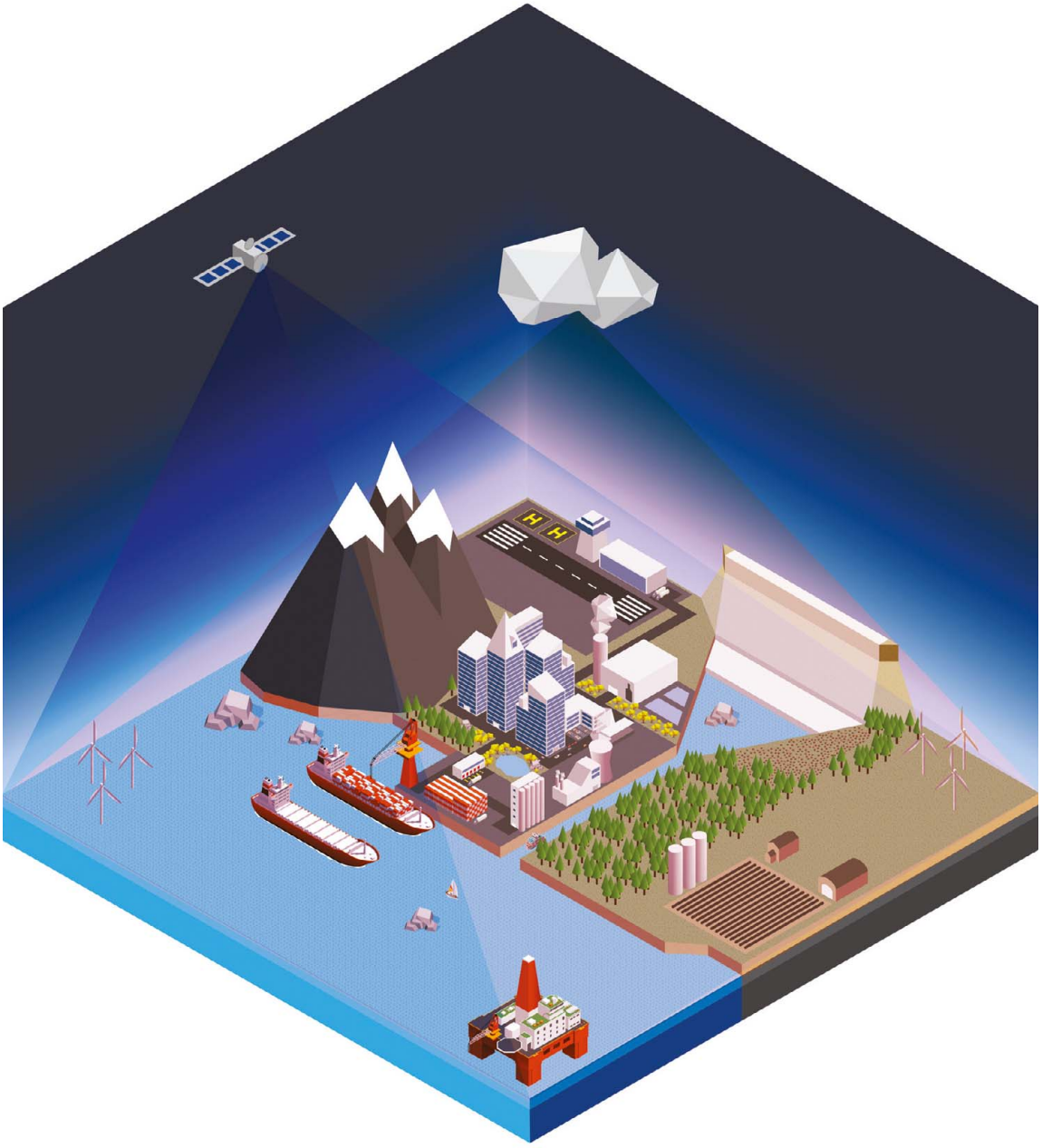
29 Jan 2017
Bioeconomy
The Department for Business, Energy and Industrial Strategy (BEIS) is developing a strategy to support a bioeconomy in the UK. This will involve multiple sectors and will need to take account of objectives such as decarbonisation, sustainability and food security. BEIS has issued a call for evidence to help it to identify the opportunities, challenges, barriers and enablers for a bioeconomy.
bit.ly/2gUMcUz

8 Feb 2017
Emissions
Defra and the Welsh government are consulting on draft plans to implement the Medium Combustion Plant Directive (MCPD), which introduces emissions controls on new plants from December 2018 and existing plants in 2025 and 2030, depending on size. The directive must be transposed into UK law by December 2017.
bit.ly/2gig2H7

13 Feb 2017
Natural resources
The Welsh government has issued a consultation to inform a new natural resources policy for the country, a requirement of the Environment (Wales) Act 2016. The government said the policy would form a key part of the delivery of the sustainable management of natural resources by setting out the key risks, priorities and opportunities, including measures to address biodiversity issues and climate change.
bit.ly/2h2DMLu

New guidance

Construction waste	The European Commission has published the EU Construction and Demolition Waste Protocol (bit.ly/2g9EdXG). The non-binding guidelines for industry aim to increase confidence in the construction and demolition waste management process and trust in the quality of recycled materials. The protocol was developed with input from key stakeholders, including: renovation companies and demolition contractors; construction product manufacturers; waste treatment firms; recycling companies; and local authorities. Construction and demolition work produces the largest waste stream in the EU by volume. Under the Waste Framework Directive 2008/98/EC, 70% of construction and demolition waste in Europe should be recycled by 2020.
Business ethics	New guidance on how to develop and implement an effective code of ethics has been published by the Institute of Business Ethics (IBE). The code follows the IBE nine-step model and shares examples of good practice. *Codes of Business Ethics: a guide to developing and implementing an effective code* addresses many of the questions that arise when the necessity for providing guidance to staff on decisions with an ethical element is taken seriously. It is intended to apply to organisations of any size, regardless of the sector, and will assist those charged with implementing or updating their organisation's code of ethics (ibe.org.uk).
GHG factsheets, monitoring and verification	The Department for Business, Energy and Industrial Strategy (BEIS) has produced factsheets for each national communication sector and greenhouse gases (GHG). They are: overview (bit.ly/2gjwF38); agriculture (bit.ly/2hhHv7k); business (bit.ly/2gSwOLv); energy supply (bit.ly/2g9Hzdc); industrial processes (bit.ly/2gSIxK0); land use, land use change and forestry (bit.ly/2ga3pZe); public sector (bit.ly/2gBL7Rr); residential (bit.ly/2hhJ7xW); transport (bit.ly/2g9yD7J); waste management (bit.ly/2hhHLTR); carbon dioxide (bit.ly/2hgkDJu); methane (bit.ly/2hgfzoh); nitrous oxide (bit.ly/2ga7bSu); F-gases (bit.ly/2g9G0fg); and 'uncertainties' (bit.ly/2gBKhEv). The Met Office and the University of Bristol have also published joint guidance on monitoring and verification of long-term UK atmospheric measurement of GHG emissions for BEIS (bit.ly/2h5Ij2B) as well as an annual report on verification of UK GHG emissions using atmospheric observations (bit.ly/2hhBpne).



The Ecometrica Platform processes near-real time environmental satellite data in the cloud over your entire value chain, and delivers it quickly enough to inform strategy and operations.

Look Past Your Own Four Walls.

The environment and sustainability sector is changing quickly and during periods of transition it's important to know that you're working with partners who anticipate and embrace change, rather than simply react to it.

Ecometrica enables businesses to quickly interpret and apply pinpoint satellite data that informs their strategies beyond day-to-day operations, and helps them plan for tomorrow. As your challenges go from local to global, Ecometrica will be there to provide expertise, comfort and intelligence.

Your future in these changing times doesn't need to be uncertain. We will arm you with the best and help you catalyse change.

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Software review

the environmentalist and IEMA members put non-financial reporting software to the test

Disclosure of non-financial information is mandatory for a growing number of businesses. The EU Non-Financial Reporting Directive (2014/95/EU) came into force in December 2014 and organisations covered by the legislation will need to start reporting from their 2017 financial year. About 6,000 companies across Europe will be subject 2014/95/EU and will have to produce a non-financial statement containing information on five matters and how the organisation's performance, position and activities affect each one. The five are: environmental, social, employee, human rights, anti-corruption and bribery. In the UK, the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 requires listed companies to report on their non-financial information, including greenhouse-gas emissions. Defra says the information should be accurate, complete, consistent and comparable.

Software can help to ensure the data is robust, and can simplify the process and reduce the cost of producing reports. Built-in version control tools can provide audit trails that show when data was modified, while documents such as energy invoices can be uploaded to the system, simplifying the verification process.

To see how some of the non-financial reporting software available in the UK compares, *the environmentalist* invited a group of IEMA members to test three leading applications from providers Ecometrica, Greenstone and thinkstep. All three companies were included and their software scored highly in our 2013 review (*the environmentalist*, October 2013, pp20–29).

Then as now, the providers were asked to demonstrate the capabilities of their software using data and a client scenario developed for the review. The data was for a fictional company, Demo, which had 20 locations in ten countries, including China, France, Malaysia, the UK and US. Software providers were asked to upload data on energy consumption, business travel, freight and waste, for example. Whereas our 2013 assessment focused mainly on carbon accounting software, the latest review included aspects of the broader sustainability and non-financial reporting agenda, with providers supplied with health and safety statistics and CSR metrics for topics including staff training and charitable donations. Their ability to manage suppliers was also tested. Indeed, the companies were selected because their software could support broad non-financial disclosure, not just greenhouse-gas emissions data.

In a further change from our previous assessment, and to ensure the reviewers gained hands-on experience of the software, health and safety specialist and software reviewer Bridget Leathley devised tasks for the panel to undertake. The ease with which each of these could be accomplished was rated 'great', 'OK' or 'poor'. Tasks and questions included:

- Run a report showing the consumption and emissions for Edinburgh for all fuels for the last quarter of 2015.
  - What was the total consumption of natural gas?
  - How completely could you achieve the task?
  - Were the results presented in a meaningful way?
  - How easy would it be to teach someone how to achieve the task?

- Display an overview of current levels of consumption across all sites – eg via a dashboard.
  - Can you drill down from the overview? For example, click on a column in a dashboard for more information.
  - How completely could you achieve the task?
  - Were the results presented in a meaningful way?
  - How easy would it be to teach someone how to achieve the task?

The firms and the software reviewed, including feedback from existing clients, are showcased on pp15–17. The assessment conclusions are reported on pp15–19, and a handy guide to selecting software is on p19.

Greenstone

Greenstone says its software and services can help organisations to define, measure, manage and report the non-financial aspects of their operations. The firm's clients in more than 90 countries include legal firm Clifford Chance, rail operator EuroStar and the UK's National Health Service. Greenstone is an accredited CDP (formerly the Carbon Disclosure Project) partner and a registered organisational stakeholder of the Global Reporting Initiative (GRI). The cloud-based software is built on a Microsoft.Net platform and is compatible with all modern browsers.

Greenstone's non-financial reporting solutions consist of four modules:

- **Environment** – clients can upload data from a wide range of sources, including energy, transport, waste, water and fugitive gases. Data is processed automatically to track consumption and calculate the associated carbon emissions using recognised international standards, such as the GHG Protocol, Defra, Bilan Carbone, NGA and CGGI.
- **Health and safety** – collection of health and safety metrics, including incident reporting and lost-time injury. Complies with RIDDOR and OSHA.
- **CSR frameworks** – supports reporting requirements of global non-financial reporting frameworks, including GRI G4, CDP, UNGC, and financial exchange schemes such as FTSE4Good.
- **SupplierPortal** – provides transparency across an organisation's supplier network, ensuring that compliance and risk can be managed efficiently and effectively. Among the features are proprietary questionnaires, risk flagging and bespoke scorecards.

David Wynn, Greenstone's head of client services, compares the modules to 'bricks' that customers can put together in whatever order they want. He believes it is the uncapped support that differentiates Greenstone from its competitors.

greenstoneplus.com/+44 (0)20 3031 4000

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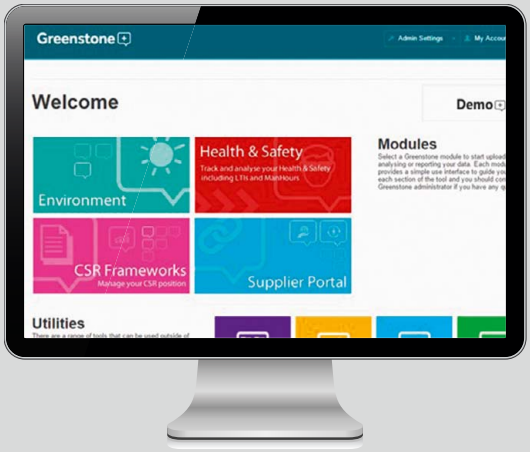

What the clients say

The University of Manchester

The University of Manchester has been using Greenstone's software since 2012. Lucy Millard, the university's environmental sustainability manager, praises its functionality, in particular the ease with which her team can access information: '[It is] easy-to-use software that meets all of our reporting requirements. We are also starting to use it to measure the impact of some non-environmental areas.' Millard describes the support provided by Greenstone as 'excellent' and would recommend the software.

Sopra Steria

Technology consultancy Sopra Steria has around 6,700 staff in the UK. Head of environmental sustainability Siva Niranjan says the firm has used Greenstone software since 2010 and is very satisfied with it: 'We use it to manage issues relating to environmental sustainability – business travel and energy. We have an open dialogue with Greenstone and our additional functionality (gaps) has been embraced in later releases. Our statutory auditor and environment auditor have both commended the software functionality.' He describes the support from Greenstone as excellent and that it exceeds all expectations. 'This is a big differentiator compared with other companies,' says Niranjan. Having compared Greenstone with other software vendors in 2015, he believes it also offers good value and that the firm 'is willing to go that extra mile for its clients'.

Putting the software through its paces

Bridget Leathley reports on the review findings

All products reviewed are designed to help you measure, monitor and manage environmental information. There are three key areas to consider when reviewing such systems:

- How are you going to gather the information? Consider the historical data you already have, whether it is on a different system or held on Excel spreadsheets, as well as information to be collected in the future. For example, how will data from smart meters be handled, and how will this integrate with meter readings?
- Is the information safe – that is, will it always be available and up to date when you need it? And is it secure from non-authorised users?
- Can you access the information in the format you need it? Think about the sort of information you need and how you like to access it. What do you want to see each time you log in, what data might you want to export, and what reports could be provided to save you time? Find out too what happens if you decide to switch systems – and ask yourself how difficult it would be for all your information to be transferred to a new system.

We devised some standard tasks for each reviewer to carry out on each system. To ensure the reviewers understood how each one worked, the vendors could instruct users but not take control of the mouse and keyboard. In addition, each vendor was asked a standard set of questions and given the opportunity to demonstrate supplier management functions.

Inputting information

All three vendors support the transfer of historical data and automatic uploads of new data using secure file transfer protocol (FTP) or an application programming interface (API).

Ecometrica

Ecometrica describes its software as the most comprehensive platform for sustainability and data management. It brings together sustainability, environment, risk and business management with geospatial intelligence and mapping applications. Ecometrica works with more than 250 companies on five continents. Clients include power generation firm Aggreko, food company Compass Group and semiconductor business ARM.

The platform is arranged into four suites of modules:

- **Sustainability** – 14 modules, ranging from GHG/carbon and science-based targets to business travel, waste and water. These are used by some of the world's largest companies to collect a diverse dataset in order to bring clarity to a range of non-financial business information.
- **Mapping** – ten modules to help clients understand complex geospatial data, assess risk to forests, populations and agriculture, and track supply chain sustainability initiatives.
- **Reporting** – includes built-in reporting for ten established environmental standards and frameworks, such as CDP, GHG protocol and DJSI.
- **Advanced** – bespoke modules developed to meet an organisation's reporting requirements and which are not covered in the core offering.

Each client has its own dedicated GHG analyst, something head of marketing Mike Paul believes is a key differentiator between Ecometrica and its competitors: 'The analysts will check all the data that is inputted by the client and question areas of concern. They provide a unique quality assurance.' The software generates 'audit-ready outputs' for independent assessment without the need for further calculations, clarification, data manipulation or other pre-audit work, says Paul. The factors and controls for audit-ready outputs are tested and assured annually by PwC.

ecometrica.com/+44 (0)131 662 4342

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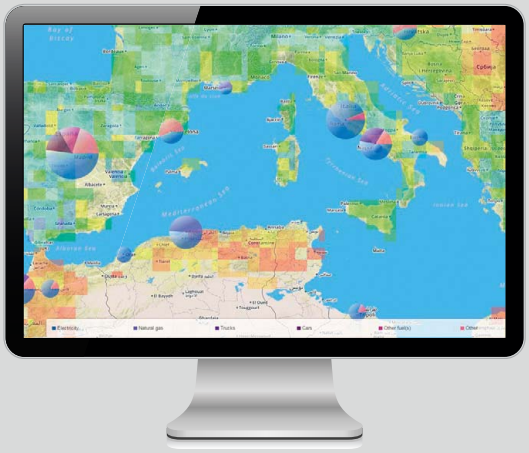


What the clients say

Ocado

Ocado has used Ecometrica's software since August 2015. Ethical trade analyst Daniel Hourigan says the UK online supermarket uses it to help manage its carbon footprint across the business and keep track of efficiency from year to year. 'As a tool to track and visualise our carbon footprint data we have found the Ecometrica system to be resourceful and very user friendly The system does this in a very clear way,' he says. 'I would definitely recommend the software to companies seeking to do the same.'

Hourigan says the software is flexible and data entry simple and clear, and contains an array of useful metrics. 'The training and support services provided were professional and Ecometrica is keen to give assistance. They have an excellent quality assurance process that we've found to be efficient and timely, especially when keeping to deadlines for our reporting.'

Pearson

Pearson is an educational publisher and service provider, with more than 35,000 employees in about 70 countries. It describes sustainability as a fundamental enabler of its commercial success. The firm has used Ecometrica's software for four years. Director of sustainability Peter Hughes says: 'Software functionality is good. Areas of excellence are the tailored support provided, audit-ready output and that emission factor updates are managed. An area for improvement is reporting functionality, which is promised as an upgrade shortly.

'Ecometrica offer software as part of a broader canvas of environmental support, which is valuable. Yes, I would recommend them.'

Two problems can occur with data entry. One is that the wrong figure might have been provided, whether as a single piece of data entered directly on to a system or at some time in the past when a bank of data was uploaded. The second is missing data, which can occur due to a site's records being unavailable for a period. All three systems can help with both issues. For example, new data can be compared with a 12-month rolling average, with that from a previous year, or by using a normalised intensity factor. Default validation rules can be applied or, in SoFi (thinkstep) and Ecometrica solutions the administration user can create different rules for different locations.

To make entry easier, all systems permit numbers to be submitted in whichever form the data has been provided, allowing them to be converted to other units. Reviewers found this easiest to follow in SoFi, where the current unit is displayed as a pull-down option.

Data outside the stated ranges will be flagged to a user for review and correction or acceptance. In Greenstone, if a user wants the system to accept an outlier a comment must be entered as to why the data is out of range. SoFi can trigger different actions (pop-ups, emails, rejection of the data) depending on how far from the required range a value is. Ecometrica provides a colour-coded alert to users, and the vendor's analysts can also receive an alert to provide quality assurance.

All products allow clients to store other documents alongside the data that might need to be shared as evidence, such as a photograph or a copy of a bill, a policy document or a procedure. Greenstone says users can upload data evidence (notes and files) alongside the consumption and GHG data for audit purposes. It also offers a category-driven document store, with a central space for user guides, data templates and policies. In SoFi, documents can be saved and stored, each one assigned to a user group or an individual user in the system. Ecometrica says users can attach documents to each datapoint. This can be mandatory or optional on a per data point basis in line with client needs.

8.5

What the clients say

Belron

Belron, whose UK and Ireland brand is Autoglass, is a vehicle glass repair and replacement company that has been using thinkstep's SoFi software for about one year. Head of environmental efficiency Justin Bazalgette says it is enough for Belron's limited requirements. 'It addresses our needs for an easy-to-complete system that collects all the data necessary to calculate our carbon footprint.' Bazalgette is impressed by the support from its key contact at thinkstep: 'The discussions are sometimes quite complex, particularly when dealing with new functionality as we think and work through the challenges.'

He believes that SoFi is best suited to complex users rather than companies with less complicated data requirements. 'It provides a powerful tool to collect, validate and evaluate data as well as good management and analysis tools.'

Tarmac

Tarmac has only recently completed implementing SoFi, but sustainability adviser Helen Atkins says the building materials company is particularly looking forward to using the reporting and analytics module, which she believes will save the firm a lot of time: 'This tool allows us to collect data in a systematic and auditable way, providing us with the opportunity to gather a diverse range of information. The reporting element will also allow us to create a range of corporate reports at the press of a button, something that is very time-consuming at present.'

Atkins describes the support provided by thinkstep as 'brilliant'. 'They are always on hand to support and have been professional throughout,' she says.

thinkstep

SoFi is the name of the sustainability reporting software solution from thinkstep, previously known as PE International. The company has around 2,500 customers – including 40% of the Fortune 500 – and more than 20 years' experience supporting organisations with their compliance, reporting and sustainability goals. Clients include water filtration business Brita, tyre firm Continental, paper products company Kimberly-Clark and utility Iberdrola. SoFi includes the latest certified GRI and CDP questionnaires and industry standards for reporting to the Sustainability Accounting Standards Board. It enables auto-complete disclosure for sustainability reporting standards such as CDP, GRI, DJSI and GRESB.

SoFi covers: environment; health and safety; sustainability management and reporting; carbon management and reporting; energy management; supply chains; buildings; and materiality assessment. Environment and health and safety features include:

- managing key performance indicators;
- continual improvement and programmes for ISO 14001 and 50001 or EMAS systems;
- managing site audits and follow-up actions;
- managing compliance and permits; and
- tracking and logging incidents and accidents, and defining follow-up action.

UK managing director Sandy Smith says SoFi enables organisations to integrate reporting and sustainability performance management across their businesses, and can connect directly to an enterprise resource planning system and utility meters to monitor all environmental and social aspects. Smith says the software is accredited by CDP and was the first to be certified to the Global Reporting Initiative's GRI G4 framework. SoFi was named the number one sustainability management software by analyst firm Verdantix in its *Green Quadrant* report.

thinkstep.com/+44 (0)203 463 8770

All systems support browser access from mobile devices, but so far no provider has seen the need for separate apps – for entering a meter reading, for instance. In the Ecometrica system, a simplified questionnaire, with just one question if necessary, can be created and sent to a person without an account. By clicking the link, they are presented with a simple form to enter data. SoFi users with a login could similarly enter the data using a simple form on a mobile device but, if offline access is required, an Excel file can be exported, completed offline without a login, and reloaded later. Greenstone says the database is app-friendly, so an app could be produced if required.

All three vendors provide assurances about security, including physical measures and encryption. Greenstone and SoFi carry out daily backups, with Ecometrica offering them hourly. Greenstone allows clients to retrieve data up to two weeks old while SoFi customers can access information entered up to three months earlier. Ecometrica stores hourly backups for a week and monthly backups for one year.

Greenstone reports that backups are securely stored offsite in the UK and that the hosting platform is 'world-class, robust and secure'. Data in SoFi is stored in servers in Australia or the US, or at SysEleven servers in Germany, all of which are certified to ISO 27001. The location will depend on where the customer is based. Ecometrica, meanwhile, stores information at Amazon datacentres in Ireland, although it is willing to move a client's data to another platform in a different jurisdiction.

Accessing the information

Invariably clients will not want all users to see or have access to the same data. One user might need only to provide input for a single location, another might want to see everything for a given region, while a specialist might want to see all of one type of data across the entire organisation. Some users provide input and others might be able to see reports only. Some users can enter data but not approve it, and another might be assigned to check and authorise the information.

Greenstone

SupplierPortal

Environment

Data that talks to you

CSR Frameworks

Health & Safety

{Enterprise software} {Full non-financial coverage}
{Globally trusted} {Multiple certifications} {>10 years of success}

But, Greenstone goes beyond just software with our 'data that talks to you' promise, guaranteed through the provision of uncapped support from our team of industry experts to help and advise you on your reporting journey.

We'll always be there to make sure you get a handle on your non-financial data and get the answers you need.

www.greenstoneplus.com

Greenstone allows clients to give users read, write and/or approve access to determine the sites they can see in the system, and 'nodes' (reporting points) can be grouped into an unlimited number of views for different reporting needs. SoFi's user management is founded on 'role-based access control', with out-of-the-box user groups and roles, each with different rights in the software down to the lowest level. This enables the client system administrator to issue user rights to different user groups at various sites and regions. Ecometrica says regions and users can control access and implement trickle-down permissions within the organisational hierarchy.

Being able to tailor the system gives the client better control over data security and simplifies the user interface. All three systems appear to have great flexibility over how this is configured but, whichever system you choose, check that it maps on to your workflows.

Generating reports

Just as the dashboard in a car enables the driver to read about key parameters of the vehicle's performance without checking the handbook or looking under the bonnet, so on-screen dashboards have become a common method for giving users a fast glimpse of the data in a complex system. What you cannot do on a car dashboard but you can with many on-screen versions is use them as a means of asking about the data you are interested in by clicking and drilling down.

Reviewers found the dashboards in SoFi easier to set up and more user friendly. On data display, comments included 'impressive'; and 'super' was one description given to the ease with which dashboards could be customised. The intuitive nature of drilling down to more detailed data was commended too, as was the capacity to share tailored dashboards and to assign specific ones to defined users.

Reviewers liked the ability of the Ecometrica software to select sites from a world or regional map, and felt this would be useful for large organisations with multiple sites.

All systems had similar functions for exporting data, reports and charts in different formats, including text, formatted pdf reports, image or .csv data. If a company needs to produce CDP and GHG protocol or other standard reports, having templates that produce these will save a lot of work. SoFi has report templates for CDP, GRI, GRESB, SASB as standard in the system. Ecometrica says one of the most popular reports in its system is for carbon efficiency, which shows normalised emissions against energy use across sites and countries. For health and safety, Greenstone's software and SoFi can be used

Making the right choice: selecting software

Last July, analysts at technology consultancy Verdantix forecast that the global market for environment and health and safety (EHS) software would exceed $1.4bn in 2020. It is a crowded market. Software research business Capterra lists 38 solutions in its sustainability management category and 93 under the environmental management classification. So how do you select the best option? Here are some tips.

- **Be clear** – draw up a comprehensive list of requirements and separate those that are a must (needs) from those it would be nice to have (wants). Ask why you need software. What is its purpose? *Managing Information for Climate Change Reporting*, a guide from CDP on using software tools produced with vendors Ecometrica, credit360 and thinkstep (bit.ly/2gCdmA7), advises: 'Ensure you understand the reasons for deploying a software system and what data you require.'
- **Involve others** – multiple stakeholders mean multiple requirements, so involve those affected. Talk to the IT department early on, but be clear about your priorities and stay involved in the process – do not let them drive the procurement.
- **Affordability** – calculate how much you can afford. Look for additional or hidden costs and whether you would be paying for something that is not needed. Calculate the long-term cost, say over the next five to seven years.
- **Gather information** – do your research: use requests for information (capabilities of the vendor) and requests for proposals (how the software would deliver your objectives) to draw up a shortlist of software and vendors.
- **Take a test drive** – invite four or five vendors to demonstrate their software and test the different solutions using your own data and common tasks you would need to accomplish. Involve those who would be regularly using the software. Demos can be good for prioritising needs.
- **Functionality** – can the software do what you want? Is it flexible? Can functionality be tailored to your specific needs?
- **Ongoing support** – find out how the software would be implemented and what training would be provided. What are the arrangements for support and maintenance? Be clear on what you will receive for your annual fee. Will you have a dedicated adviser and customer service contact? Are upgrades included? Remember, you are purchasing a relationship with the vendor as well as static software.
- **Take up references** – talk to clients already using software you are considering purchasing. Seek references from at least three organisations. Ask whether they are satisfied with development and support of the software. Also, check that the vendor is accredited to the CDP, GRI, for example, or can link to other frameworks, such as ISO and UNGC, if important.
- **Due diligence** – how often is the data backed up and where is it stored? Is the data encrypted? Agree ownership of it: if you decide in the future to end the relationship, establish who would have custody before signing a contract.
- **Future proof** – ensure the software is scalable so it can evolve as the business and demands for information expand. What is the vendor's plans for the software?
- **Longevity** – look at the history of the vendor. How long has it been operating? Does it have a record of success? Is it growing or downsizing?

The reviewers

Richard Cattan
Environmental adviser, Skanska

Tom Houlgate
Environmental adviser, Uniper

Anya Ledwith
Director, ESHCon

Charlotte McDonald
CRS adviser, Shanks

Suzannah Sherman
Consultant, Carbon Clear

to create RIDDOR (UK) and OSHA (US) accident reports. Ecometrica focuses on environmental reporting.

When consumption under different headings for one site was required, SoFi and Ecometrica were regarded equally favourably. SoFi was described as 'fast and flexible' and Ecometrica 'straightforward'. One reviewer said the Greenstone reports looked professional; others felt that the process was more 'convoluted' or 'fiddly', however. Ecometrica's simple page layout was favoured, with a reviewer commenting that the breakdown of emissions was easy to understand. For a slightly different task, comparing fuel usage between sites, Greenstone came out as favourite for its 'easy to view' presentation. SoFi lost out due to the number of pop-up windows that littered the screen by the time users found the information they required.

Target setting and forecasting

All three products allow organisations to set absolute or normalised targets for consumption or GHG emissions. Greenstone and SoFi allow these targets to be shown superimposed on progress graphs or charts to make comparison with actual emissions easier.

Using Greenstone's tool, organisations can set targets based on consumption or GHG emissions, set normalised targets and account for business-as-usual adjustments. Projection controls provide visibility of the target progress to date and future scenario setting, while an actions module records planned or in-progress actions linked to targets. SoFi has a dedicated module for improvement tracking and target setting: its performance management module lets users create and manage a portfolio of actions and projects to improve business practices and sustainability. Each action comes with information, such as associated cost, performance improvements, long-term cost savings, responsibility and timelines. Ecometrica's system supports target setting, while initiatives to reduce emissions can be specified and tracked in the platform.

Ecometrica offers a separate analytics tool that is superior to those in the basic product. However, reviewers felt moving between applications and the wide range of options available could make using it more complicated. However, the graphs produced by the analytics module were popular, so this might just be a matter of remembering to set aside time and a budget for training.

Supplier management

All three systems provide support for managing suppliers, although with Greenstone the supplier portal is separate but integrated, which customers can purchase on its own. Ecometrica supply management is an optional costed module. Suppliers can be benchmarked against others in the system, but only SoFi offers a benchmarking library at additional cost to allow external comparison of suppliers.

All systems let clients use industry standard questionnaires or their own bespoke versions. Greenstone provides standard questions on modern slavery, health and safety and carbon emissions, for example, while SoFi offers questionnaires to support clients to meet Rainforest Alliance certification and SEDEX (Supplier Ethical Data Exchange) standards. Once questionnaires have been set up, all systems can be configured to prompt suppliers to complete them with evidence. For responses that have an expiry date – say, an insurance certificate – suppliers can be prompted to provide updates.

Greenstone says its supplier portal is scalable across entire supply bases. It is based on the firm's enterprise architecture and has been stress-tested for up to 100,000 suppliers. SoFi clients have thousands of suppliers entering information into the solution, with one having more than 3,000 users. Ecometrica says scalability across the supply chain is built into its platform, with each supplier behaving as a client in essence.

Summing up

Overall, reviewers scored SoFi as more usable, although none of the products suffered any major shortcomings. Reviews found SoFi's intensity metrics less obvious to apply than when using Greenstone's and Ecometrica's solutions. However, SoFi was considered more intuitive overall, particularly for using and creating dashboards, for filtering the data, and for selecting dates. One reviewer felt the Ecometrica solution was 'easier than the other two' to navigate for a more complex task the vendors were asked to perform. Three reviewers particularly liked Ecometrica's video user guides.

All three products allow clients to bring together methods of managing environment and sustainability data (and, if you want, health and safety information) into a unified system, replacing separate ones and spreadsheets. Supplier management is part of the SoFi Enterprise offering, but extra in Greenstone and Ecometrica, so check that pricing includes the functionality you need. Check too that the report templates, dashboards and data you need are included in the quoted price because some are provided as standard, but others are extra.

The coffee cup challenge

David Burrows visits a new plant near Venice that could help make takeaway cups more sustainable

Britain has a problem with takeaway cups. Five billion are used each year but just one in 400 is recycled. And the prospects for any improvement would appear bleak: the number of coffee shops is expected to rise from 21,000 now to more than 30,000 by 2025, an increase that clearly equates to a demand for yet more cups. Indeed, our dependence on coffee is not expected to wane anytime soon: good news for the retailers perhaps, but bad news for resource use.

But coffee cups are only part of the story. The wider 'food-to-go' market, with its plastic cutlery, disposable bags and single-use napkins, is also rocketing – sales in the UK were forecast to be more than £16bn last year and are expected to reach almost £22bn by 2021. Solutions to this rapidly growing waste mountain will therefore be big business.

The solutions

There are three options for the coffee cup challenge alone. Recycle more is the obvious one, but that is far from easy and expensive. To use fewer would seem the best bet, but breaking the habit of ordering a flat white, drinking it on the way to work and chucking the empty cup in the bin will be a hard one to kick. It is one thing to buy a bag for life for 10p and carry it around, but another to fork out £12 for a reusable cup and remember to wash and pack it every day.

Sitting between those two options are compostable and biodegradable cups – which is where an industrial site in northern Italy comes in. The hamlet of Bottrighe di Adria, in the region of Venice, is home to the world's first plant to make bio-butanediol (1,4 bio-BDO) – something the firm producing it says will reduce

the carbon footprint and increase significantly the renewable content of its bioplastic products. Moreover, the plant could prove to be a marker for a wider economic, environmental and regulatory trend.

A chemical compound derived from butane, butanediol (1,4 BDO), is used both as a solvent and for the production of plastic components. Novamont, the firm behind the plant, needs the compound for its Mater-Bi bioplastics, which are used in bags, food packaging, coffee pods and, of course, cups.

But 1,4 BDO has a dirty secret – it is derived from fossil fuels. That is not a problem per se – Mater-Bi is 'completely biodegradable and compostable' according to all international standards (which in Europe means EN13432). But when trying to deliver the most sustainable products, with the lowest possible carbon footprints and the highest possible renewable content, BDO is not ideal.

Fossil free

Bio-BDO, on the other hand, is 100% fossil fuel free. 'There are two processes for making butanediol,' says plant manager Stefano Dessi. 'One uses petroleum while ours uses glucose syrup and bacteria. They're two completely different processes but the final products are identical.'

Creating bio-BDO in the laboratory is nothing revolutionary; but creating 30,000 tonnes of it a year as Novamont plans to at Bottrighe is. The tipping point came in 2012 when, in a project with DuPont Tate & Lyle, US company Genomatica found that the process could work commercially. The California-based bioengineering firm produced more than 2,000 tonnes of BDO by direct fermentation using conventional sugar as feedstock in a move that chief executive Christophe Schilling described as a significant milestone for the technology and the biochemical industry.

Genomatica first engineered a micro-organism in 2008 that could convert sugar into BDO. That produced only a small drop of bio-BDO, according to Schilling, so to move from that to a successful commercial-scale trial in just five years is quick indeed. The work with Novamont is on another level altogether. As Schilling noted at a conference to mark the Bottrighe site's official opening in September, it is like starting with something the weight of an ant and ending up with an elephant.

More challenges

Originally home to the BioItalia/Ajinomoto fermentation plant, which closed in 2006, Novamont the acquired site in 2012. The company immediately embarked on a two-year regeneration programme worth €100m, removing 350 tonnes of asbestos, 150 tonnes of sludge and 1,150 tonnes of washing water. The result is an impressive combination of the old and the new – a site that harks back to the 'good old days' of industrialisation and offers a glimpse of a new green and fruitful bioeconomy.

The fermentation process is energy-intensive, so there are various solutions in place to improve efficiency and cut costs, including a cogeneration system to use waste heat and a biodigester for by-products. Carbon

Stupid to ignore the bioeconomy

An article in the November 2016 issue of *Biofuels, Bioproducts & Biorefining* offered a vision of the 'billion tonne bioeconomy' in the US. It showed how 446 million tonnes of greenhouse gases could be avoided and 1.1 million jobs created by 2030, as more bio-based energy, fuels and products replaced petroleum-based ones.

There already 17 million people employed in the European bioeconomy – defined as the parts of the economy that use renewable biological resources from land and sea, such as crops, forests, fish, animals and micro-organisms, to produce food, materials and energy.

In the UK, the government has estimated that the country could be looking at a total bioeconomic market worth around £100bn a year. Most of the opportunity lies in unlocking more value from 'waste', including each year at least 100 million tonnes of carbon-containing waste and at least 14 million tonnes of bio-based residues from crops and forestry sources.

emissions have also been cut by 16,000 tonnes a year. In addition, bio-BDO will also reduce the carbon footprint of the bioplastics – the cradle-to-grave greenhouse emissions per kilo of product are at least 54% lower than those for traditional plastic.

The process comes at a price, however, and bio-BDO remains more expensive than its fossil fuel cousin. In fact, the price of conventional 1,4 BDO is at a historic low due to the lower cost of oil. Can bio-BDO compete? 'We're testing the market,' says Andrea Di Stefano, Novamont's head of special projects. 'The bio-BDO in Bottrighe obviously costs more than conventional BDO, but this should not be a problem. The quality and purity of the product makes us optimistic about the possibility of saturating the current demand first, [then] generate new demand afterwards.'

A large market

There is a large market to crack. Annual global demand for BDO is 1.5 million tonnes, with a value of €3.5bn. Forecasts suggest demand will rise to 2.7 million tonnes by the end of the decade, by which time the market is expected to be worth €6.5bn. But this is just a small piece of the bioeconomy pie (see panel, left), and Novamont is already exporting its model to the US.

Still, €100m is a lot of money. Novamont's aggressive expansion – Bottrighe is the sixth site the company has regenerated – suggests chief executive Catia Bastioli sees this bigger picture. Bottrighe di Adria and bio-BDO are part of a 'formidable platform for industrial biotechnologies [and] a great opportunity to create a competitive edge in partnership with other entities in the academic and industrial sectors', she says.

Four-fifths of the bio-BDO will be used by Novamont to obtain the biobased azelaic acid made in its Matrìca plant in Sardinia, and for the synthesis of its Origo-Bi bio-polyester – a key ingredient of the firm's fourth generation of Mater-Bi bioplastic.

Sold in the form of granules that can then be turned into your coffee cup, this bioplastic lifts the renewable content of the material by up to 70%. The target is 100% and the company is also making inroads on the biodegradability of the products in the marine environment (plastic pollution of the seas being a topic of much debate).

Going further

Work has already started on the fifth generation of Mater-Bi, which could also help to head off potential concerns about the use of food for anything but feeding people – an issue that the biofuels revolution has placed in the spotlight.

The 30,000 tonnes of bio-BDO requires 100,000 tonnes of glucose syrup, which is used in the food industry as a thickener, sweetener and humectant (to help retain moisture and prolong freshness). The volumes are small, but Novamont is looking one step ahead for competitive edge – and has ambitions for its fifth generation Mater-Bi, made with bio-BDO produced from sugars from lignocellulosic biomass left over when local crops are harvested. The new process could be introduced as soon as 2018. By then, the EU's circular economy package – a suite of policies the European Commission hopes will free the bloc from the linear model based on 'make, use, dispose' – should be in full swing.

Supporters of the bioeconomy suggest it is the perfect illustration of circularity in that it regenerates carbon dioxide and uses renewable raw materials to make greener everyday products. Some countries are not waiting for EU legislation to jump on the bioeconomic bandwagon.

Regulatory support

Novamont has certainly had the regulatory wind in its sails in its home country. Five years ago Italy banned non-biodegradable plastic bags, a stricture that has driven the country towards using bioplastic ones.

France is following a similar path: plastic bags were banned there in July 2016, and from 1 January single-use plastic fruit and vegetable bags had to be replaced by biodegradable bags made from paper or bioplastics. As such, France and Italy have both jumped the gun on EU legislation, which will require countries to charge for plastic bags by 2018 to cut consumption from almost 200 a person a year now to 90 in 2019 and 40 by 2025.

But bags are just the beginning. France has set its sights on disposable tableware, including cups and plates – the new Energy Transition for Green Growth Act (the same one used to squeeze out plastic bags) will be used to push plastics out and pull compostable materials in. France uses 4.73 billion single-use plastic cups each year, of which only 1% are recycled, so the market has huge potential, which is good news for those with a vested interest in bioplastics.

'The Italian and French measures are catalysing industrial investments,' says Di Stefano, 'creating the conditions for an economy of scale for a range of integrated new technologies in different parts of Europe [including chemical building blocks, biolubricants and bioplastics] with a major focus on re-industrialisation of chemical sites in crisis.'

The shift has not pleased everyone, though: representatives of the food packaging industry believe France's proposals violate EU law on the free movement of goods. They also say there are not the products on the market to satisfy the requirements of the French proposals.

Some might recall that England faced a similar issue with its plan to exempt biodegradable bags from the 5p charge on single-use carriers – but it could not find a genuinely biodegradable one.

Creating compostable or biodegradable products is only half the battle. To be environmentally effective, the compostable cup needs to end up in the right place after the drinker has that final sip of latte. Indeed, in some cases this risks an impasse in that the best environmentally-optimised innovation can be rendered useless if the infrastructure is not in place to close the loop.

David Burrows is an environment writer.

2017

The year ahead

Environmental policy professionals set out what their focus will be in 2017

Martin Baxter, chief policy advisor, IEMA

It promises to be a critical year for environment and sustainability policy. Longer-term strategy looks set to lock in the direction of travel for many years; getting it right and maintaining momentum will be a challenge in the face of short-term competing demands.

The development of the UK's industrial strategy offers the opportunity to embed the transition to a low-carbon, resource-efficient economy – one that is flexible and agile and gives a progressive outlook for a future outside the EU.

The starting point is positive: recent estimates from the Office for National Statistics show that, in 2014, UK turnover from the low carbon and renewable energy (LCRE) economy, including direct and indirect activity, was £83.4bn and that the sector employed more than 447,000 people (full-time equivalent posts). It is vital that this strength is reinforced and used as a platform for establishing future trade deals, enhancing the export potential of UK expertise and leading green-tech. High environmental standards underpinned by effective regulation prompt investment in innovation and research and development, providing the basis for UK-based companies to develop new products and services that help to meet the challenges ahead.

The forthcoming 25-year environment plan for England, with the vision to enhance natural capital over a generation, offers great scope to set clear outcomes for waste and resources, ecosystems and biodiversity and water, and to improve environmental standards over the long term.

It is vital that the industrial strategy and 25-year plan are mutually supportive – our economic prosperity is contingent on a healthy, functioning natural environment and policy must recognise that these are intertwined.

These long-term plans must also provide the basis against which measures to be set out in the Great Repeal Bill, which will transpose EU law into UK law, will be judged. IEMA will engage members to support our contribution to these key initiatives as they develop in the year ahead.

Josh Fothergill, policy and practice lead on environmental impact assessment, IEMA

The next 12 months are important for defining how quality environmental and sustainability competence and expertise will be integrated into the projects and systems that will shape our future. In the UK, recognising the need to enhance sustainability understanding by upskilling those working to deliver the country's ongoing infrastructure boom and integration of such knowledge in the forthcoming apprenticeship levy will be crucial to ensuring they deliver a more sustainable workforce.

In Europe, the amended EIA Directive comes into force this year, with increased emphasis on competent experts producing impact assessments and ensuring that decision-makers have enough expertise to examine the environmental information they contain.

At the global scale, the World Bank will implement its new Environmental and Social Framework, putting greater focus on environmental and social skills.

These moves will provide specific opportunities for improvements in environment, social and broader sustainability performance, especially where their delivery is supported by competent professionals. There is a greater opportunity here, which we must all seek to progress in 2017, to drive a clear message through our work and that of our colleagues that the environment and sustainability profession will actively support the upskilling of other

professions to enable an effective understanding of environmental challenges and opportunities; and that we will also be open to adopting a collaborative approach to delivering progress across the sustainability agenda.

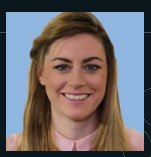
We can achieve a great deal by working together, through IEMA, our profession and more widely across society. It is such a collaborative spirit that will help to drive a more impactful legacy than the individual contributions we will all make. As such, while I work on, and engage members with, the above agenda, I'll always be looking for opportunities that contribute to the wider goal of working to help upskill everyone to ensure progress across the sustainability challenges we all face.

Nick Blyth, policy and practice lead, IEMA

Each year, UNEP reports on the emissions gap, outlining how close the world is to realising its climate targets. Last year, UNEP included the so-called 'ambition gap' for 1.5°C and indicated that emissions would have to peak by 2020 at the latest. Although this is a challenge, UNEP's chief scientist has estimated that, if the intended nationally determined contributions submitted to COP21 in Paris are achieved, there is a 50% probability that the 1.5°C pathway could be met. Clearly we need momentum and ambition at all levels and the environment and sustainability profession has a unique contribution to make.

In the UK, several climate policy initiatives are anticipated in 2017 to which IEMA will seek to contribute through its work with member networks and partners. The government has agreed the fourth (2023–27) and fifth (2028–32) carbon budgets, and had been expected last year to produce an emissions reduction plan addressing these periods. It was delayed with Decc merging with the business department to form BEIS. It is essential the plan is unveiled this year. A further delayed consultation anticipated in 2017 will consider changes to organisational energy and carbon reporting. Also, the Committee on Climate Change will provide a second and final statutory report on the National Adaptation Programme in June.

This year, I will continue to work with members on climate change, natural environment and corporate sustainability. There are some huge challenges ahead for the profession and a real opportunity for us all to contribute and make a real difference.



Claire Jakobsson, head of energy and environment policy, EEF

The impacts of Brexit and a Trump presidency have yet to be realised, but it would be fair to expect that it will not be business as usual in terms of where next for international and domestic climate, energy and environment policy. It is therefore imperative to keep focus on developing policies that support the successful integration of the energy and climate agenda as part of a wider industrial strategy. This approach will not only assist us in meeting our environmental goals but will also serve to boost UK competitiveness and bolster industry. Setting aside political turbulence, what manufacturers need is policy certainty and regulatory stability. We must avoid a policy vacuum. That is why EEF has urged the government to 'grandfather' as much of the existing regulatory framework as possible, at least in the short term.

Once the UK has left the EU, it should undertake a comprehensive environmental legislative review, in close consultation with industry, on what elements to revoke and retain. That is not to say that the UK contribution on EU policy should grind to a halt during the transition. This year phase IV of the EU emissions trading system (ETS) negotiations will be at a critical juncture. The ETS has significant implications for UK industries at risk of carbon leakage and, part of the EU or not, will continue to have a major impact. The UK government must continue to actively influence and engage on this issue.

Domestically, we also have big energy questions to answer. Security of energy supply remains a major concern for manufacturing and the UK must address the disparity in electricity prices compared with its EU counterparts. The autumn statement did little to allay concerns. With virtually no detail on what would happen to the carbon price floor into the 2020s and the absence of any announcement on the levy control framework, we are left wondering what direction UK energy policy will take.

In addition, EEF called for a fund to help energy-intensive industries with the upfront costs of installing energy-efficiency measures – on which there was nothing. It is why EEF is calling for the introduction of an annual energy statement, which would go some way in giving clarity on where progress was being made in securing Britain's future energy supply.

Alan Whitehead, Labour MP for Southampton Test

It is easy to predict what parliament will be spending most of its time on this year – Brexit, of course. But as far as the environment is concerned, it is important that what is decided does not throw away some or most of the pillars on which environmental protection is based. It is the policy area most dependent on EU legislation to work effectively – most of our rules, standards and legislation on air quality, soil and land protection, waste management, groundwater standards hazardous substances and environmental damage depend on EU directives and their transition into UK legislation.

The government, as far as can be divined right now, looks to want to trigger article 50 in the spring, and is intending to run during that period a Great Repeal Bill, which will convert existing European-derived UK legislation into domestic laws.

For environmental legislation, it is suggested that perhaps a quarter or more of our present rules would not be transposed in this way. In other words, whether we re-legislate similar standards or simply let them wither as we complete our exit will be up in the air. If that is the course of action, it will present a disaster for environmental protection, with the possibility that many of the safeguards we take for granted will either lapse or will be so indeterminate as to allow miscreants a free hand to pollute and despoil while we catch up with the frameworks that get us back to effective regulation once more.

If a hard Brexit presages the destruction of our environmental standards it will be far less a case of 'taking back control' as one of being 'out of control'. I want to see the strongest possible pressure placed on the government to ensure that what we have in environmental protections is properly transposed into UK-based rules and regulations. It is just too important to play Brexit games with.

Catherine Bearder, Liberal Democrat MEP

'Last year marked the start of the European fightback against crimes against the natural world – the trade and collection of plants and animals, skins, bones or tusks, live and dead animals all for human amusement as trinkets, medicines, food or adornment. The new comprehensive EU anti-wildlife trafficking action plan presents a golden opportunity to turn the tide against the mindless poaching and destruction of the natural environment that is decimating some of the most vulnerable parts of the planet.

The plan was pretty solid but it needed tightening, which is why I included in my parliamentary report suggestions on how to strengthen enforcement and ensure governments take action. It received overwhelming support from the MEPs. Now the paperwork is done, both in the European Commission and the parliament, I will be using this mandate to ensure that member states and the commission deliver. For a start, wildlife crime must be included in Europol's Serious Crime Threat Assessment. Only with the support of national governments will Europol have the authorisation to arrest wildlife traffickers as they do with human and drug traffickers. Also, there must been minimum penalties for this crime throughout Europe. Criminals should receive a prison sentence, not a slap on the wrist, for the most serious offences. There are already many pressures on our law and enforcement agencies but, with the political will and financial support to stop wildlife trafficking, we can turn the tide.

Rufus Howard, chair of IEMA's IA network and director of renewables and marine development at Royal HaskoningDHV

It is potentially a pivotal year for environment, energy and sustainability, not just in the UK but globally. In terms of big ticket items, we have the new EIA Directive being rolled out in May. This has triggered discussions on expert competence and professionalism among environmental practitioners.

The impact of Brexit and a Trump presidency in the US will put further pressure from business and government lobbies for reduced environmental protection and legislation under the guise of economics and 'red tape' reduction, but in reality to maximise profit at the expense of environmental commons and quality of life for people and communities. The World Bank will begin implementing the new environment and social standards, and we are likely to see continued moves in the international arena towards harmonised standards. Globally there is a shortage of educated, well-trained experts and practitioners in environment and sustainability who can work with public and private sector organisations to deliver the transition from a failing, consumption-based global market economy to a more equitable, sustainable, and circular economy needed for long-term prosperity.

Absolute priority in my opinion is the rapid and full implementation of the UN sustainable development goals, in particular the decarbonisation transition, which requires a fundamental shake-up of our energy, transport and industrial sectors. The UK and Europe will need to take pole position on this. Achieving the goals, particularly on climate, is of paramount importance to global security, poverty and wellbeing. It cannot afford to be another wasted year of debate.

Jacob Hayler, executive director, Environmental Services Association

Despite the outcome of the EU referendum, the waste and recycling industry's priorities for 2017 will continue to be heavily influenced by what is going on in Brussels.

The European Commission's circular economy package is continuing to be negotiated and is likely to be concluded, setting the strategic direction for Europe's waste and recycling policy through to 2030 and beyond.

Whenever article 50 is triggered, the UK will not have finalised its exit from the EU before the circular economy package is agreed. It will therefore be part of the legislation that is frozen as part of the government's proposed Great Repeal Act and the UK will be bound – at least in the first instance – to meet whatever new European targets are agreed. Brexit does, of course, raise the possibility that the UK government may decide to reverse any new targets if it deems them too ambitious. Domestic initiatives will therefore be more crucial than they have been for a generation.

The year will start with a Defra consultation on its 25-year plan for the environment in England. The year will hopefully end with the publication of a final document that recognises the vital role waste and resources play as part of our natural environment and as an economic resource. The waste and recycling industry's biggest priority for the year will be to work with Defra to ensure that the plan provides a long-term strategy to drive a thriving and sustainable waste and recycling sector. This should include a greater role for producer responsibility – in line with the 'polluter pays' principle – to make designers, manufacturers and retailers think about what happens to their products at the end of the products' lives.

Paul Reeve, director, Electrical Contractors' Association

Although we expect a national and international energy policy rollercoaster in 2017, there will also be plenty of commercial and technological drivers for change – or even disruption. In building and infrastructure engineering, these will include: very big data and the internet of things; mobile telecommunications; electric

and automatic vehicles; smarter infrastructure; and batteries and other energy storage.

Despite Brexit, Europe will still play a definitive role in UK environmental policy and legislation in 2017. There are few examples of UK green building initiatives that have stayed the course – and far too much 'start and stop' policy – so the prospect of EU policy and regulation on energy in the built environment is welcome. At home, we will be looking for evidence-based energy-efficiency measures, based on what drives commercial and domestic users' energy behaviour, and rolling out what works at scale.

In 2016, it was possible to be both elated and deflated about the future of renewables, all in the same month. However, the technical challenge in 2017 is not how to produce enough renewable electrical energy but how to distribute, store and use it. Battery storage will be on the up in 2017 but, despite the hype, it will still be too expensive to achieve the much-vaunted point when storing electricity matches the cost of grid distribution. To help get us there, we will look for significant government support for research and development into battery and other forms of energy storage. Most of all, we will be looking for the government to provide stable conditions for commercial investment in renewable energy and smart grids and to promote a more circular economy. If financial help is not available we will respectfully ask government at least to step out of the way.

Matthew Farrow, executive director, Environmental Industries Commission

There's no getting away from the fact that 2016 was a bruising year for the environmental movement. This year will be dominated by Brexit but it also needs to see us getting back on the front foot. There are three ways this needs to happen. First, we need to clearly identify the benefits of the existing suite of EU environmental law. My view is that this requires a more nuanced exercise than simply asserting that all the directives and regulations are vital and that any change would be vandalism. My experience is that, although most legislation remains vital in ensuring environmental protection, there are elements that have been overtaken by events and some parts that have never worked well in a UK context.

Second, and linked to the previous point, we need to 'own the detail'. Environmental issues are highly complex and so are many policies and their impacts. We will need to ensure we can articulate a specified framework for environmental policy and regulation that is workable in detail in whichever Brexit scenario we end up with.

Last, I want the business side of the green movement to grasp the opportunity presented by Theresa May's enthusiasm for industrial strategies. Ministers are keen to support sectors that are innovative, use the UK's strong science base, are geographically dispersed and have export potential to markets outside the EU. The environmental technology and services sector fits every one of these. With a coherent post-Brexit policy framework that encourages innovation and investment in the home market and a better approach to identifying export markets, there will be no limit to what the sector can achieve.

Nick Molho, executive director, Aldersgate Group

As it starts the process of leaving the EU, the government will need to act decisively in 2017 to show that it remains committed to improving the state of the UK's natural environment and growing its low-carbon economy.

The government's upcoming emissions reduction plan, due by the end of March, needs to provide detailed measures that will increase affordable private sector investment in the energy-efficiency, low-carbon heat and power, and clean transport technologies the UK needs to meet its climate targets. To maximise the positive impacts the plan could have on the growth of the UK's low-carbon supply chain, it should be accompanied by an industrial strategy that seeks to better connect businesses, including SMEs, with the government's low-carbon agenda and specific supply chain opportunities; promotes a greater emphasis in the education system on skills essential to a low-carbon economy (such as for sustainability and engineering); and considers where UK energy-intensive industries are best placed to play a growing role in the low-carbon supply chain.

It will also be important that the government, with support from business and civil society, puts forward initial proposals for a 25-year plan to improve the state of England's natural environment, much of which is in decline. Not only do our economy and society rely on a careful management of critical natural resources such as soil and water but the resilience of our infrastructure against risks such as flooding will be much improved if we invest in our natural environment through schemes such as peatland restoration. A comprehensive 25-year plan could do much to address this and would also provide an opportunity to ensure that the environmental standards introduced through EU legislation are either maintained or, in areas such as agricultural policy, improved.

Terry A'Hearn, chief executive, Sepa

Sepa's statutory purpose gives it the job of protecting and improving the environment in ways that also create health and wellbeing benefits and sustainable economic growth. This is the essence of our regulatory strategy. Environment protection agencies were established primarily to reduce industrial pollution, principally through regulatory compliance. This is still important: compliance is non-negotiable. Compliance in Scotland has increased from 88% to 90.4%, but is only the first step on the journey towards one-planet prosperity. We have made progress towards full compliance, but 'close enough' isn't good enough. What we require to create a vibrant economy in the 21st century is for businesses to go beyond compliance.

We are committed to helping forward-thinking, responsible businesses turn environmental excellence into commercial advantage. We are equally committed to providing backward-thinking, deliberately irresponsible businesses with the tough and punitive enforcement their behaviour demands.

Looking to the future

Can thinking differently now help environmentalists plan for an unpredictable future? **Catherine Early** reports on a debate exploring the issues

Climate change, resource depletion, population growth, societal changes, new technology – the list of future trends those working in environment and sustainability need to consider is seemingly endless.

Delegates at a recent event* held by IEMA and hosted by consultancy WSP|Parsons Brinckerhoff discussed the challenges and opportunities presented by these megatrends, and how practitioners can respond.

Building the future

Predicting the future is notoriously difficult, said David Symons, director of environment at WSP|Parsons Brinckerhoff. A glance back into recent history would reveal many predicted technological advancements that never came to pass, such as waterless baths and flying cars. However, other technologies we now take for granted, such as mobile phones, had advanced incrementally over the years, reaching the point assumed to have been impossible when Motorola engineers made the first mobile phone call more than 40 years ago.

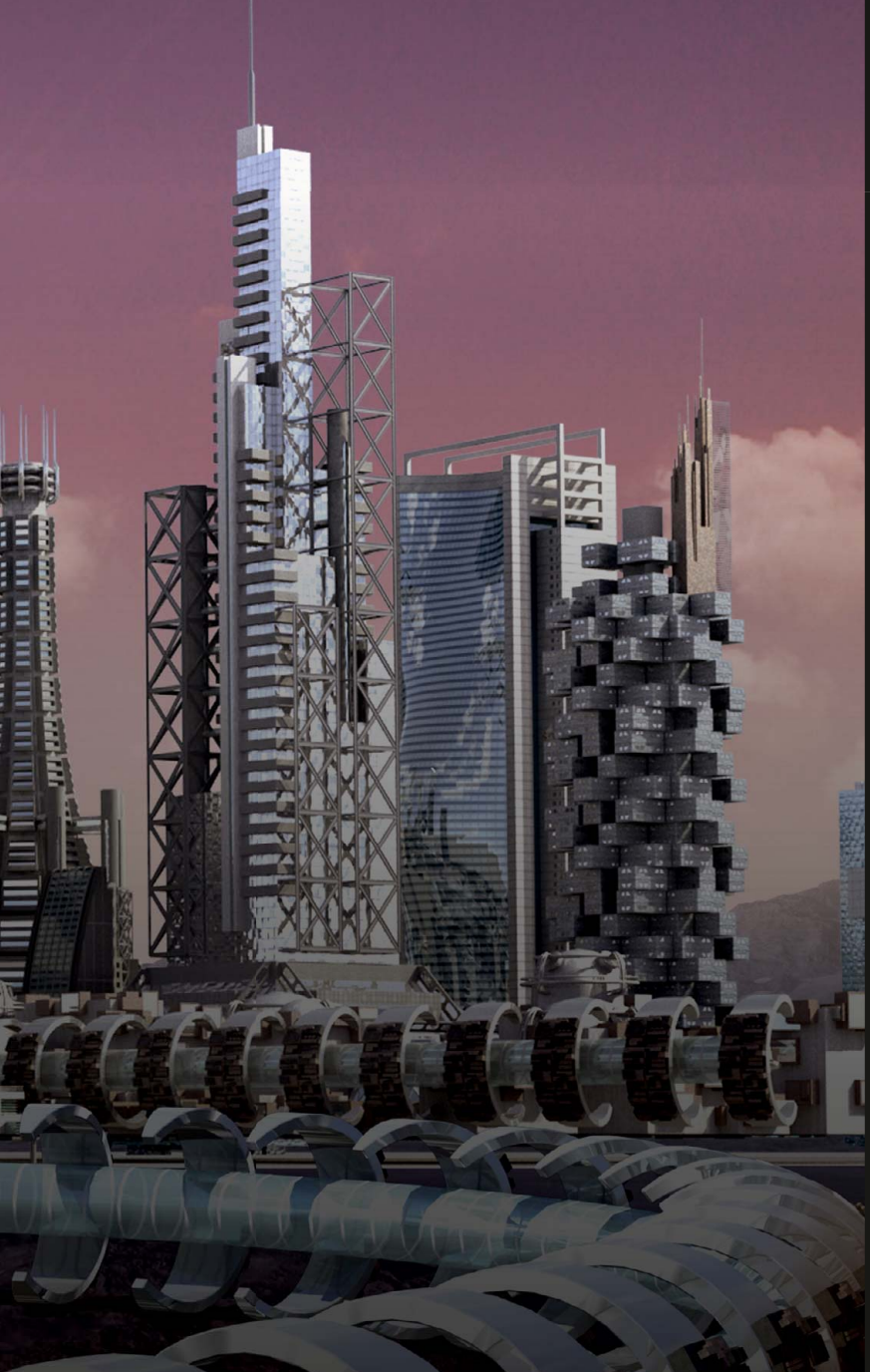
'Looking into the future is hard to do but, if you go back, you can see how much things have changed,' Symons told the event. In the environment and sustainability profession, concepts such as the circular economy and natural capital were barely talked about five to ten years ago, but now were 'right in the heart of our lexicon'.

Symons pointed out that building codes and manuals did not anticipate these trends. 'But if infrastructure is not designed with these issues in mind, it could become unusable or very expensive to maintain,' he said.

There were companies working on projects that could fundamentally change how we thought about infrastructure, he said, citing French civil engineering company Colas, which had been trialling photovoltaic surfaces on motorways. 'Think about what that does to the future of a road network when potentially every road becomes a power station. What opportunities could that bring for Highways England when we're designing roads for them?

'Some of these things may seem strange, utopic and challenging but, if we look into the future, we know that it will be different from the past.'

In response to such megatrends, the consultancy is rolling out its 'Future ready' programme to all 35,000 staff worldwide. It involves training engineers to understand trends and think about how they need to take them into account when designing and building roads, railways, homes and offices. Symons said staff were being challenged to bring 'clever thinking' to their



projects and think how changes to the climate, society, resources and technology would affect their area of work and geographical location.

Industrial strategy

Challenges that industries in general face include reducing pollution, greenhouse gases and resource use while increasing output.

Steve Evans, director of the Centre for Industrial Sustainability at the University of Cambridge, said industry had to become more efficient and take on methods used by the likes of car manufacturer Toyota, which, between 1993 and 2013, reduced by 70% the energy it used to make a vehicle. 'What happens if all manufacturers get halfway to the Toyota dream?' he asked. 'We're not asking everyone to be world class, just halfway. If all UK manufacturing went halfway to world class, we would save about 27 million tonnes of carbon – that's around a 4.5% reduction in the UK's CO_2 emissions.'

Not only would this cost nothing, but it would improve profitability of firms by around 12%, he estimated. 'Why aren't politicians screaming for this?'

However, efficiency on its own will not deliver all the change needed, Evans warned. Changes to value and systems were essential. 'Although I'm a very strong believer in efficiency as a first action, other measures will be needed to achieve our 2050 [climate] goals. We're doing a lot of work with companies on what value means to them. What happens when we start selling the performance of energy to a company instead of litres of fuel?'

Evans gave the example of British Sugar, which used waste carbon and heat from its processes to heat a greenhouse and grow tomatoes. In November 2016, the company switched to growing crops to be used in epilepsy drugs. Evans added: 'They're using knowledge to extract value of what's already there; they've already paid for it.'

Systems transformation was essential, he said, using the example of car rental as preferable to purchase and ownership. Evans is a partner in hydrogen car company Riversimple, which is planning to use this business model by charging people per month and per mile travelled. The firm will be responsible for fuelling the car. 'Because we put the fuel in, we are directly incentivised to use as little as possible as that increases our profits,' Evans said. 'This car is cheaper to own than a Smart car, but generates more than $10,000 in profit for us, the equivalent of a top-end Porsche. This is not a bad equation.'

Evans is optimistic about the potential for businesses to propose ideas such as these: 'Lots of people are trying out a lot of new ideas at a rate that I see as exciting.'

Energy systems

Tyrone Kalpee, environmental director at BP International, said a different way of thinking would be required to change the world's energy systems fast enough to meet climate targets. Much of the growth in energy demand was coming from the newly emerging economies where vehicle ownership is expected to triple in the next 20 years.

But a different message will be needed in many of these countries, where electricity and water supplies are sporadic or non-existent, compared with that used to drive efficiency in higher-income economies. 'How do you speak about being more efficient to people who don't have running water or lights in their homes?' said Kalpee. 'How do you tell someone not to have a car when they've never had it? You can't, you have to find another solution that meets both their needs and global climate needs.'

Getting there

Learning to think differently in such ways would take time, the participants agreed. Symons acknowledged that rolling out the 'Future ready' programme to all staff globally is a huge task for WSP|Parsons Brinckerhoff. 'But when we do it, it will have far more impact than just myself and my environment colleagues working on this. Our role is to be leaders,' he said.

Kalpee concluded: 'We have to be an optimistic. When we decided to go to the moon, we didn't know how we were going to get there. The same type of thinking is required now.'

*The event was an IEMA initiative in partnership with WSP|Parsons Brinckerhoff and held as part of ongoing work on the broader corporate sustainability agenda.

Assuring reliability

Nigel Leehane explains how a new standard could improve the reliability of information in corporate environmental reports

More organisations are publishing annual reports of environmental performance. Whether these are standalone environmental audits, corporate responsibility reports addressing broader elements of sustainability, or are published within the annual financial statements, their audience needs to have faith in their content – which is far from a given.

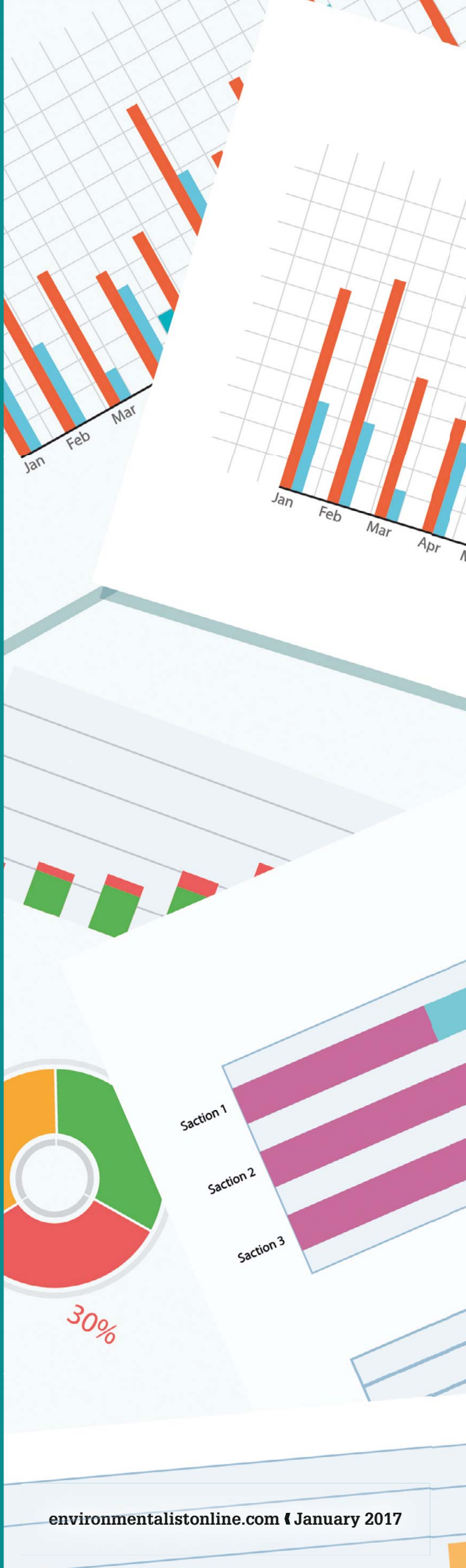
Although many organisations claim conformance to the reporting principles enshrined in various standards and protocols, some observers question the reliability of these disclosures and suggest their credibility could be enhanced by reliable external assurance.

The International Organization for Standardisation (ISO) has recognised this gap by initiating the development of a new standard (ISO 14016) on the 'verification and validation of the environmental component of sustainability reports'.

The challenges for assurance

The Global Reporting Initiative (GRI), which has developed perhaps the best-known benchmarks for sustainability reporting, acknowledges that, although assurance standards have started to emerge, they vary in approach and are not adopted universally. To help reporters to understand the concepts and practices in external assurance the GRI published a guide in 2013. The *External Assurance of Sustainability Reporting* (bit.ly/1n7bF8S) acknowledged that, as well as various national standards for assurance, there were two commonly referenced international benchmarks:

- The International Standard on Assurance Engagements (ISAE) 3000, which is used worldwide by the accountancy profession to verify anything other than financial information. The standard establishes a process for assurance engagements, which aim to give intended users greater confidence in the information. There are two levels of assurance: reasonable and limited. These relate to the degree of risk in the conclusions of the engagement.



- The AA1000 Assurance Standard provides a framework for an assurance process for sustainability consultancy AccountAbility's principles standard and stakeholder engagement standard. AA1000 encourages organisations to engage stakeholders in developing a sustainability strategy and to ensure that disclosure addresses material stakeholder concerns. The AA1000 process also establishes assurance levels of high and moderate.

As well as ISAE 3000 and AA1000, other standards are sometimes cited as providing the basis for verification of disclosures. One of these is ISO 14064 Pt 3: Greenhouse gases — specification with guidance for the assurance

Drivers for reporting and reliance

Several drivers are encouraging more organisations to publish reliable annual environmental reports. These include:

- Rapid growth in the requirements of global stock exchanges for the reporting of environmental information. Although these may not require external assurance, reporters are encouraged to seek it – for example, in its new guidance to reporters, the Singapore Exchange explains that external assurance adds credibility. The UN Sustainable Stock Exchanges Initiative (UNSSEI) is encouraging bourses worldwide to establish sustainability reporting requirements. It has 60 partner exchanges that have made commitments to this or have implemented rules or published guidance.
- Expectations from the investment community. More investors are taking decisions based on factors other than current financial performance. They are interested in how companies are prepared to manage risks and opportunities that may influence future financial performance, and increasingly this includes capabilities to address environmental and other sustainable development issues. The guidance from the UNSSEI states: 'Interest in externally assured ESG disclosure, along with the development of accompanying assurance standards, has been driven by investor requests for companies to bring ESG information up to financial grade reporting.'
- Increased regulatory pressure. A report by KPMG, the Global Reporting Initiative (GRI), the United Nations Environment Programme, and the Centre for Corporate Governance in Africa identified almost 250 mandatory sustainability reporting instruments worldwide. These include regulations, codes of practice and standards, some focusing on specific environmental or social information, and others addressing broader sustainability reporting. The report, *Carrots & Sticks – global trends in sustainability reporting regulation and policy*, published in May 2016, emphasises that many of the instruments are based on or linked to voluntary reporting frameworks, such as the UN Global Compact principles, ISO 26000, OECD Guidelines for Multinational Enterprises and the GRI standards.

The need for reliable data as the basis for decision-making. Organisations themselves recognise that their own decision-making should be underpinned by reliable information on current and projected performance as well as stakeholder concerns. Although there is no requirement for external verification, the communications clause in ISO 14001: 2015, the international standard for environmental management systems, adds weight to the need for reliability of disclosures. It states: 'The organisation shall ensure that environmental information communicated is consistent with information generated within the environmental management system and is reliable.'

of greenhouse gas statements. Although not aimed at corporate report verification, it does provide useful guidance that can be applied to assurance. Another is the EU Eco Management and Audit Scheme (EMAS).

Other approaches to reporting and verification are promoted by the International Integrated Reporting Council (IIRC) and the Sustainability Accounting Standards Board (SASB), among others. The WBCSD has developed an assurance maturity model. This helps organisations to identify their objectives for assurance in relation to their maturity, not only in reporting but also in their strategic approach to sustainability. Recognising the complexity of the assurance standards landscape, the WBCSD report, *Generating Value from External Assurance of Sustainability Reporting* (bit.ly/1Qoi7wy), urges standards developers to establish 'dialogue between themselves to ensure the convergence of the various initiatives'.

A new standard

Concerns about reporting quality, the effectiveness of assurance or verification, and the perceived lack of a unifying standard for verification prompted the ISO to establish a group to explore the issue. In 2014, the group conducted a survey through the ISO's national member bodies, including BSI in the UK. More than 370 individuals involved in reading, producing, contributing to or verifying reports responded – and verification drew wide support. Respondents agreed strongly that the objectives of external verification should be to ensure greater accuracy and completeness. Fewer agreed that external verification or assurance delivered this, indicating dissatisfaction with current approaches. The survey results also revealed strong support (more than 70%) for a new verification standard. Respondents indicated that this should focus on principles, objectives and techniques for verification, plus verifier competence.

The ISO group then drew up a proposal for a new standard, and national member bodies endorsed its development in July 2016. The working group responsible for developing 14016, known as WG6, met formally for the first time in December and is aiming to publish it by July 2019. It faces many challenges.

The apparently haphazard use of the terms 'assurance' and 'verification' in this article is intended to reflect both their application in various standards as well as the concerns about the reliability of 'reasonable' and 'limited' assurance in ISAE 3000. The ISO is also starting work on a separate standard, the 17029, Conformity Assessment – general requirements for bodies performing validation and verification activities. This could ultimately be applied to organisations undertaking the assurance of reports.

A key objective of 17029 is to develop a common understanding on how to use the terms 'verification' and 'validation'. In the context of corporate reporting, verification would relate to checking data and the data collection processes. Validation, meanwhile, would apply to ensuring that the intended use of the information met expectations, such as providing reliable data on material issues. The early draft of 14016, developed at the December meeting, explains how these newly defined verification and validation processes would be applied to deliver effective assurance. This will be a key issue for WG6 as the standard develops, and it is likely that the title of 14016 will become 'assurance', rather than 'verification and validation' of environmental reports.

The approach to establishing an acceptable level of assurance will also pose challenges. Users of reports want to be confident that the information in them is reliable and expect that the external assurance process will be adequate. This places a burden on assurers to deliver that expectation at a cost acceptable to report producers. Potentially a new approach is needed to define levels of assurance, such that users can better appreciate the degree of reliance they can place on the report.

As they stand, the standards generally lack robust requirements or guidance for determining the competence of those in the assurance process. Although they may rely on a form of professional accreditation, they overlook technical subject matter or sector expertise. The new ISO standard will need to address competence requirements for an assurance assignment and also how qualified are the individuals who carry it out.

Given the complexity of the issues and the range of stakeholder groups involved, it is important that WG6 attracts experienced and diverse participation. As well as individual experts from the different stakeholder groups, including reporters, users and assurers, it is vital that there is a form of liaison with the assurance standards bodies and representative entities such as WBCSD.

Formal remit

The formal remit of WG6 is to develop a standard for the verification and validation of the environmental component of sustainability reports. Given the sharper focus on broader reporting of other areas of sustainability, including social and community issues, human rights and worker welfare, is there an argument for extending the scope of the standard beyond environment? Even if its formal scope is not widened, the principles could be applied to the other elements of environmental, social and corporate governance.

The new standard will go through many drafts over the next three years, with progressively wider consultation. By the middle of next year, some should be circulated to ISO member bodies for comment, and by 2018 for public comment. As always, IEMA will seek to canvass the views of its members to feed into the development process.

Nigel Leehane is technical director at SLR Consulting. He is acting convenor of the ISO working group developing 14016. The views expressed in this article are his own and are not necessarily representative of the formal ISO position.

Adrian Kesterson

Director, Expirea Environmental Consultancy

Career file

Qualifications:
CEnv, MIEMA, BSc (Hons)

Your CV:
2014 to date director, Expirea Environmental Consultancy
2012 to 2014 senior environment officer, Industry Regulation Licensing Branch, Department of Environment Regulation, Western Australia
1997 to 2012 inspector, Environment Agency
1992 to 1997 assistant pollution control officer, National Rivers Authority/Environment Agency
1990 to 1992 water sampler, National Rivers Authority
1989 to 1990 environmental laboratory technician, James M Brown
1987 to 1989 laboratory assistant, Norton Advanced Ceramics

Why did you become an environment professional? In the late 1980s the environment was not as high profile as now but it was an area that interested me. I grew up in Stoke-on-Trent, which had coal mines and steelworks and was the centre for the pottery industry so industrial pollution was a local issue. I thought it was a good opportunity to get involved in an emerging sector.

What was your first environment job? I was an environmental laboratory technician for an inorganic chemicals and pigments manufacturer. I undertook workplace environmental and occupational exposure monitoring and analysis. This included stack emissions, effluent treatment plant and worker dust and gas monitoring. It gave me a great introduction to industrial emissions.

How did you get your first role? I was 18 so relied on my high school education, which was strong in sciences. I had two years' experience in a ceramics laboratory nearby and was studying ceramics but I was keen to study chemistry and this role offered me that opportunity.

How did you progress your career? I moved into water pollution control after completing my degree. I moved into industry regulation at the Environment Agency (EA) to focus on the wider environment. I had a two-year development programme with some excellent training, an industrial placement and chemical engineering study. I learned about a range of industrial processes, the wider impacts on all environmental media and how to assess them. This introduced me to environmental management systems and auditing and I decided to switch my professional affiliation from the Royal Society of Chemistry to IEMA. After 15 years, I needed a new challenge and moved to a role for the Western Australian government, which was modernising its approach to industry regulation. I was shocked to find how far behind the UK they were.

What does your current role involve? I decided to have a go at consultancy and moved back to the UK where I had contacts and set up Expirea. My experience is heavily focused on industry regulation so I assist organisations with their regulatory duties and regulator engagement. I prepare environmental permit applications and do audits, for example. The recent cuts at the EA and withdrawal of a lot of the regulatory guidance means businesses cannot easily find advice and legislative interpretation, which is where I can help.

How has your role changed over the past few years? At the EA, my role changed as we moved away from being flexible and pragmatic to a more risk-based regulatory approach. It became much more prescriptive, with tick-box regulation with standard permit templates and compliance forms. I understand the reasons for these changes, and the Environmental Permitting Regulations streamlined permitting quite successfully. However, the role became much less interesting and challenging and most of the agency's experienced industrial regulators have left or retired. Those remaining will find it harder to understand the issues from an industry perspective. The EA has tried to address this by using an industry sector group approach but, with further staff cuts, it just seems to be firefighting now.

What's the best and hardest part of your work? Working for myself, I can keep things simple but remain professional. I enjoy doing things my way without being tied by procedures and management hierarchy. Getting started as a consultant was tough but luckily I had plenty of contacts. Keeping up to date with the ever-changing legislation is a challenge and it is a struggle nowadays to get any guidance from the regulators and governmental departments.

What was the last training course you attended? I undertook Auditmentor's e-learning internal environmental auditor training.

What did you bring back to your job? I was already an experienced IEMA-registered auditor but was looking for a refresher and needed to understand the changes brought in by ISO 14001: 2015.

What is/are the most important skill(s) for your role and why? I must maintain my technical knowledge and learn new things. Being adaptable and able to manage several tasks consecutively is important. Good communication and negotiation skills are also essential. You must be flexible and pragmatic towards clients' needs and timescales.

Where do you see the profession going? There will be more emphasis on sustainability and carbon footprinting, looking at the wider supply chain and taking a cradle-to-grave approach. For businesses to commit to investing in these initiatives there must be clarity and stability and in the current economic uncertainty post Brexit, investing in the future is difficult. Regulatory work will continue to diminish and will be supplemented by assurance schemes.

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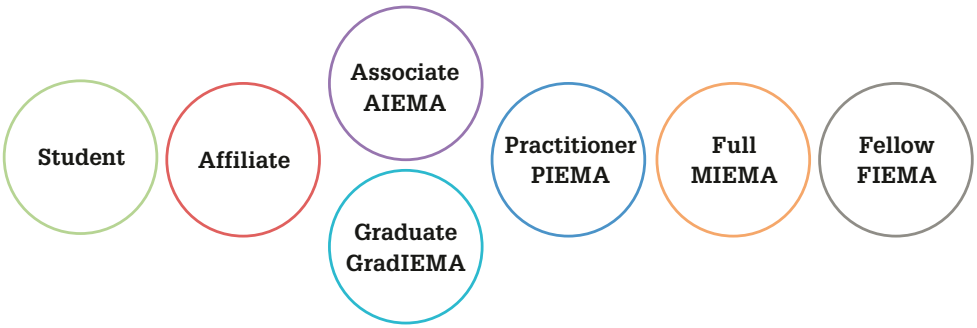
Latest member upgrades

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



Practitioner (PIEMA)

Elena Aceves–Cully, CEM Systems
Samson Akinbamide Omobayo Adegoke, Osun State College Of Technology
Richard Oldham, Ansaldo NES
Jean-Louis Bartlett, WSP|Parsons Brinckerhoff
Jenny Bate, Betafence
David Beadnall, Homes2Inspire
Jessica Beckley
Adrian Bracken, Winvic Construction
Florina Brahimi
Toby Bridgman, British Gypsum
Jemima Busby, Crown Packaging UK
Tanya Cocks, The University of Buckingham
Craig Dobbs, Parker Hannifin
Becca Doman, Foot Anstey
Edward Duncan
Hannah Ewart, Plandescil
Paul French, Unilever UK
Jody George, Kelda Water Services
Stephen Glover, DHL Supply Chain
Rhiannon Griffiths, EEF
Thomas Griggs, Viva–City West Housing Trust
Jane Haley
Mohamed Ismail Shahul Hameed
Graeme Hannah, BRE
Cath Harris, BEIS
Stephen Hart, Boortmalt
Mark Henderson, Jones Lighting
David Hollingsworth, Scottish Power Energy Networks
Lee Huggins, EDF Energy
Abisola Ijaodola, Giant One Integrated Nigeria
Sean Jackson, JRI Orthopaedics
Samantha Jamieson, Diamond Power
Matthew Jarvis, Lovell Partnerships
Andrew Judson, Pladis
Phillip Knowles
Colin Lambert, MSD Animal Health
Letitia Lees, Fortress Recycling
David Love, Argyll and Bute Council
Jasim Al Maawali, Be'ah
Derek Main, National Lightboard
Stewart McConnachie, Clark Contracts
Oliver McCredie, Tullow Oil
Stuart McCulloch, William Grant and Sons Distillers
John McMaster, ABP Food Group
Merilin Melesk
Alyson Morris, Nuclear Decommissioning Authority
Gemma Neal, Keltbray
Mathew Nebu, Marlborough Surfacing
Chu Thao Nguyen, IOM Singapore
Martin Nicholas, Beldam Crossley
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Sarah Purdue
Phil Rawlinson, Morgan Sindall Property Services
Jamie Reilly, ZF Services UK
Kate Rowen, Environment Agency
Darren Sanderson, Lovell Partnerships
Ben Sears, TACP (UK)
Andrew Sellings, MoD
Natalie Sharp, Briggs and Forrester Engineering Services
Alan Silsbury, EDF Energy
Annette Smith, Cluttons
Lisa Southwood, Marine Management Organisation
Patrick Staunton, BWI Solutions
Timothy Stileman, BP Global
Tim Swetnam, Beatson Clark
Claire Tester, Kier
Vesna Vucinic
Adam Williamson, Argent Group
Lindsay Wilson, NLB
Pieter Wojcik

Full with Chartered environmentalist (MIEMA and CEnv)

Katie Jayne Anderton, Temple Group
Matthew Arnold
Erin Banks, WYG Environment Planning Transport
Mark Cope, AECOM Infrastructure and Environment UK
Lynne Ceeney, BSRIA
Peter Gambrill, Jacobs UK
Kirstie Goldsmith, Jacobs Engineering UK
Alice Hands, Sir Robert McAlpine
Edward Heath-Whyte, Tata Steel Project
Marcelle Hornshaw, Costain
Timothy Jones, Halcrow Group (CH2M Hill)
Richard Lewis, CELSA Manufacturing UK
Chloe Logan, URS Infrastructure & Environment UK
Emma Magee, AB Agri
Melanie Netherway
Mary-Magdelene Young Ntamark, Bechtel
Lili Pechey, AECOM Infrastructure and Environment
Stephen Racher, Halcrow Group (CH2M Hill)
Paul Richards, Interserve
Mohamed El Shazly, Balfour Beatty Civil Engineering
Sally Vivian, AECOM Infrastructure and Environment
Richard van Gelder, RSK
Rebecca Vowles, Interserve Support Services
Szilvia Zakar, Sir Robert McAlpine

Chartered environmentalist (CEnv)

Susan Schnadhorst, Osborne
Clare Topping, Northampton General Hospital NHS Trust
Chris Young, Environment Agency

DNV·GL

Lead Auditor (Technical Support)

£40-50k + benefits + car

Purpose of the role:

This role is a key technical support function underpinning the accredited certification work undertaken by DNV GL Business Assurance in the UK. The role combines Lead Auditor and Technical Support activities and the role sits within the UK Audit Resource Team.

The Lead Auditor (Technical Support) role involves supporting the range of technical accreditation requirements for certification and assessment work undertaken in the UK, principally under the range of UKAS accreditations held by DNV GL. It also involves a significant proportion of audit work with DNV GL clients, across a range of key certification standards including ISO 9001, ISO 14001, OHSAS 18001 and other specific and sector schemes.

The Lead Auditor (Technical Support) will report to the Senior Lead Auditor (Technical Support), and will involve extensive cooperation and liaison with the business development, operational and technical groups within DNV GL Business Assurance in the UK.

The role will be based at our London office, but there will also be a requirement to travel extensively in the UK and occasionally overseas for the client-related audit work.

Key accountabilities:

Carrying out Technical Support activities based at our London office, including:

- Review of audit reports and associated documentation for approval of certificate issue
- Providing support to technical aspects of quotations and other commercial offerings
- Reviewing and approving auditor competencies and technical areas of activity
- Supporting internal audit, auditor witnessing and UKAS audit activities
- Managing internal and external communications on technical matters

Carrying out Lead Auditor activities, including:

- Conducting all aspects of client audits for accredited certification against approved schemes
- Planning, preparation and management of client audit activities
- Using all relevant certification databases and software applications for audit activities
- Maintaining and developing own technical competencies and skills for audit activities

To apply, please visit the DNV-GL careers page: www.dnvgl.com/careers

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EIA Co-Ordinators

Competitive salary

Environment Agency

We're investing £2.5billion between now and 2021 that will reduce flood risk to 300,000 homes across the UK. It's an exciting time and we need your help to ensure that this work is delivered with full attention to the environmental impact.

Our National Environmental Assessment Service (NEAS) manages the environmental assessments and consents for the flood projects that the Agency builds. Joining the team as a (Senior) Environmental Project Manager, you'll play an important role in delivering positive outcomes for people and wildlife alike.

Both roles draw upon a diverse range of skills. Working closely with other teams, you will be involved in:

- Ensuring that engineering projects are environmentally compliant
- Screening, planning and co-ordinating the delivery of Environmental Impact Assessments (EIAs)
- Working with a variety of environmental stakeholders
- Identifying environmental opportunities and delivering multiple benefits
- Working with external suppliers and other Environment Agency specialists within integrated project teams
- Strategic Environmental Assessment of our strategies and plans

Experience/skills required

You'll have excellent communication skills and the ability to develop strong relationships with internal and external partners. For the senior roles, it's advantageous to have project management skills too.

You must have an environmental background and a relevant degree (or equivalent) and are working towards a relevant professional qualification such as Associate or Practitioner IEMA.

For the Senior positions, you will also

- be able to show where you've worked with others to deliver environmental success
- have experience reviewing statutory environmental statements, and SEAs and co-ordination of statutory EIA
- be able to demonstrate a good understanding of different technical areas of expertise, such as habitats regulations, planning or environmental design
- have obtained or be working towards Full or Chartered Membership of your professional institution (e.g. IEMA or CIWEM).

We are always looking at good practice from other sectors and so experience in the water industry is not essential, if you have valuable experience to offer.

Contact and additional information

There are 12 positions available (9 x Senior Environmental Project Managers and 3 x Environmental Project Managers). More information about the role, locations and application process can be found in the candidate pack available on our recruitment portal: **environmentagencyjobs.tal.net/vx/appcentre-1/candidate**

You will need to hold a full UK driving licence.

The closing date for applications is 31 January 2017. If you have any questions about the role, please contact Jo Murphy at **joanne.murphy@environment-agency.gov.uk**

New opportunities available to join us in...

Arup Environment Consulting

Develop your career on world class environmental projects within the rail, highways, aviation, energy, water, property and digital sectors. We have opportunities at all levels for environmental, health and equalities impact practitioners as well as for specialists across all disciplines ranging from acoustics to zoology.

Join us in growing our team across the UK.

15
offices where you could join us

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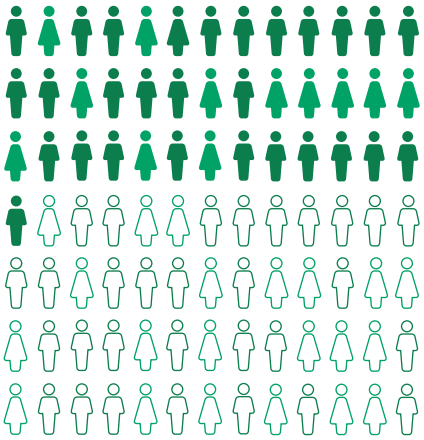
world class environmental consultants, with many new opportunities for you to explore



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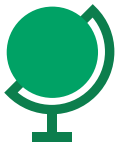
46
countries providing extensive opportunities for you



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