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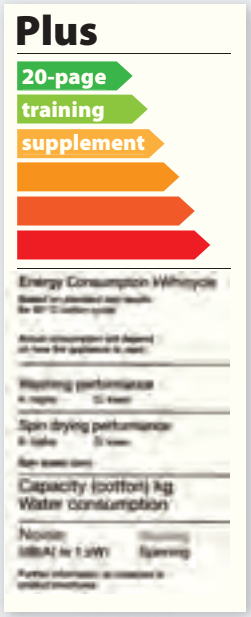

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Taking responsibility

News that the government has set tough emissions targets for the middle of the next decade (p.5) is welcome. According to DECC, the 1,950 $MtCO_2e$ cap for the period from 2023 to 2027 puts the UK on course to reduce its emissions by 80% against 1990 levels by 2050. We already know that the UK will exceed its target under the Kyoto Protocol. Good news all round then? Not quite. We should support the setting of ambitious domestic targets and hope it encourages other countries to adopt similarly tough goals. We should also acknowledge that the UK is one of the better Kyoto performers. We should not forget, however, that one of the main reasons an 80% reduction by the middle of the century is even a possibility and for the UK meeting its commitments under the international climate change agreement is because much of its discharges have been sent overseas.

A recent study published in the Proceedings of the National Academy of Sciences found that emissions from imported consumer goods exceeded by five times the emission savings made by industrial nations between 1990 and 2008. It says the net emission transfers via international trade from developing to developed countries increased from 0.4 Gt CO_2 in 1990 to 1.6 Gt CO_2 in 2008, exceeding the Kyoto Protocol emission reductions. Defra admitted in 2008 that while domestic emissions from the production of goods and services in the UK fell by 5% between 1992 and 2004, those from consumption – including emissions embedded in imports – actually rose by 18% over the same period.

While tough GHG-reduction targets sound good, the UK and other industrialised countries are only meeting them by shifting emissions to the developing world

So, while tough targets sound good, the UK and other industrialised countries are only meeting them by shifting emissions to the developing world. As a result, global emissions continue to rise. The latest figures from the International Energy Agency reveal that energy-related carbon emissions reached a record level last year – 5% up on the previous record in 2008. We are very far from achieving the goal of preventing a temperature rise of more than 2°C, which is considered "safe". We need to do much more. Taking responsibility for embedded emissions is an important first step.

Paul Suff, editor

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IEMA works alongside government, the media and industry to enhance the recognition of the profession and promote the importance of practitioners in combating climate change, working towards a low-carbon economy and building a sustainable future.

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Short cuts

New green ministers

The newly elected Scottish parliament and Welsh Assembly government (WAG) have confirmed which ministers will be taking responsibility for environmental policy going forward. Scottish first minister, Alex Salmond, has announced that Richard Lochhead is to remain in his role as cabinet secretary for rural affairs and the environment, which he has held since May 2007. Lochhead is sure to have a key role in pushing forward renewable energy development, after Salmond committed the country to producing 100% of its electricity renewably by 2020. The Scottish parliamentary announcement came just days after the new Welsh first minister, Carwyn Jones, confirmed that John Griffiths has been appointed as the WAG minister for the environment and sustainable development. Another new addition to the WAG ministerial team is Alun Davies, who has been appointed as deputy minister for agriculture, food, fisheries and European programmes.

UK lags on 16001

Figures compiled by the German Federal Environment Agency show that 150 sites worldwide had achieved EN16001 certification by the start of May. German organisations lead the way, with 28 certifications for the energy management standard, followed by Sweden (24) and Ireland (17). Just 10 UK-based sites have so far achieved certification. BSI launched 16001 in 2009 to help organisations establish the systems and processes to improve their energy efficiency and reduce greenhouse-gas emissions. The standard specifies the requirements for an energy management system to enable an organisation to develop and implement a policy, identify significant areas of energy consumption and target energy reductions. It can be used in isolation or with other management systems, such as 14001.

Mixed reaction to consultation on mandatory GHG reporting

Emissions A Defra consultation on whether companies should be forced to report their greenhouse-gas (GHG) emissions has sparked a debate as to the effectiveness of the approach.

While many business and environmental organisations have responded enthusiastically to the consultation, the manufacturers' body the EEF has warned that the government needs to consider its approach to climate change policy more strategically.

"With ongoing discussions about the future of climate change agreements and the Carbon Reduction Commitment Energy Efficiency scheme, as well as the requirements of the EU emissions trading scheme to consider, our concern is that mandatory reporting isn't seen in isolation," said Susanne Barker, EEF senior climate and environment policy adviser. "A holistic view must be taken on how these mechanisms will slot together to drive the right behaviour, but not be overly onerous, expensive and there for its own sake."

Doug Parr, Greenpeace's director of policy, also remains unconvinced. "Carbon footprinting has an important role to play, but I'm not sure that making it mandatory is the best option," he said. "The danger is that businesses will spend too much time measuring and not enough time managing."

However, the Carbon Disclosure Project (CDP) disagrees, arguing that "what gets measured gets managed."

"Mandatory carbon reporting is a win-win-win situation," said Cassie Chessum, CDP's head of government relations. "It provides transparency for shareholders, encourages behaviour change in businesses and supports government objectives to mitigate climate change. The government should seize this opportunity and introduce the required regulations."

With more than 80% of IEMA members believing mandatory reporting should be introduced (www.lexisurl.com/iema7075), the Institute has also welcomed the consultation.

"UK plc is at a turning point with environmental reporting; with the right support from government we can move GHG reporting into the mainstream and turn this into a business opportunity by helping companies to reduce costs and improve their competitiveness," said policy director Martin Baxter.

The launch of the consultation came as the Environment Agency published its disclosures report which revealed that only 25% of FTSE listed companies reporting on their carbon dioxide emissions, water use or waste creation provided figures in line with government guidance.

The consultation closes on 5 July (www.lexisurl.com/iema7077).

Puma leads the pack

Puma's environmental footprint costs £82.7m

International sportswear firm Puma has become the first company to publish the cost of the greenhouse gas (GHG) it produces and the water it wastes, in a ground-breaking environmental profit and loss statement.

Puma has calculated its overall environmental impact in 2010 as costing £82.7 million, with GHG emissions accounting for just under half of the total (£40.8 million).

"The environment profit and loss statement is an essential tool and a shift in how companies can account for and integrate into business models the true costs of their reliance on ecosystem services," said Jochen Zeitz, chair of Puma.

The report reveals that Puma's supply chain accounted for 85% of its GHG emissions and more than 99.9% of its water consumption. Zeitz, who has come out in favour of mandating GHG emissions reporting, confirmed that Puma will be

Government approves deep carbon cuts by 2027

Energy minister makes concessions to appease coalition critics

Climate change UK carbon emissions will halve by 2025 compared with 1990 levels if the fourth carbon budget set by the government is met.

After several weeks of internal disagreement, with several cabinet members against committing the UK to the tough new targets, energy and climate change secretary Chris Huhne confirmed that the government is backing the budget recommendations made by the Committee on Climate Change (CCC) for the period 2023 to 2027.

Under the Climate Change Act 2008, the government must set legally binding budgets for UK emissions. The first three budgets, from 2008 to 2022, were set in April 2009. The fourth carbon budget puts a cap on emissions equivalent to 1,950 million tonnes of CO_2 for 2023–27, putting the UK on course to cut emissions by at least 80% by 2050.

Evidence of the tensions within the government was demonstrated by the decision to agree a budget review in 2014, with the target potentially scaled back if other EU countries have not adopted similarly ambitious goals. "If our domestic commitments place us on a different emissions trajectory than the EU emissions trading system trajectory agreed by the EU, we will, as appropriate, revise our budget to align it with the actual EU trajectory," said Huhne.

In a further move to appease critics, such as the chancellor George Osborne and business secretary Vince Cable, Huhne said that energy-intensive sectors would receive help to adjust to the low-carbon industrial transformation and remain competitive. Details of the package of measures will be announced by the end of the year. The government also declined to tighten budgets two and three, which had been recommended in December by the CCC, and will buy offset credits in the international carbon markets to assist in meeting the 2023–27 targets, something the committee had advised against.

Despite these assurances, manufacturers criticised the budget. The EEF, the manufacturers' organisation, described the decision to sign up to significantly more ambitious targets to reduce carbon emissions as disappointing. "In the absence of convincing evidence of any appetite in the rest of Europe to make such a move, this risks damaging manufacturing competitiveness," it said.

The UK concrete industry offered a similar assessment, warning that the approach could negate potential carbon savings by replacing highly regulated UK products with imports that have a higher CO_2 impact due to less rigorous environmental standards and transportation.

Following Huhne's announcement, Tata Steel partly blamed carbon regulation in the UK for more plant closures and job losses. "There remains a great deal of uncertainty about the level of further unilateral carbon cost rises that the UK government is planning. These measures risk undermining our competitiveness and we must make ourselves stronger in preparation for them," said Karl-Ulrich Köhler, managing director of its European operations, announcing proposals to close or mothball UK plants, putting at risk 1,500 jobs.

The decision to allow the 2023–27 targets to be partly secured by purchasing offsets was also criticised. "Buying offsets means that money will be spent on low-carbon investments overseas rather than helping to create a low-carbon economy here in the UK," commented Martin Baxter, director of policy at IEMA.

The Institution of Mechanical Engineers questioned whether the budget was achievable. "The scale of the engineering deployment required to reduce emissions on this scale, in terms of energy, transport and other engineered infrastructure, is unprecedented and has never been seen in any industrialised nation before," it warned.

The budgets to 2022 commit the UK government to reducing emissions by 34% against 1990 levels. Separately, the Scottish government is aiming to achieve a 42% cut by the same date under the Climate Change (Scotland) Act.

Short cuts

EMR criticised

The government's proposals to reform the electricity market will not do enough to attract the £110 billion needed to transform the sector and are overly complicated, expensive and lacking in urgency, according to the Energy and Climate Change Select Committee. In its fourth paper on electricity market reform (EMR), the select committee argued that proposed reforms discussed in DECC's consultation on the EMR needed to be clearer on decarbonisation targets, do more to break up the dominance of the big six electricity companies and revisit the feed-in tariff concept to ensure the sector is able to attract the investment it needs. The report, which shadow energy minister Huw Irranca-Davies described as a wake-up call, puts pressure on DECC to revise its EMR white paper, due to be published before the government's summer recess.

Recovery of rare earths

Research for the Environment Agency, the EU LIFE programme and European Pathway to Zero Waste looking at the technical feasibility and commercial viability of recycling 14 critical raw materials has identified 10 ways to recover them and reduce Europe's dependence on imports. The potential solutions advanced by analysts Oakdene Hollins include: reusing landing gear (beryllium) and superalloys in engines in the aerospace industry; removing and recycling rare earth magnets in hard disk drives; and improving the collection of portable Li-ion batteries to allow recovery of the cobalt and graphite content. Recovery and recycling can only partly satisfy soaring demand, however. "We found that a good proportion of seven materials, including indium, tungsten and the rare earths, can be recycled," says project leader Adrian Chapman at Oakdene Hollins, "but growing demand forecast for their use in electric vehicles, wind turbines and solar photovoltaics means that only a portion of world supply can be met by recycling."

IN PARLIAMENT

Energy plan A or plan B – it's time to choose

Alan Whitehead MP for Southampton Test

The Energy and Climate Change Select Committee recently reported (p.5) on electricity market reform (EMR), looking at the government's proposals. It's a vast and complex topic; and it is a moot point whether the proposals will "fix" energy markets to come to terms with supply and demand conditions in future years. One element in all this is clear though: the government sees much of the load of future guaranteed "baseload" power being borne by nuclear power. Current projections are that between 2018 and 2025, one new nuclear power station will come on stream every nine months.

Whatever your views are about the wisdom of pursuing new nuclear power generation, it is highly unlikely that the numbers of nuclear power stations projected will be built by 2025. The planning and build time for new nuclear means that building should now be under way: it isn't and doesn't look like it will be in the immediate future. The recent tragic events in Japan, and likely increasing costs for safety measures, make it even less likely that early investment and building will take place. It is also unlikely because government policy on nuclear new build is that there should be no public subsidy for new nuclear power stations. However, the select committee report reveals that there is currently a powerful, if undeclared, slew of subsidies available for the nuclear industry going forward.

The danger is that this contradictory approach may not provide the level of assistance for building that will produce any results, but that in the meantime the whole design of the EMR will be tilted towards subsidy arrangements. The committee essentially says that either new nuclear should be publicly supported and funded (and therefore built) or that we should recognise that "no public support" will mean no new nuclear power stations and we should plan for alternatives. Plan A or plan B? It is time to urgently bring this debate forward.

UK infrastructure at risk

Flooding Funding for local flood protection must be extended to protect infrastructure assets, warns the Institution of Civil Engineers (ICE) as UK energy, transport and communications companies are told to prepare for more extreme weather conditions.

In a new report, ICE argues that proposed changes in financing flood protection, which sees grants allocated according to the number of households to be protected, could lead to funding gaps, leaving infrastructure assets unprotected.

The ICE report follows publication by Defra of a new study on the importance of ensuring the UK's infrastructure is prepared for climate change. "Our economy cannot grow if there are repeated power failures, or goods cannot be transported because roads are flooded and railways have buckled," said the environment secretary, Caroline Spelman.

Defra's report – entitled *Climate resilient infrastructure* – calls on companies that own and operate facilities crucial to the UK's water, energy, transport and communications network to design and locate new assets in the best way to cope with the predicted effects of climate change, as well as ensuring the improvement of existing facilities.

Railway infrastructure needs protection from flooding

However, the ICE report argues the government has an equally important role in helping to protect such facilities through funding flood-protection programmes. "The government's new funding approach could be a very powerful tool for changing the way we fund local projects, but it is crucial that the formula is carefully designed to encourage private investment and protect our critical infrastructure," said Dick Thomas, chair of the ICE report steering group.

The reports came as the UK's chief inspector of nuclear installations confirmed in his interim report on the implications of the Fukushima disaster that there was a potential risk of flooding near nuclear sites.

UK ecosystems undervalued and weakening

Biodiversity Almost one-third of the UK's ecosystems services are in decline and decision makers have consistently failed to consider the billions of pounds the natural environment brings to the economy, according to the first National Ecosystems Assessment (NEA).

The NEA (www.lexisurl.com/iema7091) examines and places a financial value on the benefits ecosystems services provide, from clean drinking water and flood control to natural medicine and aesthetic pleasure. Pollinators such as bees, for example, are estimated to be worth £430 million each year to the country's agricultural sector.

The assessment outlines six possible futures for the country with differing appreciation of the value of ecosystems services. Looking forward to 2060, the report estimates that a focus only on the market value of ecosystems services goods, such as foodstuffs, could cost the country £50 billion a year in comparison with a future that incorporates a wider understanding of the value of ecosystems.

"There is an urgent need to better manage our ecosystems and the natural resources they provide us with," said Professor Bob Watson, chief scientist at Defra and co-chair of the NEA. "The NEA shows we need a more integrated approach to ecosystem management, involving government, the private sector, voluntary groups and the public working together to protect the services nature provides."

Meanwhile, the European Commission has announced a new strategy to halt biodiversity loss by 2020 (www.lexisurl.com/iema7081). The commission plans to create legislation combating invasive biological species and pledges to further integrate biodiversity monitoring and reporting into the Common Agricultural Policy. It also expects all EU member states to assess their ecosystems and develop a strategic framework to set priorities for ecosystem restoration by 2014.

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Short cuts

Plastic bags out?

A European consultation on reducing the use of plastic carrier bags has been criticised by the UK's Packaging and Films Association (PAFA) as unsupportable. PAFA chief executive, Barry Turner, described the proposals as an "ill-informed and unwarranted intervention that appears to be politically motivated". Each year, EU citizens use 500 plastic carrier bags each; the consultation asks whether charging and taxation would be effective in reducing the number of bags used, or if other options such as an EU ban on the bags would be better. However, Turner says the consultation is unfairly targeting a "highly responsible industry ... [which is] helping educate consumers on the need to reduce, reuse and recycle" and that the proposal "will bring no environmental benefits". European commissioner for environment, Janez Potočnik, argues there is a widespread desire for change in the use of the bags which are used for only a few minutes but have a long-term effect on the environment. The online consultation runs until 9 August (www.lexisurl.com/iema7079).

Yes to UK shale gas

MPs on the Energy and Climate Change Committee have given their backing to shale gas drilling in the UK despite mounting evidence in the US of the negative environmental impacts of such operations. The inquiry, however, found no evidence that the hydraulic fracturing process involved in shale gas extraction – known as "fracking" (*the environmentalist*, May) – poses a direct risk to underground water aquifers, provided the drilling well is properly constructed. The committee concluded that, on balance, a moratorium in the UK is not justified or necessary at present. "There has been a lot of hot air recently about the dangers of shale gas drilling, but our inquiry found no evidence to support the main concern – that UK water supplies would be put at risk," said committee chair, Tim Yeo.

Firms ignoring energy-efficiency measures

Energy Research by British Gas Business (BGB) suggests that the majority (70%) of UK businesses are not currently considering investing in energy-efficiency measures, putting organisations at risk from rising prices and the costs of complying with carbon regulation.

£25,000 is the average annual business energy bill

BGB estimates that the average annual business energy bill is £25,000, and energy costs comprise one-fifth of a company's operational running costs. These costs are rising, with recent volatility in the energy markets seeing power prices increase by 30% during the past six months alone.

It recommends taking a range of low- and no-cost measures, such as monitoring energy use, installing energy-efficiency devices or technology and analysing data, to better manage consumption. According to BGB, these can quickly save 10% on energy bills. More expensive solutions, such as installing building controls or microgeneration equipment, can save a further 20%, it estimates.

As well as cutting energy bills, improving energy efficiency can also reduce the financial burden imposed on organisations covered by the Carbon Reduction Commitment Energy Efficiency scheme.

"The combination of rising costs, tough targets and complex regulation is a potent mix. But simple steps, and a range of low- and no-cost options can make the difference," says BGB managing director, Kanat Emiroglu.

Meanwhile, the Carbon Trust claims that small and medium-sized enterprises in the UK could collectively save nearly £400 million a year in energy costs, and more than 2.5 million tonnes of $C0_2$-equivalent emissions, by reducing their carbon footprints and certifying their efforts under its Carbon Trust Standard.

ETS emissions rise 3% in 2010

Emissions New figures for 2010 show that greenhouse-gas (GHG) emissions from installations covered by the EU emissions trading scheme (ETS) increased by 3% compared with 2009 levels.

Verified GHG emissions from the more than 12,000 participating installations were 1.93 billion tonnes of CO_2-equivalent last year. Emissions from the 1,136 UK installations covered by the ETS increased by just over 2.3%.

The European Commission says the 3% pan-EU rise reflects the improving economic conditions in 2010 following the recession, which saw ETS emissions fall 11.6% in 2009. The rise in emissions is substantially lower than the rebound in output from industrial installations across the EU 27, however, which averaged 6.7% last year. "The emissions increase in 2010 reflects the economic recovery, but even after the economy coming back to normal, the EU ETS emissions remain well below the cap for the 2008–2012 trading period," said climate action commissioner, Connie Hedegaard.

Cambridge Econometrics has provided more evidence that the recession delivered a sharp fall in UK carbon emissions in 2009, followed by a modest rise in 2010. The analyst's latest forecast suggests a rise of around 2% in domestic carbon emissions in 2010, driven by increases in emissions from households, industry and commerce. The forecast also says that the UK is likely to miss the previous government's long-standing goal of reducing CO_2 emissions, based on domestic abatement effort, by 20% against 1990 levels by 2010. Cambridge Econometrics estimates that only a 15.5% reduction was achieved by the end of 2010.

Seven CCS projects compete for funding

Carbon capture Seven potential carbon capture and storage (CCS) demonstration projects are among 12 UK applications submitted to the European Investment Bank (EIB) for consideration in the next round of the EU New Entrant Reserve (NER) scheme – a fund, worth around €4.5 billion, to support CCS and innovative renewable projects across the bloc.

The seven CCS applications are:

- an oxyfuel new coal-fired power station on the Drax site in North Yorkshire;
- an integrated gasification combined cycle (IGCC) power station at Killingholme, Yorkshire;
- a post-combustion amine capture on a new coal-fired power station in Ayrshire, Scotland;
- a new IGCC power station at Stainforth, Yorkshire;
- a pre-combustion coal gasification project at Teesside, northeast England;
- a post-combustion amine capture retrofitted to an existing coal-fired power station at Longannet, Scotland; and

The Drax power station could be home to a new CCS facility

- a post-combustion capture retrofitted to an existing combined-cycle gas-turbine power station at Peterhead, Scotland.

Research has revealed that the three proposed Scottish CCS demonstration projects could be worth £3 billion to the national economy and generate 5,000 new jobs in construction and operation. The Scottish government has pledged that new coal-fired stations in Scotland must demonstrate CCS on at least 300MW of its capacity from day one, with 100% CCS expected on new builds from 2020.

The EIB will now undertake a due diligence exercise on the applications submitted to the NER, checking their financial and technical deliverability. Successful CCS projects will secure funding for up to 50% of their relevant costs over a 10-year period.

Meanwhile, the UK government insists that it remains committed to continuing public sector investment in four CCS demonstration plants, and aims to launch a selection process later this year to identify the projects. In the Budget, the chancellor said the government would now not go ahead with a levy on energy bills to fund the projects. Instead, it plans to fund CCS from general taxation, which has caused concern in the industry.

CASE LAW

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Saving Britain's heritage

In *R (on the application of Save Britain's Heritage) v Secretary of State for Communities and Local Government and another* [2011] EWCA Civ 334, the Court of Appeal declared that:

- demolition of buildings was capable of constituting a "project" affecting the environment (within Annex II of the Environmental Impact Assessment Directive (85/337/EC) (EIA Directive); and
- subparagraphs (a) to (d) of the Town and Country Planning (Demolition – Description of Buildings) Direction (which exempts demolition from planning control) were unlawful.

The case involved the decision by Lancaster City Council to authorise the demolition, without prior approval, of the historic Mitchell's Brewery. It was common ground between the parties that demolition of buildings would have significant effects on the environment. The secretary of state contended that demolition does not fall within a "project" in the EIA Directive. This would have the effect that the proposed demolition would fall outside the planning control provisions. However, if the proposed demolition amounts to development, it falls within the planning application process and an EIA must be produced.

For the first time, the judgment brings all demolitions into the scope of the EIA Directive. Previously, the secretary of state had maintained that demolition fell outside the EIA Directive as it did not constitute a "project". Now, any proposed demolition that is considered to have significant impact on the environment will be subject to the EIA process.

The ruling will have widespread implications for planning authorities, and a particular and immediate impact on proposed demolitions of large areas of terraced housing under the imminently defunct Housing Market Renewal (Pathfinder) Initiative. The judgment also means that demolition proposals of listed buildings and buildings in conservation areas may need EIAs.

The Court of Appeal's decision also confirms that the government's interpretation of the EIA Directive has, until now, been too narrow and was wrong to exclude demolition from its scope, given the serious environmental impacts that can result. A further consequence is that where a proposed demolition is likely to have significant effects on the environment, permitted development rights will be withdrawn. The developer will then have to apply for planning permission and an EIA will have to be carried out. Permission to demolish might then be refused.

Colleen Theron and Deirdre Lyons, LexisPSL

GIB key to low-carbon transition

Business secretary outlines progress on the Green Investment Bank as Treasury squeezes DECC spending


Offshore wind and waste projects will receive GIB funds

Government The offshore wind and waste sectors are likely to be the first to benefit from investments by the Green Investment Bank (GIB), according to the business secretary, Vince Cable.

Following pledges in the Budget to boost the level of funding available to the GIB from £1 billion to £3 billion, Cable has confirmed plans for the bank to begin investing by April 2012 in a progress report outlining the government's strategy (www.lexisurl.com/iema7080).

The business secretary also confirmed that the GIB's main aim is to support the transition to a low-carbon economy by accelerating private sector investment. Its key areas of focus will be mitigating risk for investors, lowering the cost of investment and covering shortages in private capital.

"The GIB's initial remit will be to focus on green infrastructure assets," he said. "It will work to a 'double bottom line' of achieving significant green impact and making financial returns. It will also operate independently and at arm's length from government."

CBI director-general, John Cridland, welcomed the announcement but warned that the GIB must have teeth if it's going to deliver the £200 billion of investment needed to green the UK's infrastructure. "The bank won't work if it needs the Treasury's permission to blow its nose," he argued.

His comments echo criticisms of recent moves giving the Treasury control over DECC levy-funded spending. Under a control framework approved in March, DECC climate change policies funded through levies on energy bills, including the feed-in tariff scheme and the Renewables Obligation, are now subject to an overall spending cap of £11.8 billion until 2014–2015. The framework means DECC must now gain Treasury approval for any new policies to be funded from this budget.

"This appears to place unnecessary barriers to delivering sustainable and green projects to reduce carbon emissions. It restricts DECC's flexibility to innovate and to invest in the green economy," said Michael Lunn, director of policy at the Environmental Industries Commission. Greenpeace's director of policy, Doug Parr, likened the move to "giving accountants control of research and development".

INSIDE SCIENCE

Modelling the future

In climate science it's often said that "the past is no guide to the future." The inherent (chaotic) complexity of the climate system, coupled with the recent unprecedented increases in volumes of greenhouse gases puts us into uncharted territory where past patterns cannot be simply extrapolated forward. This has created a demand for climate models – mathematical simulations of how the climate works, based on what is known about the physics of the climate system. These tell us what happens to the energy received from the Sun: how it affects the atmosphere, oceans, land and ice etc, and how perturbations to the climate system – through, for example, changes in GHG emissions – affect this energy balance and the future climate.

The 1960s saw a significant breakthrough that has really set the path for climate modelling, with the creation of "general circulation models". These divide the earth into a three-dimensional grid and "run" the basic climate equations for each cell of the grid. If we were to divide the atmosphere into one-degree grids (about 110km long at the Equator), and about 20 vertical layers, this gives more than one million sets of climate equations that all must be run to move the whole model forward one time-step. If such a time-step is half an hour, and we wanted to look forward to the end of the century, each of these million calculations would need to be recalculated about 1.5 million times – hence the close links between modelling progress and developments in high-performance computing.

Model teams test their approaches using various "hind-casting" techniques to look back and and see how well they are able to reproduce the observed historical and paleontological climate records. It has been more difficult to test uncertainty in models for forward projections in time. Now, "ensemble" techniques – where the same model is run thousands of times, varying the parameters within plausible ranges – are applied using computers to develop a model where the probability of particular outcomes can be estimated against a large range of results.

An analogy would be sampling 10 playing cards (a single model run) from a full pack. There's no immediate way of knowing whether, say, the two red and eight black cards picked by chance are a good representation of the pack. If, however, we sampled 10 cards thousands of times, we would get a very good idea of the risk of betting on this 8:2 outcome. The UKCP09 climate projections use exactly this approach – taking thousands of samples (model runs) to create "probabilistic projections". This allows decision makers to get a feel for how likely particular model outcomes or ranges of outcomes are.

Professor Robert Watson and Dr Rupert Lewis, Defra

NEW REGULATIONS

In force	Subject	Details
29 March	Waste	The Waste (Miscellaneous Provisions) (Wales) Regulations 2011 supplement the Waste (England and Wales) Regulations 2011 by amending several Welsh statutory instruments – including the Hazardous Waste (Wales) Regulations 2005, the Landfill Allowances Scheme (Wales) Regulations 2004, the List of Wastes (Wales) Regulations 2005, the Environmental Protection (Duty of Care) (Amendment) (Wales) Regulations 2003 and the Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 – to transpose, in Wales, EU Directive 2008/98/EC (the revised Waste Framework Directive). www.lexisurl.com/iema6985
6 April	Planning	The Planning (General Development) (Amendment) Order (Northern Ireland) 2011 amends the 1993 Order by inserting a new part that allows microgeneration equipment to be installed under permitted development rights. www.lexisurl.com/iema6518
13 April	Energy	The Home Energy Efficiency Scheme (England) (Amendment) Regulations 2011 amend the 2005 Regulations and provide the legal basis for "warm front" energy efficiency measures. www.lexisurl.com/iema6729
15 April	Waste	The Landfill (Amendment) Regulations (Northern Ireland) 2011 amend the 2003 Regulations by changing the definition of a landfill operator. www.lexisurl.com/iema6535
19 April	Water	The Water (Prevention of Pollution) (Code of Good Agricultural Practice) (Wales) Order 2011 approves, under s.97(1) of the Water Resources Act 1991, the Code of Good Agricultural Practice to protect water, soil and air quality which was issued by the Welsh ministers on 30 March 2011. www.lexisurl.com/iema6986
30 April	Emissions trading	European Commission Regulation 394/2011 amends Regulation 748/2009 by replacing Annex I – the list of aircraft operators that will become part of the EU emissions trading scheme (ETS) – to Directive 2003/87/EC specifying the administering member state for each aircraft operator to be included in the ETS following the decision to include aircraft from European Economic Area/European Free Trade Association countries. www.lexisurl.com/iema6979
4 May	Waste	Single Use Carrier Bags Act (Northern Ireland) 2011 introduces modifications to s.77(4) of, and Sch. 6 to, the Climate Change Act 2008, and allows the Department of the Environment (DoE) in Northern Ireland to introduce regulations that require any charges collected by retail outlets for single-use carrier bags to be paid to the DoE. www.lexisurl.com/iema6992
4 May	Environment	Clean Neighbourhoods and Environment Act (Northern Ireland) 2011 includes measures relating to litter and graffiti, noise and statutory nuisances. It also increases the maximum penalty for certain pollution offences. www.lexisurl.com/iema7122
5 May 2011/12 January 2012	Chemicals	European Commission Regulation 366/2011 amends Regulation 1907/2006 to include acrylamide (commonly used in construction grout) in Annex XVII of the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) Regulation (2006/1907/EC). Regulation 366/2011 came into force on 5 May. The European Commission has also issued a separate Regulation 494/2011 which also amends Annex XVII. It effectively bans the use of cadmium in jewellery, plastics and brazing sticks in the EU. In relation to plastics, the new legislation prohibits cadmium in all plastic products, though the recovery of PVC waste that contains cadmimum for use in a number of construction products will be encouraged. A specific logo will be introduced to inform buyers of products made of this recovered PVC. Regulation 494/2011 comes into force on 12 January 2012. www.lexisurl.com/iema6978 www.lexisurl.com/iema7043

EVENTS CALENDAR

Date	Course	Location and details
28 June 2011	The water, waste and energy interface – realising the potential of anaerobic digestion	SOAS, London www.lexisurl.com/iema6968
29 June 2011	The solar future: UK II	Central Hall, Westminster, London www.lexisurl.com/iema6976
29 June 2011	Understanding and exploiting green incentives	Wolfson Theatre, London School of Economics, London www.lexisurl.com/iema6969
29–30 June 2011	Offshore wind 2011	ACC, Liverpool www.lexisurl.com/iema7052
6–7 July 2011	UK AD and Biogas 2011	NEC, Birmingham www.lexisurl.com/iema6742
12–14 July 2011	5th international conference on sustainable development and planning 2011	Lyndhurst Park Hotel, Lyndhurst www.lexisurl.com/iema6974
18–22 July 2011	6th international conference on environmental future	Newcastle University, Newcastle www.lexisurl.com/iema6972
5–9 September 2011	European wave and tidal energy conference 2011	University of Southampton www.lexisurl.com/iema6975

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Global ambitions

Catherine Early reports on how Unilever and P&G are both pursuing bold sustainability agendas

As two of the biggest food and consumer goods companies in the world, Unilever and P&G (formerly Procter & Gamble) have gargantuan environmental footprints. But the sheer size of these companies also means that if they really carry through their sustainability visions, they have the power to bring about significant changes – from their own supply chain to consumer behaviour.

Both companies have upped the ante on their sustainability ambitions in the past few months, seeing it as a central issue in growth plans. In November 2010, Unilever – which owns brands such as Dove, Walls and Hellmans – announced that it was to halve the water, waste and carbon impacts of its products and ensure all its agricultural raw materials are sustainably sourced by 2020. This came hot on the heels of the release of a sustainability "vision" by P&G – whose brands include Ariel, Gillette and Pringles – in September 2010. The company pledged to use only renewable or recycled materials in products and packaging, and stop all manufacturing and consumer waste going to landfill.

Two views of sustainability

Peter White, P&G's director for global sustainability, explains that the company has had a sustainability strategy since 1999, but this was boosted in 2007 when it added a specific principle incorporating sustainability into its products, packaging and operations to its mission statement. "Up until then it had always been the concept of doing the right thing, but in 2007 we used the 's' word and put it specifically into the purpose, value and principles of the company," he says.

P&G sees sustainability in terms of business opportunity, not just responsibility to the environment. Sustainability can protect the business and save money, but can also help build the business through new products that save consumers money too, such as concentrated washing liquid, he explains.

Karen Hamilton, vice-president of sustainability at Unilever, says that the company's priority is growth, but that it believes this is not possible with a business-as-usual approach. With the global population expected to grow to nine billion by 2050 and the corresponding rise in resource demand, the company needs to look for a new way to respond, she explains. "We've set ourselves a vision to decouple business growth from our environmental impact and really use sustainability as a

key driver for our business growth."

Hamilton believes that Unilever's plan is different to those of other corporations as it does not distinguish between various parts of the business or geographical locations, but covers all 400 of its brands in the 170 countries where it operates.

On target

Both P&G and Unilever have already made significant progress on previous targets. P&G said in 2007 that it would reduce energy, waste and CO_2 by 20% by 2012. So far, White reports that energy and CO_2 are down 14% and 11% respectively, while waste has been slashed by 50% and water reduced by 16%. Although the 20% target refers to each unit of production, rather than "absolute" or overall figures, P&G's sustainability report reveals that it has achieved an absolute cut in all these areas. Unilever, meanwhile, claims that it has cut its absolute carbon emissions by 40%, water by 66% and waste by 75% in the past 15 years.

The strategies of both companies are bursting with new targets. Unilever's latest plan tightens up one originally published in 2009. The stated aim of that plan was to "reduce our overall environmental impact while doubling the size of our business". However, there was no timescale for this strategy, and neither was there any clarity on how progress would be measured. The updated plan now gives a deadline of 2020 for its aims. These include the ambitious goal of halving the carbon, waste and water impacts of its goods across their life cycle. The company wants to double its sales over that period, so in effect its overall environmental footprint would remain at its current level.

Nevertheless, a target that involves decoupling business growth from environmental impacts is extraordinarily ambitious. Unilever has measured the impact of 1,600 products, which represents 70% of its sales volume. This has revealed what Unilever admits is its biggest challenge. Manufacturing accounts for 3% of the total greenhouse-gas (GHG) emissions of the average Unilever product, while raw materials are responsible for 26%. By far the biggest impact comes from consumer use, at 68%.

Similarly, White says: "P&G's biggest energy footprint over the life cycle of a product is heating water to wash clothes. It's very clear that the energy use in P&G plants is very small compared to that used in people's homes."

In an effort to reduce their own environmental footprints, both companies are therefore targeting one of the most tricky issues of all – that of consumer behaviour. P&G has developed Ariel Cool-Clean, while Unilever has Persil Small and Mighty, which allow consumers to wash clothes at temperatures as low as 15°C. Unilever estimates that Persil Small and Mighty not only uses half the water and half the packaging in its creation, but also reduces emissions by 10–50% per washing load. Hamilton says: "Unilever laundry products are used by one in three people globally, so that's 1.25 billion washes a year. If we can make small changes like this, we can start to save significant amounts of carbon."

Making progress

Of course, the difficulty with targeting consumer behaviour change is how to measure progress. Government bodies and NGOs have also had campaigns to wash at lower temperatures, so it will be hard for either Unilever or P&G to claim that their product or campaign has had a significant effect.

White admits that this is tricky, but that there are ways of sampling consumer behaviour. "This is an area we can influence, but it's also where we need to work with other partners in industry and stakeholders such as NGOs and government agencies." P&G's own data show that, in 2002, only 2% of the UK population were washing at 30°C or less, but by 2007, it was up to 27%. White is adamant that P&G can decouple growth from environmental impact despite the reliance of this particular ambition on changing consumer behaviour. It has plans to run plants on renewable energy, ensuring the water that leaves its plants is as clean, if not cleaner, than that entering them and wants to see zero manufacturing waste going to landfill.

The sheer size of P&G and Unilever means that if they really carry through their sustainability visions, they have the power to bring significant change

P&G has more than 140 manufacturing plants globally so it will take some time to see these standards at all of them, but it has made a start. Last year it built its Milenio facility in Mexico, with more than one million square feet of manufacturing space. The water from this plant is 100% recycled, with wastewater and rooftop rainwater collected and treated by an on-site water-treatment plant. It is building 19 new plants over the next four years, all of which will use a 77-point tool that assesses siting, transport, water and energy sources. Renewable-energy technology has been installed at several plants, including solar panels on a plant in Oxnard, California and a wind turbine at Coervorden in the Netherlands.

P&G has also come up with ways of reusing waste substances produced in the manufacturing of its products. This has enabled it to achieve a 50% reduction in solid waste from manufacturing, against a target set in 2007 to reduce it by 20% by 2020. White says that P&G has achieved this through a very systematic approach. It has identified all waste material from each plant and worked out ways to use it. For example, the waste oil that comes from cooking Pringles is now sold to make biodiesel. Sludge and fibres left over

from making paper are sold to a local construction company that makes low-cost roofing tiles. This makes business sense too, as previously the company had to pay for these waste products to be taken away. "This is industrial ecology essentially, you're taking the negative away and providing a second value," White says.

Supply chain transparency

Another huge challenge for both companies is how to really know what is going on in such vast supply chains. Unilever wants to source 100% of its agricultural products sustainably by 2020. The company has been a leader in the development of sustainable sourcing, being a founder member of the Marine Stewardship Council and the Roundtable on Sustainable Palm Oil, and one of the first companies to ask its suppliers to report their carbon emissions through the Carbon Disclosure Project.

Nevertheless, hitting the target will be no mean feat as it has 10,000 raw materials and packaging suppliers and a staggering 150,000 indirect suppliers. Around half of all its raw materials are agricultural and this covers some 250 different types of crop. After 10 years of work on this issue, Unilever estimates that only 10% of its raw materials are sustainably sourced.

In order to improve its record on supply chain issues, Unilever uses a combination of third-party certification – such as the Forest Certification Scheme and Rainforest Alliance – and self-certification.

This involves farmers answering questions on a series of indicators including water and fertiliser use and labour standards. Unilever then tracks if they are achieving what they set out to do. It is also planning random annual checks on a specified number of farmers.

P&G introduced a supplier scorecard in May 2010, which covered 400 of its main suppliers. The scheme is additional to the company's existing sustainability guidelines for suppliers, which set out sourcing standards and expected performance. The scorecard measures suppliers against P&G's own target to sell $50 billion of "sustainable innovation products" (SIP) by 2012, and is intended to reward suppliers for innovative ideas.

To qualify, the product must have at least a 10% improvement in one environmental aspect over the product's life cycle, and be no worse in any other aspect. The aspects considered are energy consumption, water consumption, total amount of material used in either product or packaging, transportation and use of renewable materials. P&G developed the SIP definition and criteria with input from external stakeholders. One example is Ariel Excel Gel, which can produce energy savings of 20–50% per wash when used at 15°C. The compact product also uses up to 45% less packaging, and up to 57% fewer trucks for transport. This year, the SIP scheme is being expanded to 600 suppliers. But it will take some time to ramp up to cover all 75,000 in P&G's supply chain.

The company also uses third-party audits and supplier-sustainability guidelines. Buyers visit suppliers at least once a year and some environmental demands are written into contracts.

Despite their company's respective efforts, both White and Hamilton admit that it is impossible to know every issue in the supply chain. The potential effects of this on a company's reputation were demonstrated when, in 2009, Greenpeace named and shamed Unilever as one of a number of companies trading with Indonesia's Sinar Mas Group. The NGO accused the palm-oil supplier of breaking Indonesian law by clearing forests without undertaking environmental impact assessments. It also said it had cleared peatland near a site protected by the wetlands protection treaty, the Ramsar Convention.

The story hit the headlines globally and Unilever promptly suspended trade with Sinar Mas Group.

150 thousand
The number of indirect suppliers used by Unilever

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Catherine Early
is an environment journalist

This was the second time Unilever had been targeted by the NGO over palm oil – in 2008, Greenpeace activists occupied production lines and protested at the company's headquarters while dressed as orang-utans.

Unilever's products consume 3% of the global total amount of palm oil and it has now pledged to buy only certified oil by 2015. By the end of 2010, 15% of the palm oil it uses came from certified oil, although this was below its target of 30%.

A huge part of making a company sustainable is making sure employees understand the aims of the strategy and work to its principles

Role of the environment professional

A huge part of making a company sustainable is making sure all employees understand the aims of the strategy and work the principles into their job. P&G has environment professionals employed mainly in two areas of its business.

A team of more than 700 employees works to ensure that products are safe for human beings and the environment, while site environment leaders head up sustainability programmes at its manufacturing sites. A global sustainability department leads overall development of its strategy.

P&G also aims to spread the word throughout the company so that those employees whose job is not specifically related to the environment are on board. It publishes articles about sustainability on its intranet and has a sustainable ambassadors' network.

All employees who either work in sustainability, or have an interest in it, can link together virtually to share best practice and ideas of what solutions can be applied at site or project levels. There are around 500 ambassadors globally, White reports.

The company marks annual Earth Day by asking all employees to make a personal pledge on how they are going to incorporate sustainability into their work, and has volunteer events where employees can get involved in local environmental projects.

P&G also has a three-year partnership with WWF to increase awareness and training on sustainability. Some employees, such as plant managers, have sustainability goals integrated into their incentive programme.

Unilever has a small core team of just seven environment professionals. "We see this as something we want to drive into the heart of our business so it's counter-productive to have a big team," Hamilton says.

This team's main role is to work directly with the brand and research and development teams, so it primarily consists of people from marketing. It also has a group of environment professionals who are experts on life-cycle analysis. In the past three years, this team has measured the GHG, waste and water footprints of 1,600 of its products.

Unilever has developed a tool whereby product managers have to consider if a new product is better, worse or the same as what preceded it and that is reviewed alongside the business case. Another tool allows product teams to assess the impact of changing aspects of the product, such as formulation or packaging, on waste, water and GHGs.

"I think this is quite radical actually because we're asking for an analysis on a quantitative level which gives us a view on whether people are moving innovations in the right direction," Hamilton says.

Outside those main teams of environment professionals, it has focused on the employees it considers most important in furthering the company's sustainability vision. These are the scientists involved in research and development, the marketing team and the procurement managers who buy the raw materials. Each of the company's 10 product categories has a sustainability champion and it has a specialist team of agronomists who assist the procurement team.

Environment professionals will be central to the companies' focus on sustainability in years to come. With global population soaring, most companies' business plans are aiming to expand to meet increased demand, and Unilever and P&G are no exception, despite warm words and ambitious targets.

Doing business

While White acknowledges that the anticipation of more environmental regulation in the future is a driver for P&G's sustainability plans, he stresses that regulation merely sets the minimum acceptable standard. There are huge opportunities in going beyond the minimum, he believes.

"By 2050 there will be nine billion people on the planet and we want to reach all of them," White says. "We can only do that if we take a sustainable approach."

Unilever similarly sees sustainability as an essential part of its business model for the future and one that is increasingly being rewarded by the financial community. But going further than that, Hamilton says that there is no choice but to focus on sustainability if the business wants to survive in an era of massive pressure on resources.

She says: "We're trying to shift from sustainability being put in some brands and not others, from it being sometimes a philanthropic effort to being part of how we do business in the 21st century."

the environmentalist

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Sarah-Jayne Russell talks to IEMA members and training providers to find out the real benefits and pitfalls of studying online

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Gone are the days when you had to take a career break to study for a master's degree or spend a week out of the office at a training course. Studying online offers the flexibility to study what you want, when you want and however you want.

IEMA Associate and environment sustainability professional Alanna Aqui, for example, began her MBA when she was living in the UK, but has since moved back to Canada without interrupting her studies. "On the distance-learning course, I can do some classes face to face, but the majority of my degree is self-study supported by e-learning. One of the reason's I chose this course was its flexibility. When I started I knew that I would be travelling and needed something I could continue wherever I ended up and it's been pretty seamless."

Whether you are looking to complete a degree, a diploma or a short course, wanting to gain qualifications for a promotion, brush up on a specific area or consolidate your skills for your CV, there will be an e-learning course for you.

The broad church

The term "e-learning" encompasses a wide variety of both formal and informal learning opportunities. It ranges from free webinars and discussion groups to degree courses with online lecturers and virtual laboratory sessions.

Each form of knowledge-sharing can offer something of value. Informal learning through webinars, for example, can offer you the chance to gain an insight into a new topic or put your questions to an expert without having to sign up for a formal course. You can also choose your level of participation; if you want to just watch the discussion, you can.

Aqui says the key is to know what you want to get out of a webinar before you sign up. "I began to take part in webinars three years ago. I've tried lots of different styles and providers and, in the main, I've had positive experiences. On the occasions where I haven't got as much out of such sessions, it's usually because I signed up for something without checking if I was really interested in the topic. It's important to understand the objectives of the session and who will be joining it, to make sure it's right for you." Aqui also advises that to get the best value out of webinars it is important to do your homework beforehand.

Webinars and other informal e-learning experiences, such as reading articles online, watching free lectures and writing blogs, can also count towards continuing professional development (CPD). However, different professional bodies will assess CPD differently and it is best to check specific requirements before submitting your activity records.

The right delivery

The past decade has seen a revolution in the way formal distance-learning has been delivered. Many professional qualifications, degrees, diplomas and short courses offered on a part-time, distance-learning basis have evolved from textbook-heavy courses to more interactive online experiences.

Four years ago, the University of Derby began to transfer the delivery of its MSc in Environment Management online. "At the beginning, the course became online by virtue of us sending the course material out as word documents," remembers Professor Aradhana Mehra, assistant head of postgraduate geographical, earth and environmental sciences at the university. "We soon began to make better use of the available technology and have slowly introduced a range of different online elements including videos, podcasts, online lectures, discussion boards and wikis."

While lots of courses incorporate such interactive and engaging elements, not all e-learning courses are the same. "One of the most important things to remember when looking for an online course is that it's still very much an immature market," says Darren Chadwick, director at Brite Green Sustainable Strategy, the strategy consultants and training provider. "There are still a lot of people trying to write e-learning courses as they would textbooks and there is a marked difference between good courses and bad ones."

At their worst, e-learning courses can simply present a lot of text online. Andrew Morris, a safety adviser and an IEMA member, studied a master's degree part time in 2008, and had this problem. "I spent hours and hours sat reading a screen. There wasn't much in the way of graphics, videos or any interactivity. I passed in the end but that was more to do with my finding information elsewhere than in the course material."

Such problems are difficult to assess before a course starts, says former IEMA chair and managing director of Bytesize learning, Simon Cordingley. "Unfortunately most people won't get to see what their e-learning course is like until they have paid for it. One of the worst things is that people will buy cheaper courses because they seem like good value, but really they would have been better paying higher fees and getting a course that delivers in a more engaging

USEFUL LINKS

- **www.direct.gov.uk** – The government public services website includes a page dedicated to e-learning, explaining the benefits of the medium and has links to free courses – www.lexisurl.com/iema6953.
- **www.iema.net/training** – IEMA's website includes a comprehensive list of IEMA-approved training courses and providers.
- **www.linkedin.com** – LinkedIn, the professional networking site, gives you the opportunity for informal e-learning by joining sector or interest groups.
- **www.odlqc.org.uk** – The Open and Distance Learning Quality Council is an independent organisation that inspects the quality of distance-learning providers. The website includes a list of accredited courses as well as helpful information and advice on choosing a distance-learning provider.

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TOP TIPS

1. **Know what you want** – Make sure you know what you want out of the course. Are you looking for a qualification, a specific skill, new contacts or just a greater understanding of a subject?
2. **What works for you** – Consider your previous learning experiences and what worked best. Are you happy to work alone or do you want more interaction with your tutor and other students?
3. **Do your research** – Consider both the content and the delivery of the course. If you want a professional qualification, consider whether you will need an accredited course.
4. **Don't forget** – While universities and colleges are subject to government inspection, many distance-learning course providers are private organisations. Investigate the reputation of training providers and look for feedback from previous students.
5. **Be prepared** – Before you start any course set out what you want from it, and then plan to analyse how it went afterwards.
6. **Keep motivated** – Set yourself targets and timelines to ensure that you keep progressing through the course.
7. **Make the most of it** – You have paid for the course so make sure that you take advantage of all the resources on offer. The bottom line is that you get out what you put in.

way. When checking possible courses you need to investigate the provider as best you can. Remember that while universities and colleges are subject to inspection by Ofqual, many e-learning providers are private organisations.

"Look for courses with good reputations or visible feedback from former students," advises Cordingley. "Another possible option is to look for a course that has been approved by an independent third party or a professional body, but be aware such approvals usually only examine course content rather than delivery."

Dr Robert Beattie, director of e-training and software provider Loreus, suggests talking to the course provider. "The company may be able to offer you a taster session and that would be the best way to find out whether you will get on with the way they have designed the course."

Working alone together

One of the biggest challenges faced by those studying traditional distance-learning courses can be a sense of isolation in comparison with working within a classroom environment. "It can feel like it's just you versus the textbook you're reading that day," recalls Chadwick. "That's why one of the best benefits of a good e-learning course is the opportunity for collaboration. Through group work or discussion forums you can meet a really good mix of people from different countries and with different backgrounds." Morris agrees: "The course I completed gave everybody studying it a chance to network. We built up some good relationships and learned from each others' experiences."

This online interaction and support is a key benefit of the longer e-learning courses, but also of participating in webinars, professional networks such as LinkedIn, and online forums.

The ability to learn without necessarily having to communicate with an individual face to face is one of the key differentiators of e-learning, and can offer both advantages and its own challenges. "Many of the professionals who sign up for our e-learning courses are in their mid-30s to 40s and haven't been back into a classroom for a very long time," says Chadwick. "Asking them to sit down with a textbook and write essays isn't the best way to engage with them. E-learning offers more accessible ways to share information and access knowledge and can be a lot less intimidating than walking back into a classroom."

Chadwick argues that by enabling students to study at their own computer, in their own space, they can feel more comfortable. "Especially with short courses where study is independent, there is no pressure on the student for the right answer and no one is going to think any less of you if you get something wrong. It makes learning much more accessible."

While such privacy can offer a confidence boost for some, the inability to see other participants in group activities can be difficult for others, warns Cordingley. "In webinars, for example, people can often be cautious about asking questions because without eye contact or body language it can be tricky to attract a tutor's attention or know when to jump in."

A skilled lecturer or host with experience of e-learning can help to manage the conversation, but to get the most out any such experience it comes down to the old adage of "you get out what you put in."

"In general, people don't approach training in a good way," says Cordingley. "Many are sent on courses by their companies and go because they have to. They don't plan what it is they expect to get out of the course before they go and they don't usually track it afterwards.

"To get the most out of any training you have to understand what value it is going to add for you and then ask whether you got what you needed to out of it. This is especially important for those looking to study online."

And for the most part it looks as though studying online is exactly what we will be doing in future. With financial pressures on both education providers and businesses to cut costs, e-learning offers a cheaper alternative to traditional face-to-face courses.

Individuals wanting to study for a higher education qualification face the same pressures, says Professor Mehra. "Changes in personal circumstances and the strained economic climate are encouraging people not to give up their jobs, but study part time on a distance, e-learning basis. We have already seen a big increase in online learners and the majority of our MSc students are studying part time."

However, despite the flexibility and interactivity of modern e-learning applications, many argue that it will never completely replace traditional face-to-face training courses. "It's easy to forget that e-learning is just one mechanism of delivering content," says Cordingley. "It can quite effectively be used as part of a wider course with tutorials and laboratory work, for example.

"While e-learning is definitely going to be a big part of the future of training, it has to be integrated into the wider training toolbox, and people shouldn't see it as a learning panacea."

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Framing the future

IEMA has launched its competency framework for the environment profession. **Paul Suff** finds out how it can help practitioners and employers

The launch of the IEMA competency framework follows extensive development work by the Institute. "We've been working really hard over the past six months on finalising the framework, working with members, employers and training organisations," explains IEMA director of membership services Claire Lea.

The list of organisations taking in part in the consultation on the framework includes: BP, Heineken, Rolls-Royce, EAUC (Environmental Association of Universities and Colleges), EDF Energy, Acre Recruitment, Atkins, Entec, Airbus, GSK, Amey, Clancy Docwra, University of Exeter, Bureau Veritas, BAE Systems, Skanska, EBRD, and Allen and York. IEMA's Professional Standards Committee has been overseeing the development process.

The IEMA competency framework fits neatly with the Institute's vision for the profession, which is focused on placing environment professionals at the heart of change. "IEMA wants the profession to be the best trained and the most competent, and the framework will assist in achieving these goals," says Lea.

Chief executive Jan Chmiel told *the environmentalist* in March that part of its strategy to support environment professionals as they become "change agents", driving the sustainable business agenda, was the introduction of several frameworks. The IEMA competency framework is designed to give members and other environment professionals a clear picture of how to achieve their own aspirations, for example of how to move from an operational role to a leadership one.

What are competencies?

Competencies are the skills, knowledge, abilities and personal attributes that are essential to perform certain functions and which are critical to succeed in specific roles. They are what are expected of an individual in areas and levels of performance.

A competency framework defines the knowledge, skills, and attributes needed by the people working in an organisation or particular profession.

According to the Chartered Institute of Personnel and Development – the professional body for the HR community – the following (in order) are the main areas of application for competency frameworks:

- underpins personal reviews/appraisal;
- greater employee effectiveness;
- greater organisational effectiveness;
- more effective training needs' analysis; and
- more effective career management.

IEMA's overarching competency framework for the environment profession enables environment professionals and employers to accurately map their suitability and effectiveness for a role. Recruiters, for example, can assess applicants against a range of criteria and behaviours, while environment practitioners can easily see whether they have the skills, knowledge and abilities required to fill different roles, enabling them to better map their career progression.

The IEMA competency framework will provide enviroment professionals with a clear structure for planning their own personal professional development

Fitting the vision

The traditional role of the environment professional has been to focus on compliance and operational issues, ensuring that environmental impacts are effectively monitored and managed.

As the environment and sustainability have moved up the business and policymaking agendas, this role is changing. Environment professionals increasingly have, and need, to play a more strategic role, integrating environment into all levels of decision making. This changing role is the heart of IEMA's 2014 vision.

Achieving the vision consists of a threefold strategy, one of which is to: "set standards for, facilitate or otherwise provide, the best training and development relevant to the environment profession, and produce the most competent environment professionals available".

	Knowledge and understanding					Analytical thi
Competency	Fundamental environmental and sustainability principles	Environmental policy issues	Environmental management and assessment tools	Environmental legislation	Business management	Analyse, interpret and report data and information
Leadership	Understand environmental processes and limits and their impact on the sustainability of organisations	Understand environmental policy issues and their impact on strategic decision making	Understand how environmental management and assessment tools can be used to deliver improvement across the value chain	Understand policy instruments and the regulatory framework and their relationship to organisational strategy and operations	Understand business and commercial tools and the influence they have on organisational strategy and effectiveness	Specify data and information systems to support strategic decision making
Managerial	Explain environmental and sustainability principles and their relationship with organisations	Explain environmental policy trends and developments	Explain environmental management and assessment tools and their application	Evaluate environmental legislative developments and the implications for an organisation	Explain key business and commercial tools	Critically analyse, interpret and report data and information to inform decision making and provide advice
Specialist	Explain environmental and sustainability principles as they interact with work or study area	Explain environmental policy issues and trends in work or study area	Describe environmental management and assessment tools and their application	Identify, critically review and interpret environmental legislation in work or study area	Explain key business and commercial tools	Collect, analyse, interpret and report information, and/or conduct research to develop sustainable solutions
Operational	Understand environmental and sustainability principles and their relationship with organisations	Explain environmental policy issues	Describe environmental management and assessment tools and their application	Explain key environmental legislation and compliance measures	Understand key business and commercial tools	Collect, analyse, and report information and data
Non-graduate/ Graduate entry	Understand environmental and sustainability principles	Understand environmental policy issues	Aware of environmental management and assessment tools	Aware of environmental legislation and know how to assess compliance	Aware of key business and commercial tools	Collect data and undertake analysis and evaluation

The Institute acknowledges in its *Our vision* document, which was published in 2009, that it faces a challenge to equip all professional members with the core set of multidisciplinary knowledge and skills necessary to make a real difference to the environment, as well as ensuring members keep their knowledge and skills up to date as part of a programme of continuous professional development.

The IEMA competency framework goes some way to addressing that challenge. "Environment professionals will have a clear framework for planning their own personal professional development. This will be supported further later this year when the next stage of the framework is launched. IEMA will focus the delivery of membership services on supporting individuals developing the competencies – it's about supporting environment professionals to be the best that they can be," says Lea.

At all levels

The IEMA competency framework (see table above) consists of four levels: Non-graduate/Graduate entry, Operational, Managerial and Leadership – plus a "Specialist" level that straddles both the Leadership and Managerial levels.

Each level has 14 competencies, split into the following five broad categories:

- **Knowledge and understanding** – this category consists of competencies under five headings: "Fundamental environmental and sustainability principles", "Environmental policy issues", "Environmental management and assessment tools", "Environmental legislation" and "Business management".
- **Analytical thinking** – competencies are arranged under the "Analyse, interpret and report data and information", and "Develop sustainable solutions" competency headings.
- **Communication** – competencies are themed under the headings "Implement effective communication" and "Engage stakeholders (internal and external)".
- **Sustainable practice** – three competency groupings: "Implement sustainable thinking",

nking		Communication		Sustainable practice			Leadership for change	
	Develop sustainable solutions	Implement effective communication	Engage stakeholders (internal and external)	Implement sustainable thinking	Deliver environmental improvement	Managing business resilience	Lead change	Influence behaviour
	Lead organisations to innovate, envision and develop sustainable solutions	Use communication to drive sustainable business practice	Champion effective stakeholder engagement	Embed sustainable thinking across organisational value chain	Ensure strategic policies and decisions include sustainability and consider whole life-cycle costing	Identify and manage strategic opportunities and risks to improve business resilience	Create a vision for strategic change and innovation to transform organisations	Influence, persuade and challenge others to lead and promote sustainability
	Identify and analyse problems and opportunities to develop and deliver sustainable solutions	Develop and lead the delivery of communication approaches	Identify, engage and respond to stakeholder needs	Develop and encourage innovative ideas that implement whole life-cycle thinking	Manage projects to deliver environmental performance improvement, making a business case	Identify strategic opportunities and risks to improve business resilience	Lead a process of change management, overcoming barriers	Educate, influence, persuade and challenge others to lead and promote sustainability
	Research developments in work or study area to develop and propose sustainable solutions	Advise and influence others using effective communication methods	Identify and engage in two-way communication with stakeholders	Use sustainable thinking to lead research, develop or promote new methodologies or policies	Lead projects to deliver environmental performance improvement, making a business case	Explain how a changing environment affects work or study area	Lead a process of change management, overcoming barriers	Demonstrate leadership in work or study area
	Analyse problems and opportunities to deliver sustainable solutions	Implement effective communication methods	Identify and engage in two-way communication with stakeholders	Implement environmental management and/or assessment tools	Develop programmes to deliver environmental performance improvement	Understand how a changing environment creates opportunities and risks for organisations	Implement change to improve sustainability	Influence and persuade others to improve sustainability
	Research and plan sustainable solutions	Determine effective communication methods	Engage with stakeholders	Support the implementation of environmental management and/or assessment tools	Propose ways to improve environmental performance	Aware of how a changing environment creates opportunities and risks for organisations	Support change in an organisation	Encourage others to improve sustainability

"Deliver environmental improvement" and "Managing business resilience".

- **Leadership for change** – competencies are concerned with the abilities to "Lead change" and "Influence behaviour".

IEMA members and environmental professionals can then drill down to see what competencies are required for each level, under each category. Someone entering the profession, either as a graduate or via a non-academic route, will, for example, know what employers will expect if they want to move into an operational role. These include being aware of relevant environmental legislation and knowledge of how to assess compliance. Likewise, an environment professional seeking a more strategic, leadership role will now be able to see what knowledge, expertise and skills employers will demand. This ranges from understanding environmental processes and limits and their impacts to being able to influence, persuade and challenge others to lead and promote sustainability.

The fact that the framework can support environment professionals at different stages in their careers is emphasised by Iain Patton, chief executive at the EAUC, which supports sustainability in higher education. "Our members range from relatively new environment officers to seasoned environment directors. Their jobs are not the same, but the framework provides a ladder structure to show how each can step up," says Patton. In practical terms, the framework means that individuals entering the profession and aiming eventually to become leaders must improve their communication competencies, moving from being able to "determine effective communication methods" and "engage with stakeholders" to being able to "use communication to

The framework communicates to employers and recruiters the real value that environment professionals can add to an organisation

drive sustainable business practice" and to "champion effective stakeholder engagement". As Lea explains: "The framework provides clarity about the full range of skills an environment professional needs to be effective. It communicates to employers and recruiters the real value that environment professionals can add to an organisation, with a broad set of competencies, not only good technical knowledge – although this foundation is important."

Getting there

Training providers are now developing appropriate courses to help professionals acquire relevant knowledge and skills, particularly where there are gaps in existing provision. Lea says IEMA will, on its own or in partnership, develop the necessary support for environment professionals up, down and across the framework. "The feedback we have had is that there is a lack of good-quality, relevant training and professional development support for those aspiring to, or operating at, the senior levels. This is something that IEMA wants to address," she says.

Companies want environment professionals who can demonstrate business skills, particularly commercial understanding, that go beyond technical knowledge

Training providers also believe there is scope to develop further courses in line with the framework. "The framework is likely to create huge potential for short courses, possibly by training providers going into organisations to deliver them," says Rosemary Horry, a senior lecturer in environmental management at the University of Derby, which currently includes the IEMA Associate certificate as part of its MSc.

However, there are plenty of resources and training opportunities already in place to assist IEMA members and environment practitioners keen to improve their competencies as they ascend the framework.

The IEMA Associate certificate, for example, delivers four of the five competencies – "understand environmental and sustainability principles and their relationship with organisations", "explain environmental policy issues", "describe environmental management tools and their application", and "explain key environmental legislation and compliance measures" – required at the "Operational" level under the "Knowledge and understanding" category.

The new version of the IEMA handbook, entitled *Environmental management in organizations* – which was published in April and is a core text for the Associate Open Book Assessment – will support individuals developing the knowledge at the operational and managerial levels.

The IEMA mentoring programme, which is aimed mainly at Associate members wanting to become Full members, is another mechanism that can help practitioners acquire knowledge and skills, as mentors are there to support and challenge candidates to enable them to develop the necessary competence to progress their status. It involves matching Associates with a senior professional who is already a Full member or a Chartered Environmentalist.

Another option is IEMA's continuing professional development workshops – which run regularly in the regions. The "Get your message across – environmental communications" workshops, for example, will provide the necessary communication skills at an operational level to acquire the competencies set out in the "Communication" column of the framework.

Exciting future

Developing and implementing a competency framework for the entire environment profession has been a challenge, but employers, trainers, recruitment professionals and the practitioners have warmly welcomed its launch. A major retailer has already expressed interest in using the framework.

Andrew Tew at Acre Resources believes that the framework goes a long way to helping environment professionals take control of their own personal development and step into senior positions. "Companies want to fill senior roles, such as a chief sustainability officer, with people who can demonstrate business skills, particularly commercial understanding, that go beyond technical understanding. The competency framework emphasises the need for such knowledge," explains Tew.

At a lower level, Tew also thinks that the framework will make it easier for organisations to select the right applicant for a managerial or operational role, for example. "It's still fairly common for environment practitioners to report to line managers with a background in health and safety, and often they do not fully understand what skills and knowledge they need in their environment staff. The framework should assist them in selecting the right individuals," says Tew.

Anna-Lisa Kelso, director of learning at training company Environmental Academy, agrees that the framework will assist both employers and environmental professionals. "This document will make the routes of continuing professional development and career progression clearer for both the learner and the employer. I look forward to seeing how it can be further developed by adding links to different qualification levels on the Qualifications and Credits Framework (QCF) and different courses available from IEMA-approved training providers," she says.

Fiona Draper, principal consultant at Santia Training, also sees the development of the framework as a positive step: "As a mentor and IEMA tutor, I believe the framework will help both existing and aspiring members to plan their career path and training needs."

Horry at the University of Derby similarly describes the framework as a "great way forward for the environment profession". "It will promote increased environmental knowledge and thinking in the workplace, which is something we desperately need," she says. Patton at EAUC agrees: "It's a real tool to drive sustainability deeper and higher in an organisation."

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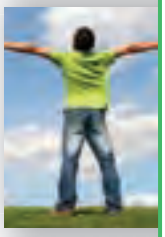

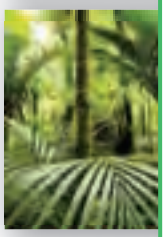

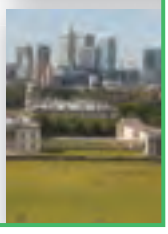

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Making an impact

The environmental impact assessment Directive is 25 years old. **Lucie Ponting** reports on its influence and what now needs to change

More than 10,000 infrastructure projects in the UK have been subject to an environmental impact assessment (EIA) since the process became a legal requirement for certain developments in the late 1980s. Initially, UK policymakers expected "a couple of dozen" assessments a year, which is a far cry from current estimates putting the annual figure for the past decade at more like 500–600.

EIA is a systematic way of ensuring a project's significant environmental implications are considered before it goes ahead. Each assessment involves a series of steps (see panel, p.21) that help to identify and predict associated environmental effects, and then avoid or reduce these through various mitigation measures.

The UK system is based on a 1985 European Directive (85/377/EEC) – and its three subsequent amendments. The Directive is implemented via more than 20 sets of EIA Regulations that apply to development consent regimes in England, Wales, Scotland and Northern Ireland. Over the past two decades, legislative amendments, legal decisions and changes in practice have driven EIA forward to the point where it is now increasingly embedded at the design stage of developments.

A 2009 EU review (www.lexisurl.com/iema6941) of the effectiveness of the Directive concluded that the current process takes into account environmental considerations "as early as possible in the decision-making process", and by involving the public, "ensures more transparency in environmental decision making and, consequently, social acceptance". In the UK, a 2010 survey by IEMA found that more than two-thirds of respondents felt the Directive "always or often" contributes to effective protection of the environment and quality of life.

Yet, despite these largely positive verdicts, and significant incremental improvements in EIA practice since the early 1990s, some bottlenecks and weaknesses remain. Most practitioners agree the legislative framework is fundamentally robust and fit-for-purpose. But they also want to see improvements in key areas such as scoping, communication with stakeholders and mitigation.

Changing times

The most important change over the past 20 or so years, according to Topsy Rudd of Cascade Consulting, is a move to mitigate impacts through design. "Initially," she explains, "mitigation was an 'add-on' at the end to try to mitigate impacts. Now, it's definitely been brought further up into the design phase, so a lot of impacts are designed out." The main reason for this, she argues, is because EIA teams now get more involved with the developer's design team. "Designs are tending to improve as a result of that," she says.

Another key change has been increased professionalism in EIA practice. In the early years, people from a range of disciplines and backgrounds came into the field and carried out the first assessments.

"Now, EIA is very much becoming a profession itself," says Ross Marshall, head of the Environment Agency's National Environmental Assessment Service, "and the type of people moving into it are coming through a more technical and professional route, often with a postgraduate qualification in EIA and environmental risk management."

Alongside this, there has been greater standardisation in EIA practice. "What has changed is that there's a greater general awareness among consultants of the approaches, techniques and methods of assessment," says Iain Bell, regional director for environment at consultancy AECOM. "There's also a greater understanding of the expectations." The highways sector, for example, early on created a standard for everyone to follow. And other sectors, without such a strong government lead, have also developed their own common methods.

Too much information?

Bell believes greater standardisation has been accelerated by several things, including a fear of legal challenge, legal precedents that have altered practice, and practitioners generally getting better at what they do. "The key driver behind all these things is people trying to get consent," he says.

To illustrate the extent to which things have moved on, Marshall points to a couple of very early Scottish Environmental Statements (ESs). "One for an asbestos landfill site in 1988 was just five pages long, with two of these devoted to maps, and focused purely on health and safety," he says. "Another 60-page ES for a waste incinerator, also in the late 1980s, didn't ever actually mention the word environment."

The content of ESs – which are the documents used to communicate the EIA's results to decision makers and other stakeholders – is laid down in the legislation. But in line with a trend to more detailed and lengthier assessments, documents are regularly more than 500 pages.

"ESs have definitely got heftier," says Bell, "which is at least in part a consequence of greater standardisation and the desire to avoid legal challenge." The danger of this increased bulk is that the statement sometimes misses the key fundamentals, which are to communicate, get to the point, and focus on the mitigation.

Results from an online survey by IEMA show one-quarter of respondents believe the current length of ESs reduces their value to all audiences, even those with specialist environmental knowledge. This situation is worse in relation to less technical audiences, with nearly two-thirds (66.5%) believing the current length reduces the value of EIA to local communities.

Alistair Billington, technical director at consultants ERM, picks up the issue of better communication. "With the EIA process now pretty much mature, there's now an opportunity to make the outputs of EIA a bit more user friendly, and that's where I think the focus for the future should be," he says. "Rather than it just being tomes of documentation, we need to find different and more efficient ways of communicating with decision makers and the public. At the moment, the emphasis with major infrastructure projects is around consultation. And obviously, for that you need to have a really good understanding of who the audience is and what you're trying to tell it.

Some audiences are happy to take away a written leaflet or report. But others would benefit from a more practical or visual approach, perhaps through a DVD or interactive workshop, in order to understand and grasp the breadth of issues."

Scope creep

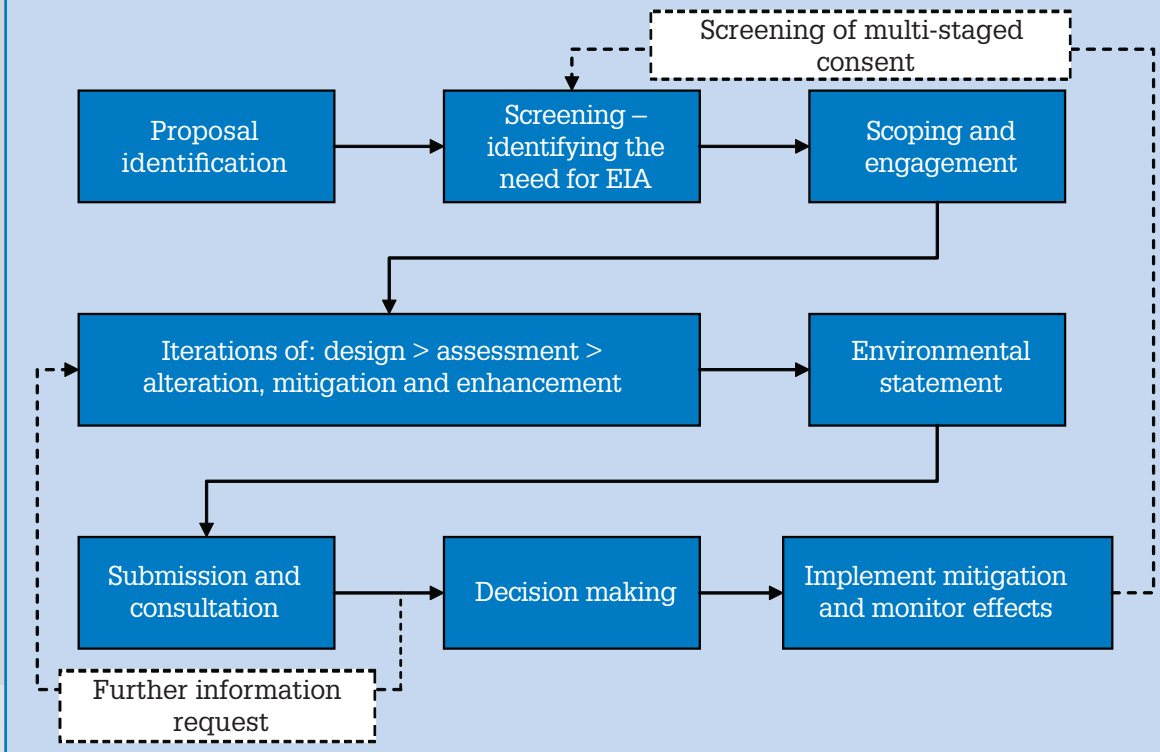
One way of reining in overly long ESs might be to use scoping more effectively. "Scoping is supposed to be a tool for identifying the most important issues," says Bell. "But some local authorities have tended to be too cautious and include every issue, rather than using scoping to get to the heart of the matter more quickly."

Cascade's Rudd agrees that scoping could be done more effectively to concentrate on the issues that really matter and avoid the "do everything to cover our back" syndrome. "Scoping takes a lot of time and often results in more topics being scoped in than out," she explains. "Stakeholders often think that a topic should be assessed, but without considering whether it's actually significant or not. Sometimes they don't have enough time to think about it, so they scope in defensively in order to cover everything."

IEMA's own research also identified weaknesses in EIA "screening", the process by which consenting authorities decide which discretionary projects should be subject to assessment. While practitioners largely

A SYSTEMATIC PROCESS

EIA is a systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects. The following diagram illustrates the key stages.



agree that the existing regulatory framework for screening is effective, they argue that its practical application, via case-by-case assessment, requires more consistency.

IEMA members attending a series of workshops in both 2009 and 2010 particularly felt that local authority planning staff can lack competence or experience, and developers are often unable to get timely responses to screening requests. Evidence collected by the Institute suggests that, in the UK at least, ineffective screening is more likely to result in no EIA, rather than in an over-zealous application of the process.

Follow-up

At the other end of the EIA process, some practitioners would like more follow-up to check whether what is contained in the ES actually happens after consent. "We include measures to avoid, reduce, and remedy effects," says AECOM's Bell. "But we rarely have the opportunity to confirm these were implemented effectively, or that they were successful." He believes it is particularly important to start learning more about what has been effective, or not effective, in past projects, and to focus more closely on the successful implementation of mitigation.

"In most cases, local planning authorities (LPAs) don't check that mitigation is implemented on the ground, so it's largely left to the developer," explains Rudd at Cascade. Marshall confirms the point

Lucie Ponting
is a journalist specialising in health, safety and environment

about local authority checks. He has experienced several projects in which authorities lacked the staff resources to follow up on the planning conditions for developments, including hospitals and wastewater treatment plants, and concentrated their resources solely on the application.

"There are lots of reasons why mitigation measures don't happen," says Rudd. "But often it's because of a change of team. Once the developer has got consent, influence passes from the planning team to the construction team. In some cases, what the ES says is not explained clearly in documents that go to the contracting team, and they don't always have motivation to implement all the mitigation measures, because it's not checked or followed up properly."

On the ground, LPAs could improve things by ensuring required mitigation is conditioned and monitored. For their part, EIA practitioners could help by ensuring mitigation is built into the design and construction process, or is carried forward into an environmental management plan (EMP) that the LPA can include in consent conditions.

"The most practical way to improve things," says Rudd, "is to tie things up earlier in the design process and write a detailed EMP."

Rules of the game

For Billington, one of the biggest ongoing stumbling blocks in the system is a lack of consistency and understanding of their role among statutory consultees, such as Natural England and the Environment Agency. He would like to see the Department for Communities and Local Government (CLG) and possibily Defra giving more of a "top-down leadership steer" to the departments and organisations that sit under them about how to respond to legislative changes, evolution in practice and what case law is telling them.

The CLG already provides clear direction to chief planning officers when new legislation comes in, or there is a new legal decision. But non-decision-making bodies, who need to inform the decision makers, do not get the same steer.

"One of the results of this," says Billington, "is that you can have 10 different officers in 10 different regions all interpreting things slightly differently." He acknowledges that there will always be local nuances, but adds that in terms of interpreting key issues, it should be possible for the EA, Natural England and Defra to have a "roughly consistent" view. "Given that we now have national strategies, we should have national-level approaches from the statutory agencies."

When EIA was first introduced, it was one of only a limited number of assessment tools applicable to development proposals. Today, that picture is very different, and developers have a raft of assessments to deal with pre-application, including flood risk assessment, assessments linked to Habitats Regulations, ecological impact assessment, sustainability appraisal, health impact assessments, and energy statements.

"One that arises fairly frequently is the Habitats Regulations assessment," says Rudd. "You have separate processes, under two different Directives, to undertake in parallel." She points to a "fairly big disconnect" with other documents too, such as sustainability statements and health impact assessments. "There is quite a lot of repetition in those various documents, but not really a central core to pull it all together."

Rudd would also like better clarification of what needs doing in the ES, and what could be covered elsewhere in the planning application. "This is an area of some duplication," she says, "because planning authorities quite often require a lot of work to be repeated." Conversely, some ESs omit information on the basis that it will be provided within other planning application documents.

Test of time

The UK is about to enter a period of major infrastructure renewal. In this context, EIA's role in helping to determine the speed and pattern of development, as well as mitigating the effects on the environment, will be crucial.

"We've now reached a certain level of maturity, with most of the big questions answered, either through case law or evolution in practice," says Billington. "If it goes wrong now," he argues, "it is usually down to the behaviour of those involved, rather than the system itself."

He usually tries to get people to view the process not as a series of hurdles, but as a positive delivery tool that provides a framework within which to deliver a project. "The system is not there to stop a development happening," he emphasises, "but to make sure it goes ahead in the best possible way."

Bell puts it like this: "If it [the EIA framework] didn't exist, you'd have to invent it. It's one of those things that when you have it, people might find it slow and bureaucratic. But in fact there's a reason why these things are as they are. There is a need for people to be consulted, and to review documents and provide comments."

"You often still get people saying EIA delays the process because of all the conflict," adds Marshall. "But the conflict would have been there anyway. I've always found a well-managed EIA with a structured, well-presented ES that is balanced, open and transparent has lowered conflict, because people can see the pros and cons, and the reasons behind it."

AREAS FOR ACTION

There are six key areas for action to improve EIA practice in the UK:

- a focus on communicating the added-value generated by EIAs;
- realising the efficiencies of effective EIA coordination;
- developing new partnerships to enhance the EIA process;
- listening, communicating and engaging effectively with communities;
- practitioners actively working together to tackle the difficult issues in EIA; and
- delivering environmental outcomes that work now and in the future.

From beer to biogas – and back

Becky Allen finds out how a chance meeting led to the UK's first gas-to-grid anaerobic digestor

October 2010 saw Adnams Bio Energy deliver its first biogas to the national grid. That first delivery was the culmination of a chance encounter at a Business in the Community May Day celebration in 2007, as Andy Wood, chief executive of Southwold-based brewery Adnams, explains. "I was a speaker at the event and we'd supplied some beer – Adnams East Green – which we produced to celebrate our eco-distribution centre and the new brewery," Wood says. "Steve Sharratt [chief executive at Bio Group] came up to me and we started to chat. He wanted to come and look at our facilities and when I asked him what he did, he said he turned waste into energy.

"I'd been thinking about waste streams from our business – food waste from our pubs and hotels, as well as waste from the brewery's manufacturing process – so it seemed an idea we should explore. And that was the genesis of the thing, that chance meeting."

Waste not, want not

Finding smarter ways to deal with Adnams' waste streams was a logical extension of recent developments in the business. According to Wood: "Our investment in the new brewery and distribution centre was predicated on a business case that said fossil fuels will continue to rise in price and businesses and individuals who pollute will continue to pay for that pollution.

"The cost of that pollution will rise, which led me to think about what comes out of the back end of the business and whether we could do anything positive with it," he explains. "I'd also been reading about industrial ecology and thought there was the potential for a closed-loop system here."

Discussions with experts at the University of East Anglia, with whom Adnams has a long-standing relationship, suggested the most efficient use of the waste would be to convert it into gas, which in turn could be used to power both the brewery and, in time, its commercial vehicle fleet.

And so Adnams Bio Energy was born: a 50:50 joint venture between Bio Group, which contributed the know-how and intellectual property needed to build and operate the anaerobic digestor (AD), and Adnams, which contributed the land and their brand, as well as some of the waste.

With a name like Adnams Bio Energy, most people associate the AD with Adnams rather than Bio Group. "Everyone talks about it being an Adnams' plant, even though it's Bio Group's," says Sharratt. "We knew that would be an issue but it's fine – we wanted to get the word out. The branding is deliberate. Having something called Adnams Bio Energy has raised its profile."

Funding for the plant – some £2.7 million – was raised from bank borrowings (RBS) and three grants from the European Regional Development Fund, East of England Development Agency and DECC.

Plastic building

By July 2010, only three years after their first meeting, construction of the AD plant was complete. As well as being the UK's first AD to turn food and brewery waste into biogas for the grid, the plant is innovative in other ways.

"Just because we're making energy doesn't mean we want to waste it," Sharratt explains, which means lower-carbon buildings and simplifying the AD process.

Compared with the metal and concrete that has been common in the industry to date, Bio Group designed and built the Southwold plant a little differently to reduce its carbon footprint. The main building – which receives the waste, removes the plastics and heats the resulting mixture to 70°C to kill pathogens – is made from a pre-tensile recyclable PVC fabric stretched over an aluminium frame.

It may not be the cheapest building, but took just four days to erect, compared with around six weeks for a steel shed, and brings other benefits. "It's lighter so it needs less concrete and it lasts longer than steel given the acidic environment and the condensation," says Sharratt. "And the roof is opaque, which reduces its visual impact as well as letting in more light, which reduces the amount of internal lighting we need."

Other buildings on-site come with a more modest price tag. The pump house, which contains the high-tech peristaltic pumps that move material round the system plus part of the plant's control centre, began life as a pair of shipping containers. "We don't need a fancy building for this, so we took two battered, rusting containers and repainted them," Sharratt says.

More innovative is Bio Group's approach to the AD tanks themselves, three of which are installed at the Adnams Bio Energy site. Instead of vertical steel tanks on a concrete base, the recyclable high-density polyethylene plastic tanks are horizontal, reducing the site's visual impact.

"We've taken the tanks out of the sky by putting them on their sides and burying them. And we've made the tanks out of plastic because it's a more robust, resilient and lower-carbon material," explains Sharratt. "Instead of spending 12 weeks casting *in situ*, they come on the back of a lorry and take a day to put together."

Internally too, the tanks are innovative. Whereas other tanks keep their contents moving with paddles, using energy and requiring periodic cleaning (a confined-space operation that caused a fatality elsewhere in the industry last year), Bio Group has developed and patented a new process known as the orca valve system, so called because it "blows like a whale".

"What we've always done is look at what else is available in the market and then decide how it might be improved upon or changed. A major use of energy in AD are the paddles that agitate the porridge, but our tanks have no moving parts," says Sharratt. "They use the gas to push the mixture around, so instead of energy and moving parts it's just gas and physics."

Community sensitivity

As well as tackling technical issues, Adnams Bio Energy worked hard to communicate with the local community during the planning process. As a business that can trace brewing on its Southwold site to 1354, when Johanna de Corby and 17 other local "ale wives" were charged by the manorial court with breaking the assize (law) of ale, Adnams prides itself on being a good neighbour.

"We are sensitive to the community. It's where we earn our living," says Wood. "We have no interest in turning Southwold into an industrial wasteland. Whatever we do will be sensitive to the environment – both built and natural – and we care about the social environment as well."

The AD tanks have been laid on their sides and buried, while the plant's first biogas was delivered in October 2010

While Wood believes there was local concern about the AD, following a series of open days and conversations on-site with neighbours, the plans met no opposition. "From submitting planning to putting a spade in the ground took six weeks. It's unbelievable how smooth it's been but that's because we were prepared to have a dialogue with people and share a vision of what we're trying to achieve," he says.

Adnams Bio Energy has also been very clear about being a local facility to handle local waste. "We explain that what we're doing here is part of tackling climate change because the plant this year will take 69,000 tonnes of CO_2 equivalent out of landfill," says Sharratt. "We also commit to putting a 35-mile ring round the project beyond which we won't accept waste."

£2.7 million
The cost of the Adnams Bio Energy plant

Becky Allen is a health, safety and environment journalist

When a visitors' centre opens on-site later this year, residents and schools will have an open invitation to visit the plant.

As well as showcasing the plant's green credentials and explaining how the process works – "we'll have a perspex mini-AD so that kids can drop a sandwich in at one end and use the energy produced to boil a kettle at the other," says Sharratt – the centre will host exhibits on a range of sustainability issues.

In liquid form

Nine months on from delivering its first biogas to the grid, Adnams Bio Energy is now preparing to take the first liquid waste from the brewery. "It's been a slow build because these things are organic," says Wood. "They are like a stomach and you need to get them used to their diet."

During phase one of the project, Adnams is supplying 15%–18% of the AD's 12,500 tonnes-a-year capacity, but this will almost halve when the plant expands to its full capacity of 25,000 tonnes. Adnams Bio Energy currently takes waste from a range of businesses, including Waitrose, as well as some homes and schools via a contract with the local council-owned collections firm Waveney Norse. Gate fees vary depending on the type of waste, but will always be £20–£22 a tonne cheaper than landfill, and schools get a preferential rate.

Scaling up a plant of this nature from 5-metre AD tanks in a research and development environment to 70-metre tanks is never plain sailing, Sharratt admits. "There are always niggles – that's the nature of commissioning – and you don't take an AD plant out of a box and turn it on. But there's been nothing unexpected," he says. "We are adapting equipment from other industries – the mincing machine is just that, it comes from the food industry and will consume a cow – but there are certain things you have to adapt to work in our sector. We're learning."

One key lesson Bio Group has learned is how to separate plastics more efficiently from the waste. "Removing plastics is the bane of recycling. It clogs up the system and you can't have it ending up back on the land," says Sharratt. And more learning is taking place at the end of the process. The gas collected from the AD tanks is a 50:50 mixture of methane and CO_2. The latter is removed by freezing and the 98% biomethane – some 600,000m^3 a year during phase one, enough to heat 235 family homes – injected, with a little added odour, into the national grid. Bio Group is experimenting with ways of fixing the CO_2, returning the resultant biomass to the AD tanks and using the residual water for local irrigation.

As with other AD plants, the remaining digestate will be returned to the land, hopefully to fields producing barley for Adnams' beer, says Wood: "It's actually an organic fertiliser and it would be fantastic if we can give or sell that – at an appropriately discounted rate – back to the farmers who support us."

The anaerobic digestor takes Adnams a step closer to a closed-loop system, something that makes economic and environmental sense

Let the sun shine

This summer £1 million-worth of photovoltaics will be installed on-site, making Adnams Bio Energy what Sharratt calls "an energy park with AD at its heart", and by the end of the year work will start on the gas-filling station that will fuel Adnams' commercial vehicles. The first three vehicles capable of running on biomethane will join the fleet this year.

The benefits to Adnams of AD are multiple. It takes the business a step closer to a closed-loop system, something that makes both economic and environmental sense.

"We are probably one of a handful of people doing this in such a holistic way, but it makes so much sense. We believe in man-made climate change and we think the business can and should take a leadership role. You can't just rely on the consumer to make choices," Wood explains. "Whenever we've gone after reducing carbon emissions or waste we've saved money. And the more you see the price of diesel, electricity or gas going up, the more money we save."

The move bolsters the brand's environmental credentials too, something Adnams believes helps it address younger customers. "Businesses such as this traditionally have an older customer base, but we find that younger people absolutely understand what Adnams is doing and want to support businesses of this kind," he says.

"Let's face it, our generation has dropped the ball financially and environmentally, so for the next generation of consumers – generation Y – this is an important reputational and ethical matter."

Natural selection

Alison Smith outlines the best approach to choosing the right software for your organisation

With climate regulation in the US under fierce attack and the European carbon market hit by fraud, you might wonder whether this is the best time for companies to be looking at buying environmental software. But it seems that the drive towards sustainability now has a momentum all of its own. A new report from Groom Energy predicts that the market for carbon-accounting software will triple in 2011, and reveals that the main driver now is not legislation but demands for information from customers and investors.

The market for environmental software is maturing – there were fewer takeovers and start-ups in 2010 than in 2009 – but there is still a vast range of products to choose from. So how should you go about finding the right tool for your organisation? The previous article in this series (*the environmentalist*, March) discussed the different types of software that are available. This guide goes into more detail on the functions and features that can be found in different tools. It can be used together with Aether's free environment tools database (www.lexisurl.com/iema6991), which includes more than 400 tools and can be searched by scope, sector and function.

The price tag

The cost of software varies enormously, from free online carbon calculators to six-figure sums for tools aimed at large companies. Small companies may be happy to continue with spreadsheets or to use a free calculator, but some vendors do offer software that is affordable for small and medium-sized enterprises. Best Foot Forward, for example, has a range of tools starting with a free offering for single users and leading up to tools suitable for large organisations. Other vendors with flexibly priced products include Credit 360, CloudApps and CSRWare. Even small companies can benefit from tools that offer analytical functions rather than just simple measurement and reporting, so it is worth looking around to see which vendors can meet your needs.

Most of the tools on the market are now offered as "software as a service". That means the software is installed on the supplier's own servers and is accessed online by the users, who pay an annual or monthly fee. There might be extra one-off costs for the initial set-up, any necessary user training, and migration of old data into the system. After that, maintenance and upgrades should be all part of the service, including regular updates to official emission factors or currency conversion rates.

Of course, the cost should be considered against the potential savings that can be made, both in time and effort to compile sustainability data and in energy and resource savings that could be identified. As we saw in the first article in this series (January), these savings can more than offset the cost of the software.

Most software is now hosted on the supplier's own servers and is accessed online by users, who pay an annual or monthly rental fee

FUNCTION CHECKLIST

Measuring impacts

- **Defining scope and structure** – Simple tools may measure a fixed set of impacts, but others will allow the user to select the scope of impacts covered and define the company structure, including operating divisions, locations, supply chain and so on. Users should be able to easily change the structure to reflect changes in company organisation or reporting requirements, for example by adding or removing business units or processes.
- **Collecting data** – Simple tools will be based on manual data entry, but automatic data collection from utility meters or building energy-management systems is very useful for large organisations. Data should be as detailed as possible, ideally using sub-meters to track energy use over time for particular processes or pieces of equipment. Some systems may also be able to link in with company software to gather data such as energy and water use (from utility bills), material purchases, waste disposal, product output, employee travel, goods transport or vehicle fleet mileage. Some can be set up to collect supply chain data, via automated questionnaires or direct input from suppliers.
- **Auditing and checking** – Automatic checks to make sure data are within expected bounds can help to ensure data integrity. If your organisation is audited as part of a regulatory regime, it will save a huge amount of time and effort if the software provides an audit trail with links to data sources, time and date stamps, staff names and supporting documents.
- **Costing** – Many tools look only at emissions, but some allow financial data to be included, such as the costs of energy, water and resource use, waste disposal, remediation, pollution taxes and fines for non-compliance. This may link in to company accounting systems.
- **Reporting** – You may need to produce reports in different formats to comply with national legislation, such as the Carbon Reduction Commitment Energy Efficiency scheme, voluntary initiatives such as the Carbon Disclosure Project or Global Reporting Initiative, company annual reports and internal reports. It can be useful to be able to customise reports, produce reports in different languages or to export data to spreadsheets. There is also a trend towards presenting data online, allowing more frequent updates than the traditional annual report format, or even allowing interactive viewing by stakeholders.

Managing impacts

- **Analysing data** – The core of most environmental software tools is the "dashboard", which allows users to slice and dice data so that they can be viewed by process (eg heating) or by business unit, as well as viewing aggregate data for the whole organisation. This should allow users to look at trends over time and identify "hot-spots" of pollution where there are opportunities for reduction.
- **Benchmarking** – Using normalised data such as emissions per employee, per square metre of office space or per unit output, performance can be compared across different parts of the company or with other companies in the same sector.
- **Targets and action plans** – Some software allows the user to set targets and compare them with actual performance, or to generate automatic alerts if targets are not met. You may also be able to set up action plans – identifying, scheduling and monitoring actions to achieve the targets.
- **Forecasting** – Current trends can be extrapolated to check whether targets will be met.
- **Scenario analysis** – What-if analysis can be used to look at the effect of future price rises or changes to legislation, or to compare the effects of different strategies.
- **Cost-effectiveness analysis** – Different impact-reduction options can be compared, for example in pounds per tonne of carbon saved or as return on investment.
- **Trading or offsetting** – Some tools link to schemes for voluntary offsetting or trading. For companies in a trading scheme, a surplus or shortfall of emission credits may trigger trading activity including deciding whether to bank or sell surplus emissions allowances. This may link to company financial systems.

User interface

- **Workflow management** – Automatic workflow control can be a valuable feature, especially in large, complex organisations. For example, emails can be generated automatically to signal when data entry or reporting tasks are due, or to warn of abnormal data (such as unusually high energy use) or if targets are likely to be missed.

Alison Smith is a consultant at Aether, which compiles the Environment Tools Directory

Which vendor?

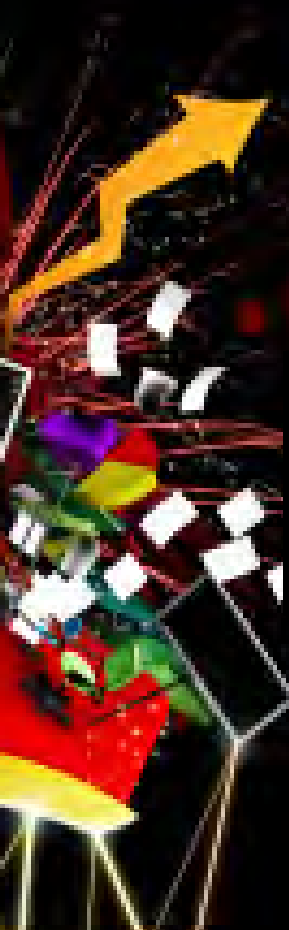
We have noted previously (March) how different types of tools have evolved to meet the needs of different sectors. Typically, heavy polluters tend to choose environment, health and safety software suites, which include carbon modules; office-based companies prefer specialist carbon software and companies with a strong brand image often look for corporate sustainability reporting suites.

If your organisation is audited as part of a regulatory regime, it will save a huge amount of time if the software provides an audit trail

There is a growing trend towards the use of energy-management packages with carbon modules attached, as companies increasingly see the link between carbon- and energy-cost savings.

Four out of Groom Energy's current top-10 carbon software vendors are energy management companies: AdvantageIQ, EnerNOC, Johnson Controls and Summit Energy – the others being Enablon, Enviance, Hara, IHS, PE International and SAP.

It is important to choose a product suitable for your sector, so ask vendors for evidence of successful deployment by similar organisations. And, with the market still maturing, you also need to check out vendor stability. Reports by Verdantix and Groom Energy assess the market strength and future prospects of the main players.



Beyond carbon

Which impacts do you need to manage? Many firms begin with carbon, but a range of other impacts is becoming increasingly important.

Most software follows the Greenhouse Gas (GHG) Protocol by reporting scope 1 and 2 emissions, covering direct use of fuel in company vehicles and buildings plus indirect emissions from electricity use. Reporting of scope 3 emissions – those outside direct company control – is optional. Scope 3 emissions include travel by company employees in non-company vehicles (including flying and commuting) and upstream emissions associated with materials purchased by the company (eg paper, chemicals, metals).

Of these, most carbon-accounting tools include employee business travel, because cutting down on unnecessary journeys (especially flights) with techniques such as video conferencing is a major opportunity for cost and carbon savings. Some also include commuting, which again presents opportunities for savings through flexible working and car-sharing initiatives. And many now include emissions from waste disposal.

The big new trend is to look at supply chain emissions. On average, more than half of a company's emissions come from the supply chain. Companies such as BT, Wal-mart and Tesco are pressing their suppliers to cut energy use and carbon emissions. Others, such as M&S, are going even further and looking at ways of encouraging customers to save energy during product use and disposal. So some software tools now have the facility to collect and analyse supply chain information.

Other greenhouse gases

"Carbon" doesn't just mean carbon dioxide – it is used as shorthand for all six Kyoto gases. Under the GHG Protocol, any significant emissions must be reported. Most small office-based businesses need only report carbon dioxide from energy use, but other companies may need to include methane from waste management, HFCs from refrigeration and air conditioning, and nitrous oxide, perfluorocarbons and sulphur hexafluoride from industrial processes.

Water, waste and resources

Water scarcity is becoming an urgent concern in many countries – the number of investors asking for water information through the Carbon Disclosure Project rose from 137 in 2010 to 354 in 2011. The costs of energy, food, materials and waste disposal are soaring. As a result, many carbon-accounting packages are expanding to measure water use, waste generation and energy costs, and some, for example Hara, can also track the use of other resources such as paper.

Other sustainability impacts

Corporate responsibility reporting tools typically include a wide range of indicators. In addition to carbon, water and waste, these may cover other environmental impacts such as land use, air pollution and water pollution, as well as social and economic indicators such as community donations, tax contributions, employee satisfaction, employment diversity (eg by gender, race and disability), working conditions and accidents.

Some tools are fully customisable so that the user can define their own indicators. This type of tool often comes with a separate, more detailed module for assessing energy and carbon impacts – or it is used in conjunction with a specialist carbon or energy management tool from another vendor. At first glance, many software tools appear very similar, but in fact there are differences in the range of functions they offer for measuring, reporting and managing impacts. The checklist of functions that may be included is on p.27 to help identify those that are most useful for your organisation.

Looking long term

First-time buyers might look for a low-cost solution aimed just at measuring and reporting carbon emissions, to comply with regulations or pressure from stakeholders. However, many users soon find that this is not enough – they want to start cutting their impacts and so they need software that will help them to plan and execute emission-reduction strategies. Soon they may also find that they need to look at energy costs, waste management and water use, or extend their analysis to the supply chain. So it pays to look ahead and choose a flexible solution that can be adapted to your needs as they evolve.

Investing for the future

Helen Woolston on how to make the business case for spending money on environment projects or programmes

Many environment managers will have a tale to tell about how they have delivered initiatives, improvements or campaigns with little or no budget, using only ingenuity, enthusiasm and sticky-back plastic. The ability to bring results at low or no cost is one of the key attributes of the profession.

However, it is also important to be able to make a strong business case to secure funding for environmental projects or programmes that bring cost savings for the organisation.

While organisations may want to follow such initiatives for reputational or other strategic reasons, traditionally most business cases have been made for programmes focusing on delivering cost efficiencies. These come from energy efficiency or waste minimisation that deliver reduced energy or water bills or lower waste-disposal costs.

In the current financially straitened times, when a "spend to save" mindset can be prevalent, these business cases can be very attractive. As well as these "traditional" business cases, environmentalists should be maximising (and monetising) the value of environmental benefits in *all* investment decisions being taken by organisations today.

Spend to save

The most straightforward environmental business cases are those where the proposed initiatives will result in paying for less, or paying to dispose of less. There are many energy- or water-efficiency examples, where the purchase of more efficient equipment, building management systems, more efficient fleet or a new process can be shown to deliver reduced bills over a particular period of time. The shorter this payback period, the more attractive the business case that can be made.

Also common are waste-minimisation programmes that involve changing processes or design to reduce the amount of materials and resources used and cut the volume of waste that needs to be disposed of.

There is increasing use of whole-life-cost tools to create a fully rounded picture of investments. These encompass the costs of maintenance, repair, replacement, disposal and embodied carbon, as well as just the initial purchase outlay. One example is the EU-funded tool for calculating life-cycle costs and

Helen Woolston is group environment and climate change coordinator at Transport for London

CO_2 emissions associated with different procurement options (www.lexisurl.com/iema6871).

Methods for investment appraisal

Finance functions use a range of appraisal techniques to assess the merits of a proposed investment and show a transparent means of deciding which programmes to fund. These involve placing a value on the full range of benefits that a project proposes to deliver and determining how long it will take to realise the worth of the full investment.

Business Link (www.lexisurl.com/iema6872) offers a summary of investment appraisal techniques including:

- payback period – takes financial returns and costs over the project period, and calculates how long the project takes to pay for itself;
- average rate of return – looks at the average returns over the years of the project, and divides by cost to give a percentage return; and
- discounted cashflow – takes into account that a return of £100, for example, in several years' time is worth less than a return of £100 now, so it discounts the estimate of returns.

The public sector uses the investment appraisal approach as well, and has guidelines, such as the Treasury's *Green book* or the Department for Transport's "Transport analysis guidance", which includes Defra's "Social cost of carbon" – that is, the damage done by a tonne of carbon when it is emitted, because of its effect on the climate.

These appraisal techniques place a financial value on the range of benefits the project will deliver – "monetised benefits". In a transport capital investment example, the financial value can be assigned to benefits such as CO_2 emission reductions, noise reductions and air-quality improvements alongside other benefits including journey time or congestion reduction, and improvements in access and safety.

So the overall weighting of the monetised benefits in the final appraisal is key and the assessment will also test how well the initiative meets with organisational strategic goals and priorities.

New approaches to financing options

There are some emerging examples where environment managers are seeking different financing options, especially where the traditional funding streams may currently be limited.

Examples include London's Green Fund, which is worth £100 million – comprising £50 million from the London European Regional Development Fund, £32 million from the London Development Agency and £18 million from the London Waste and Recycling Board. The fund will support waste infrastructure development and energy-efficiency projects. Repayments to the fund will be effectively recycled to support more projects. The fund managers will be required to leverage an additional amount of at least £55 million.

London is also developing programmes with performance-guarantee contracts for delivering energy-efficiency initiatives. The Re:fit programme – operated by the London Develoment Agency – has been designed to help public sector organisations in the capital to retrofit energy-efficency measures into buildings using a framework contract for energy services companies (EsCos), which will guarantee a set level of energy savings over an agreed payback period. Re:fit aims to help the capital achieve its overall target of cutting carbon emissions by 60% by 2025

It's important to be able to make a strong business case to secure funding for environmental projects that bring savings

Influencing, communicating and dealing with the challenges

One of the key challenges is how to make the business case for investing for longer-term benefits against the pressure to deliver shorter-term savings. An example here could be some investments that bring adaptation to climate-change benefits. There can be pressure to postpone such investment until the need is more imminent, but a good case will show that investment in a capital programme now would miss real benefits if it does not include such measures from the start.

Financial business-case benefits can be overshadowed by other factors such as reputational or political priorities. The investment proposal will be more successful if it meets the strategic issues for the organisation.

Finally ...

The best time to make a business case can be when the organisation is already planning a change and the opportunity to stretch this transition a little more can bring added environmental benefits.

£100 million
The value of London's Green Fund for waste projects

2011 conference programme unveiled

Conference The programme of sessions, speakers and workshops for IEMA's 2011 conference is now almost complete. The conference, entitled "Sustainable business: environmental professionals driving change", takes place on 15–16 November at Savoy Place in London. As the title suggests, the conference will focus on how environment professionals can play a vital role in helping business and organisations meet the challenges of sustainability and developing sustainable solutions.

The list of speakers includes:

- Peter Young (Aldersgate Group)
- Miles Watkins (Aggregate Industries)
- Andrew Bloodworth (British Geological Survey)
- Steve Wallace (National Grid)
- Peter White (P&G)
- Paul Turner (Lloyds TSB)
- Professor Steve Evans (Cranfield University)
- Henrietta Anstey (BAE Systems)
- Toby Robins (Wiles Greenworld)

There are now just six weeks left before the special early-bird discount rate (see below) expires on 31July.

Places are already being filled, so to be sure of yours, go to www.lexisurl.com/iema7046.

Conference costs

	Day 1	Day 2	Both days
IEMA member Special early-bird rate Book before 31 July	£159	£159	£249
IEMA member Book after 31 July	£199	£199	£349
Non-member	£249	£249	£449

IEMA part of broad alliance supporting new carbon targets

Emissions An alliance of the UK's largest businesses and environmental groups welcomed the government's commitment to a legally binding target to reduce carbon emissions by 2027 (p.5). Following the announcement IEMA, plus the other 53 signatories that form the Aldersgate Group, stated that strong and clear action on climate change is essential for long-term economic growth, jobs and competitive advantage.

In an open letter to the prime minister, the Aldersgate Group warns that "failure to act at sufficient scale and pace would mean that the costs of tackling climate change in the future will be much higher and the UK will miss out on commercial opportunities associated with the low-carbon economy."

Peter Young, chair of the Aldersgate Group, said: "The message of this letter is loud and clear: strong carbon targets protect both the environment and the economy. They are vital for future competitiveness and provide the overall framework to enable the UK to be a leader in the transition to a low-carbon economy. This will provide greater certainty for business to invest in green technologies and create jobs."

To read the letter in full, visit www.lexisurl.com/iema7045.

Annual report out

Finance IEMA's report on membership, and financial and policy performance for the 2010 period is now available online for members to download. The 2010 report includes a summary from the chair of the IEMA board, Adrian Belton, an update from our CEO, Jan Chmiel, details of our membership recruitment and retention, and a general breakdown of the Institute's performance during last year. To download your copy of the report, go to www.lexisurl.com/iema8160.

More successful IEMA members

IEMA would like to congratulate the following individuals on the success of their Full (MIEMA) and Dual (MIEMA and CEnv) membership applications.

Full

Anthony Bishop, Environment Agency
Joanne Dodworth, Environment Agency
Karl Fuller, Environment Agency
Beth Gregory, Environment Agency
Jenny Grinter, Environment Agency
Sarah Kingdom, Environment Agency
Harry Parker, Environment Agency
Emma Pye, WSP
Stephen Saville, Peterborough Environmental City Trust
Paul Seaby, Environment Agency
Carolita Smith, Environment Agency
Oliver Sykes, Environment Agency
Simon White, Environment Agency

Dual

Christopher Boak, Environment Agency
Sharon Cornick, Environment Agency
Philip Delaney, Environment Agency
Jody Harris, Arup
Joan Ko, Arup
David McKenna, Abu Dhabi Municipality
Bruce Munro, Environment Agency
Anuj Saush, London South Bank University
Vicky Schlottmann, Environment Agency

Two more additions to the EIA Quality Mark scheme

Assessment IEMA would like to welcome Savills and Entec to the EIA Quality Mark scheme, bringing the total number of registrants to 40.

The scheme, launched in April 2011, assesses quality across registered organisations' EIA activities, including management processes and approaches. The EIA Quality Mark allows companies to make a voluntary commitment to ensuring their EIA activities maintain high standards of quality. Savills and Entec have contributed an extra 20 Non-Technical Summaries (NTSs) to IEMA's online library, which is available to all members.

To find out more about the EIA Quality Mark and read about the NTSs, visit www.lexisurl.com/iema7048.

IEMA in the spotlight for reporting consultation

GHG IEMA warmly welcomes the consultation on greenhouse-gas (GHG) reporting (p.4), publicly backing the consultation in the media.

"UK plc is at a turning point with environmental reporting; with the right support from the government we can move GHG reporting into the mainstream and turn this into a business opportunity by helping companies to reduce costs and improve their competitiveness," said policy director Martin Baxter. "Over 80% of environment practitioners we surveyed in 2010 say that mandatory reporting of GHG emissions should be introduced for companies."

The Institute believes that the business and environmental case is clear, stating that the more businesses that participate in mandatory reporting, the more the UK economy will benefit. The 2010 survey results found that GHG reporting can deliver significant benefits, with those reporting reductions indicating an annual average of 4.5% CO_2-equivalent savings.

Several media channels picked up on IEMA's response to the consultation. Edie.net, Energy Efficiency News, Reuters, Bloomberg and Environmental Finance all featured IEMA's stance on GHG reporting and quoted Martin Baxter as a leading authority on the topic.

"IEMA is now using the opportunity presented by the consultation to again survey our members and, as with previous consultations, provide Defra with the vital evidence around the environmental and business benefits that GHG reporting can deliver," said Baxter.

Members will by now have been contacted and invited to take part in the survey. We hope that many of you can spare the time to help us influence this issue even further.

Book online at www.iema.net

IEMA Conference 2011

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IEMA Sustainable Business: Environmental Professionals Driving Change


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SKM-Enviros


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Lloyds-TSB


Peter White
Proctor & Gamble


Henrietta Anstey
BAE Systems


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Cranfield University


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From the knowledge hub

Keeping you up to date with IEMA services and events

First briefing note published

Members can now download a helpful document, the first in a new series of online briefing notes, from IEMA's website and a new area on the environmentalistonline site.

As legislation, technology and environmental responsibilities continue to evolve, IEMA naturally recognises the need to update members through various media and useful materials. As part of the Institute's dedication to creating a sustainable future through the development of skills, knowledge and thought leadership, the new e-Briefing series is designed to provide a quick and easily accessible library of reference notes on new and changing areas of environmental management and assessment practice. Sitting alongside the library will be relevant news items and links to other externally produced guidance and updates.

The first IEMA e-briefing focuses on green tariff electricity. Here, *the environmentalist* provides summaries of the sections on developing a business case and the key issues to consider.

The business case

Green tariffs are electricity supply contracts that allow domestic and commercial customers to associate their consumption with renewable generation and low-carbon solutions. They differ from normal or "brown" tariffs, which reflect the supplier's overall fuel mix. Fuel mixes vary between suppliers but in the UK they are generally dominated by coal, gas and nuclear, with renewables forming a minor part – around 5% to 10% for most of the major suppliers.

There are a number of factors for businesses to consider when deciding whether to purchase a green tariff.

Green tariffs are not equivalent to carbon or greenhouse-gas (GHG) reductions within the business and therefore should not be used in place of energy-efficiency measures.

For this reason they are not useable in relation to the Carbon Reduction Commitment Energy Efficiency scheme. In order to reduce organisational GHG emissions, IEMA advocates a GHG management hierarchy.

When adopting the hierarchy, organisations should generally give priority to measures of avoidance and reduction – although it is noted that other worthwhile applications need not be delayed.

Within the UK's framework, green tariffs are currently considered to carry emissions at the grid average rate and the carbon-saving aspect of green tariffs under green electricity certificates comes from carbon offsetting or green investment activities as a compensation measure in terms of GHG management.

What to consider

Potential questions to consider when deciding whether or not to switch from a traditional to a green tariff include the following:

- How will the price per MWh change with the switch from the brown to green tariff and what will be the saving from avoiding the Climate Change Levy?
- What will be the resulting overall change in electricity expenditure?
- What will be the reportable emissions reduction from the tariff?
- Will the associated benefits complement and support the company's overall strategy and associated communication messages?

If not, then would an alternative compensation measure be more effective for your company, such as a direct purchase of high-quality carbon offsets, or an alternative project investment such as woodland creation? To find out more, go to www.lexisurl.com/iema8161.

IEMA EVENTS

Date	Region	Topic
Regional events		
21 June	North West	Eco-house visit
21 June	Cambridge	Sustainable business practice workshop
22 June	Dublin	Sustainable business practice workshop
23 June	Exeter	Sustainable business practice workshop
5 July	Cardiff	EIA workshop
6 July	Exeter	EIA workshop
6 July	South East	Social
7 July	Oxford	EIA workshop
7 July	North West	Meet the CEO
8 July	Cambridge	EIA workshop
13 July	Manchester	EIA workshop
14 July	Glasgow	EIA workshop
15 July	Newcastle	EIA workshop
26 July	Birmingham	EIA workshop
27 July	London	EIA workshop
28 July	Dublin	EIA workshop
29 July	Belfast	EIA workshop
CPD workshops		
22 June	Bristol	Environmental law and legislation
6 July	Bristol	Environmental communications
13 July	Glasgow	Introduction to EIA and SEA

Sowing the seeds of environmental management: Acorn case studies

IEMA's Acorn scheme has been in operation since 2004 and has guided hundreds of organisations of every size and sector through its phased approach to implementing an environmental management system (EMS)

Beam and D20 are two businesses that have been using the Acorn scheme. Here they describe the benefits the scheme brought them.

Beam

London-based graphic design consultancy Beam registered to the Acorn scheme in 2008 through inspection body NQA and is currently at phase I.

Why the Acorn scheme?

"We adopted the Acorn scheme because the decisions made in the planning and creative stage of a project can have a massive impact on how sustainable the process and final product will be.

"Following certain guidelines we have created our own working processes leading to more sustainable designs," said Bream's director, Christine Fent.

Sustainability Scorecard System

To calculate its overall environmental footprint for a design project, Beam has created a unique Sustainability Scorecard System. The system assesses a product's impact against a three-point criterion, which takes into account its source, energy impact (during production) and disposal. Using this simple measure allows Beam to choose the best and least harmful processes and materials.

Plans for the future

- Beam plans to work its way to phase III when additional resource and time can be allocated.
- It will continue to raise environmental awareness internally through "switch-off" campaigns and "green" days.

D20

D20 is a civil engineering contractor supplying earthwork and groundwork services to the construction industry. Operating predominantly in southwest England, D20 works across industrial, commercial and local authority projects.

Why the Acorn scheme?

Prior to joining the Acorn scheme, D20 had a range of environmental procedures in place. To achieve more formal recognition and to boost its environmental profile, D20 registered to the scheme in 2010 through inspectors AJA registrars.

"The decision to implement a formal EMS was straightforward as we could see the long-term benefits to our business," said operations manager, Tom Reeves.

D20 also found the staged audit process a worthwhile experience. "Being audited in stages allows you to have confidence that you are heading in the correct direction. The auditor would give helpful feedback to focus our attention on what areas of the system needed improving" said Reeves.

Drivers and achievements

In joining Acorn D20 wanted to address:

- Waste disposal – D20 handles large amounts of hazardous and non-hazardous waste. The firm wanted a system in place to ensure safe disposal and compliance with regulation.
- Recycling – A system for ensuring used materials and products are recycled where possible to avoid prosecution and reduce rising landfill costs.
- Conservation – D20 wanted a system to mitigate any potential impacts its projects could have on habitat species.

Now the organisation has been certified to phase III, D20 has been able to tackle such challenges.

Plans for the future

- To look deeper into its supply chain and at options for using the most sustainable materials on the market.
- Explore strategies to further reduce waste going to landfill.
- Start the journey to achieving 14001.

To find out more about these case studies, and how the Acorn scheme can benefit your business visit, www.lexisurl.com/iema7120.

CRC

New CRC guidance from the Environment Agency

The Environment Agency (EA) has asked IEMA to assist in making environment professionals aware of their updated guidance on the Carbon Reduction Commitment Energy Efficiency scheme (CRC).

The EA's update reinforces what CRC participants need to do to meet compliance and includes a "Tips on reporting" section that is likely to prove invaluable, especially as all annual and footprint reports need to be submitted to the agency by 29 July 2011. A helpline-style email address is also included in the guidance in case any participants need to seek further advice (CRChelp@environment-agency.gov.uk).

In addition, the EA has produced a series of "Ask the CRC expert" films on key aspects of CRC reporting that IEMA members can find online. To find links to these films and the full updated guidance, go to www.iema.net or www.environmentalistonline.com/skills.

CROSSRAIL

Environmental Management System (EMS) Co-ordinators

Crossrail is an ambitious new railway for London and the Southeast. As well as providing vital new transport infrastructure, Crossrail is a catalyst for regeneration, providing jobs in the UK economy and relieving congestion with new routes, less crowding, and faster reliable connections. Our vision is to deliver a world-class affordable railway safely through effective partnerships. This is a once in a lifetime opportunity to make a significant contribution to the UK's transport infrastructure, and the quality of life in London and the UK as a whole.

In this key role, you'll be responsible for supporting the EMS Manager in developing, implementing, and maintaining an environmental management system for Crossrail.

You will assist with designing plans, processes, and procedures to ensure that the EMS conforms to ISO14001 and the Environmental Minimum Requirements while taking account of existing business management systems. Working in a constantly changing environment, you'll also be involved in developing and implementing training and environmental communications. You will play an important role in driving environmental performance at Crossrail.

Crucial to your success will be your ability to deliver a strong performance in a multidisciplinary environment. Ideally educated to degree level in an environmental field, you'll use your proven communication skills to build relationships within the team, the organisation, and with our partners. Your flair for presentation and analysis will make you stand out from the crowd.

Vital to this role is your experience of working to ISO 14001 or BS 8555 in a consultancy, local authority, construction company, or other commercial organisation.

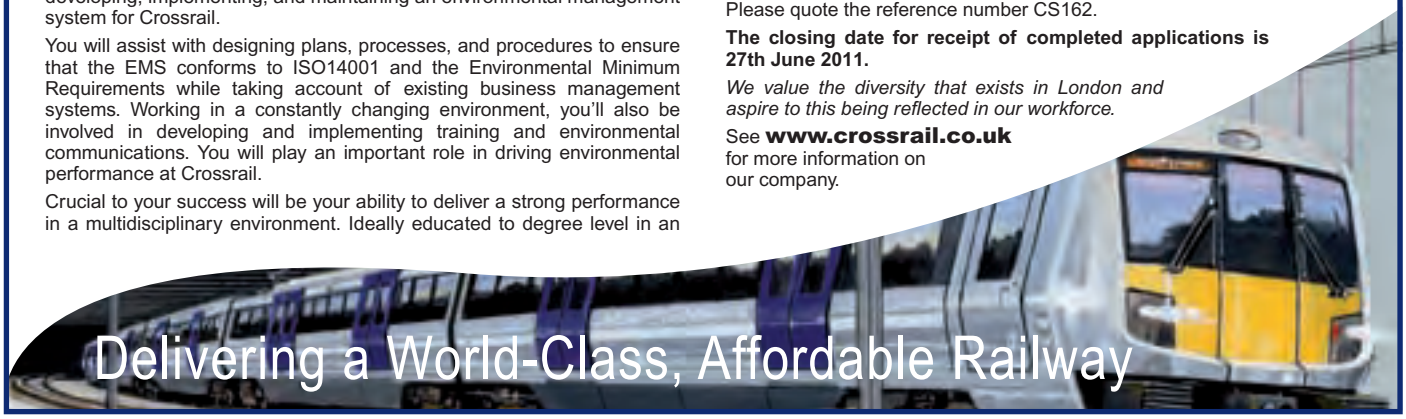
If you are interested in helping to deliver this world class transport system, contact our HR department for an application pack which includes a full job description of the role by emailing recruitment@crossrail.co.uk or by calling 020 3229 9191.

Please quote the reference number CS162.

The closing date for receipt of completed applications is 27th June 2011.

We value the diversity that exists in London and aspire to this being reflected in our workforce.

See **www.crossrail.co.uk** for more information on our company.



Marine Environmental Consultant
Senior Marine Environmental Consultant

The Company

Fugro ERT, a division of Fugro GeoConsulting Limited is a marine environmental consultancy and survey company, supported by in-house marine biology and chemistry laboratories. Within a multi-disciplined team of scientists, engineers and technicians, Fugro ERT offers consultancy and services to various marine sectors, including the oil and gas industry, renewable energy industry and conservation agencies.

Fugro ERT is currently looking to recruit a Marine Environmental Consultant and a Senior Marine Environmental Consultant to join our consultancy team.

Environmental Consultant

As an Environmental Consultant, you would be expected to support a range of consultancy projects, based both in the UK and abroad, contributing to the delivery of high quality reports to industry, government agencies and the general public. Therefore, a good understanding of marine environmental issues and a working knowledge of environmental impact assessments is essential. Experience of managing small to medium sized projects may also be beneficial, as it is hoped that responsibilities within a given project will increase with experience. This position is based in Edinburgh, although there will be a requirement to travel both within the UK and abroad. The role may occasionally include coastal and offshore survey work.

Skills & Experience required

- A working knowledge of environmental management and marine consultancy
- Being familiar with marine environmental legislation
- Experience of gathering and handling marine environmental data
- Excellent communication skills – ability to write accurate technical reports for the general public and government agencies and represent Fugro ERT at meetings, conferences etc
- Able to maintain good working relationships with clients, collaborating companies and contractors
- Excellent time management and organisational skills.
- Proven demonstrable experience of meeting deadlines

The successful candidate should hold a relevant science degree with significant previous experience in marine consultancy or a similar role. Alternatively the successful candidate should have a post graduate qualification in marine science, environmental management or a related subject, with relevant previous experience in marine consultancy or a similar role. Membership of a recognised professional organisation is desirable.

Senior Marine Environmental Consultant

In addition to the above, the successful candidate for the Senior Marine Environmental Consultant will have significant environmental consultancy experience, some of this at a senior level. Previous experience of carrying out environmental impact assessments is essential. Ability to train junior members of the team is also required.

Our main client base is the offshore oil and gas industry, and experience in this industry would be beneficial. To apply for these positions, please send your CV and your current salary along with a detailed covering letter, describing how you meet these requirements, to HR.Geoconsulting@Fugro.com

The closing date for applications is Friday 24th June 2011.

More than a standard career

Environmental Specialists – Salary from £39k per annum - North West - North London - South East London

The Job

The role of a BSI Environmental Specialist Client Manager is to conduct on site assessments against the requirements of predominantly ISO 14001, providing environmental expertise, producing surveillance and initial assessment reports and making recommendations for certification decisions.

If you want to pursue a career as an Environmental Specialist with the UK's leading certification business, you should have in depth knowledge of the current UK environmental legislative requirements, be educated to degree level, HNC/HND qualified or an equivalent professional qualification in a relevant subject and have a comprehensive knowledge of business processes and systems. You will thrive in a process driven environment drawing upon your expertise within a well respected business.

The role requires travel to clients on a daily basis within your geographic area.

In order to be successful in the role, successful applicants must demonstrate good communication skills at all levels both verbal and written. You must be self motivated coupled with an ability to make decisions based on facts quickly and efficiently. The role requires candidates to be impartial, with an eye for detail and excellent time management/planning skills. Knowledge of multi standards is advantageous. Good IT skills are essential.

In return we are offering a competitive salary, a company car, 27 days annual leave, company paid private medical insurance, excellent company-contributed pension scheme, flexible benefits and more.

How to Apply

If you feel you have the right attributes to fulfil this position or any other role of Client Manager and you are looking for a career within a progressive organisation, please forward your CV to bsi.personnel@bsigroup.com quoting the vacancy reference number. For details of further vacancies within BSI please visit our website, www.bsigroup.com.

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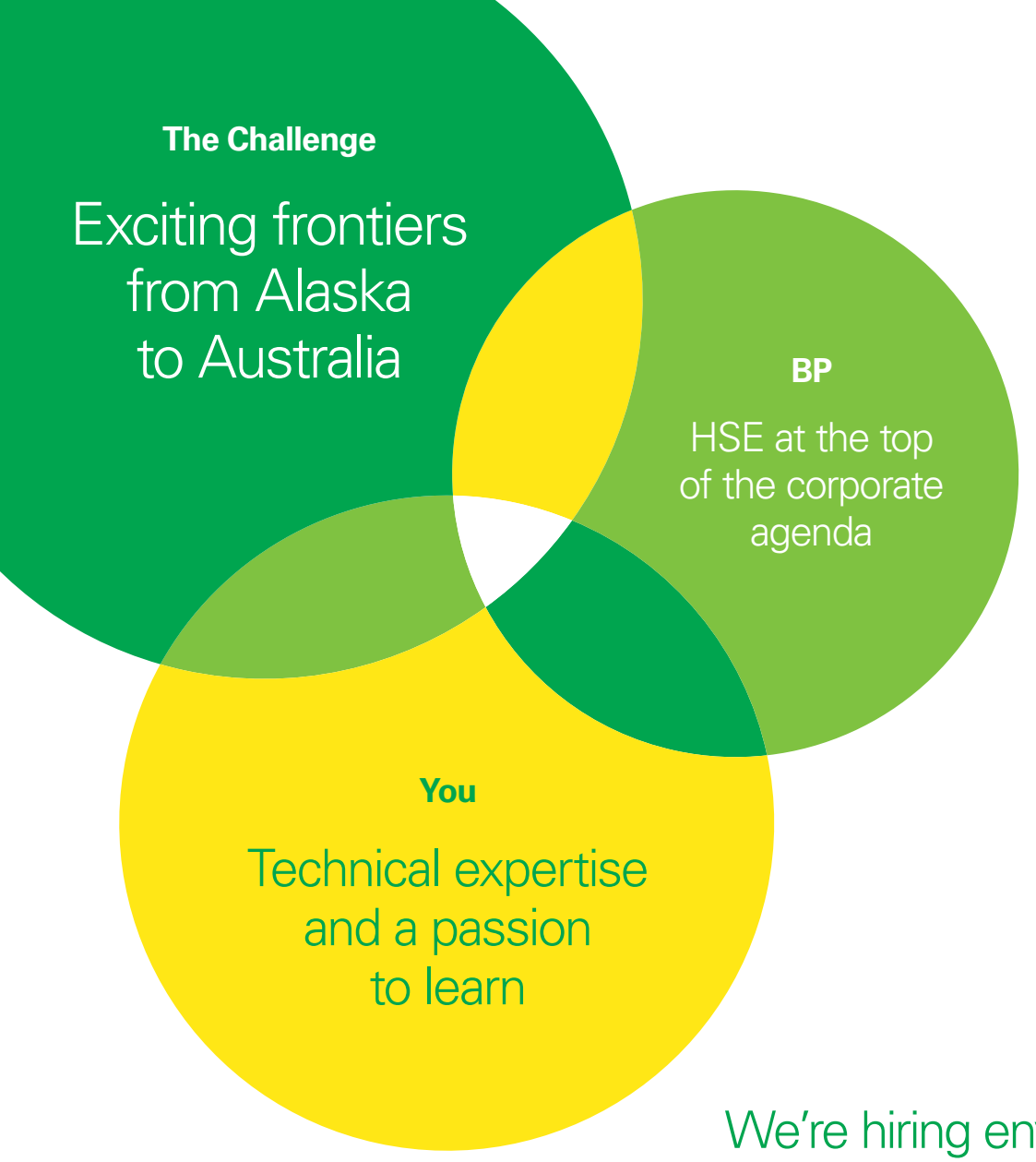

bp

We're hiring environmental professionals now

Many of the locations in which we operate present challenging environmental sensitivities, so managing our impact in these areas is always at the core of our activities. Our environment teams are in the spotlight and pushing us to new standards of responsible exploration, development and production.

We need people who can take the lead in helping our businesses around the world to understand and minimize their impacts, whether to land, air, water, flora or wildlife. You'll make an impact on BP's future and help share what we have learned with the wider industry.

From the North Sea to Australia, deepwater installations to onshore operations, we offer variety and career-defining professional challenges. Our exploration heritage and major capital investment programmes ensure that new, varied and stretching opportunities are always on offer.

We're hiring environmental roles including Regulatory Managers, Team Leaders, Environmental/Regulatory Advisers, Environmental Engineers and Scientists.

BP is an equal opportunities employer.

Are you up for the challenge?

bp.com/hse/en

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01480 43 55 44 or

www.wata.co.uk

for more information

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