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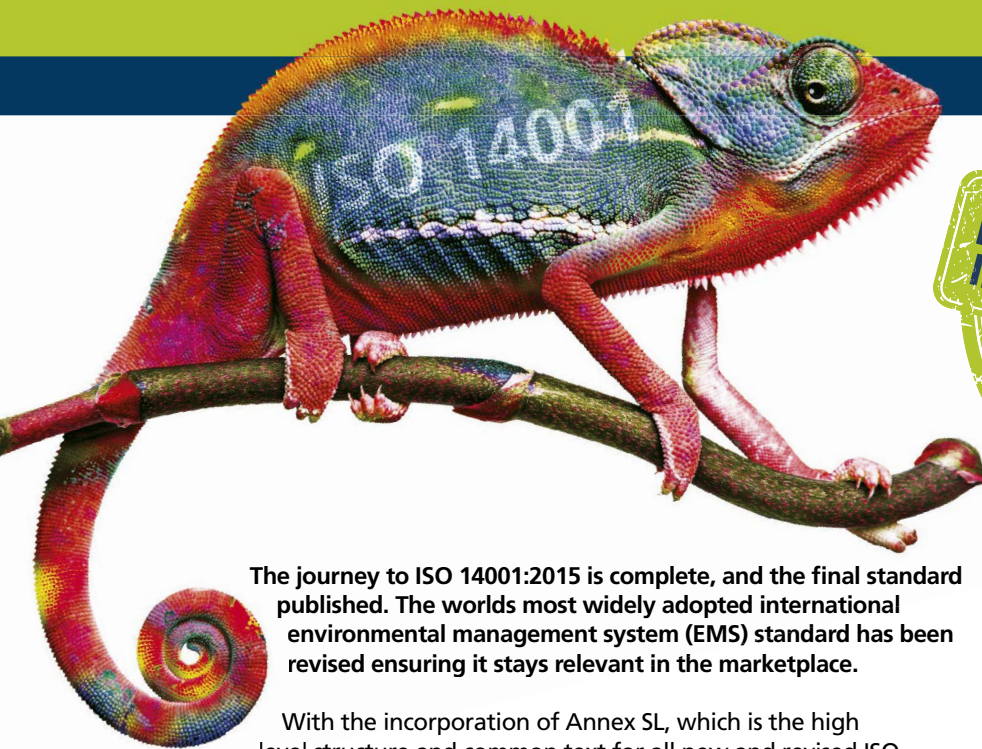
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reducing risk

December

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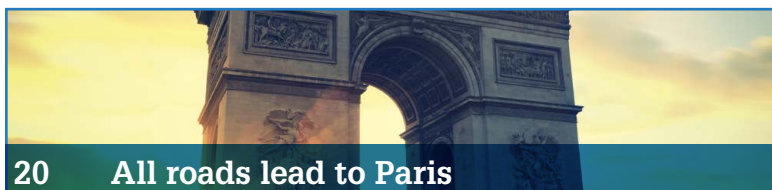
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Giving environmental technologies the green light

New technologies are vital to tackling climate change. With the global temperature hitting 1 degrees Celsius above pre-industrial levels for the first time recently, it is clear that incremental changes won't be enough to stem global warming. It is only by innovating and creating new ways of doing things that we can deliver a real step change in lessening our environmental impact. Yet many technologies that have the potential to deliver such change are being held back by existing standards systems. Standards are vital in regulating industries and in providing confidence for investors and users alike, but they are unable to keep up with the rate of technological development of green products in particular.

Innovators developing products that are not yet covered by current standards can struggle to prove to investors or customers that the performance claims of their products are correct, and secure the investment required to get their products to market.

To help tackle this issue, and remove the barriers to commercialisation for green technologies, the EU Commission established the Environmental Technology Verification (ETV) scheme. Backed by Defra here in the UK, under this programme, environmental businesses or entrepreneurs can have the performance of their product assessed on criteria of their choosing, rather than official standards. This helps to validate the claims that they have made about their innovation, through a third party. The National Physical Laboratory's (NPL) Centre for Carbon Measurement acts as a verification body for the scheme in the UK. With over a hundred years of experience providing measurement services to industry, NPL can provide the validation required to promote confidence in new products.

The first verification that NPL's Centre for Carbon Measurement is conducting is with Greengage Lighting Limited. Branded as AgriLamp, they provide innovative lighting solutions for the agri-business industry and in particular the poultry sector. An industry worth



over \$2bn, the poultry lighting market is highly regulated because chickens and turkeys are more sensitive to different wavelengths of the light spectrum than humans. For example, chickens can become disorientated and lay eggs on the floor if it is too dim, but can cause aggression, stress and even heart attacks if it is too bright.

AgriLamp's LED ALIS product provides light that is much better suited to poultry farming than traditional systems. Its light spectrum has been adjusted to emit

shorter wavelength radiation – more blue tones – which better suits poultry vision. This leads to calmer flocks, less pecking and lower mortality rates, as well as reducing floor eggs. Furthermore, as an LED, energy consumption is reduced by up to 90%.

The ETV scheme will give AgriLamp the opportunity to build their reputation in the agricultural industry – a sector that is dominated by regulation. Every

government is trying to use less power to achieve high production and so having internationally recognised proof that ALIS exceeds current standards will be of great benefit to AgriLamp in marketing its product. Furthermore, due to the international recognition of ETV in countries such as, the USA, Canada and Japan, AgriLamp will be able to access these markets more easily, eliminating any barriers they may have previously encountered.

The ETV system is open for applications from innovators looking to get their products 'rubber-stamped' and accelerate industry uptake of green technologies. The scheme can support any environmental technology, from waste water treatments to sources of renewable energy.

As part of the EU funded programme, a subsidy of up to 50% of the cost of verification is available for eligible applicants (excluding the costs of any additional testing required). For more information visit:

<http://www.npl.co.uk/carbon-measurement/>



A sense of optimism

Environment professionals would have entered 2015 looking forward to publication later in the year of the revised ISO 14001 standard. Many had been monitoring its development and hoping the final version would live up to the promise of earlier drafts and help them better integrate environmental management in their organisations. That optimism was largely met when 14001: 2015 was published in September.

Now, as we enter the final month of the year, practitioners will be looking forward in hope once again, this time to the climate summit in Paris (COP21). There is every indication the outcome will not be another Copenhagen (pp.20–21). In 2009, global leaders gathered in the Danish capital at COP15 to agree a plan to tackle climate change. Initial optimism, boosted by the attendance of the US delegation, quickly evaporated as delegates squabbled over procedure, and ended with rich and poor countries blaming each other for the debacle. All that emerged was a vague agreement, the Copenhagen accord, which was brokered in the final hours of the summit by just five nations (Brazil, China, India, South Africa and the US) but did little to meet expectations ahead of the conference.

Ahead of the Paris talks countries have been submitting to the UNFCCC their national climate plans – called intended nationally determined contributions (INDCs). Official analysis forecasts that the INDCs would limit temperature rise to around 2.7°C above pre-industrial levels by 2100. So it is unlikely COP21 will deliver a deal that will keep global warming below the 2°C threshold at which scientists believe catastrophic change could occur. According to the latest UNFCCC assessment the plans, as they stand, will not achieve the goal of peaking global emissions, then reducing them rapidly: they are still likely to be up to 22% higher in 2030 compared with 2010. It is worth pointing out the INDCs are voluntary and that COP21 is unlikely to agree legally binding reductions, so some countries may default on their commitments just as some have failed to meet their Kyoto protocol obligations. It is worth also remembering that around a quarter of the pledged reductions depend on richer countries providing finance, but money for mitigation remains a sticking point.

Nonetheless, let's remain optimistic. Two of the world's largest emitters of greenhouse gases, China and the US, have been cooperating on climate action over the past year, and the range of voices ahead of Paris calling for meaningful action is unprecedented. Let's hope global leaders finally deliver a deal that takes us a step closer to tackling climate change effectively.

Official analysis forecasts that the national climate plans submitted ahead of the Paris summit will limit temperature rise to around 2.7°C above pre-industrial levels by 2100



Paul Suff, editor

The Institute of Environmental Management & Assessment (IEMA) is the professional home of more than 15,000 environment and sustainability practitioners from around the globe. We support individuals and organisations to set, recognise and achieve global sustainability standards and practice.

We are independent and international, enabling us to deliver evidence to governments, information to business, inspiration to employers and great stories to the media that demonstrate how to transform the world to sustainability. Join us at iema.net.

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Short cuts

HFC phase out planned

Countries that signed the Montreal protocol have now agreed to discussing phasing out hydrofluorocarbons (HFCs). The 197 signatories said in November they would work on an amendment to the protocol that would eventually eliminate HFCs. Hydrofluorocarbons are used in air conditioning, refrigeration, foams and aerosols as replacements for ozone-depleting substances, such as chlorofluorocarbons, that are already being phased out under the protocol. HFC emissions are growing by about 7% a year and, if no action is taken, global emissions are estimated to be up to 8.8 gigatonnes CO₂e a year by 2050. Phase-out would prevent more than 0.5°C of warming by 2050, according to US national science body the Lawrence Berkeley National Laboratory. At the meeting in Dubai, signatories discussed flexibility of implementation, capacity building and the need for an exemption for countries in warm climates. Remaining challenges will be discussed in meetings throughout 2016, the UN environment programme (UNEP) said.

Fashion firms cut H₂O

Clothing companies representing more than half the UK retail market have reduced water impacts by 12.5% per tonne of clothing in two years. The data was revealed by waste adviser Wrap in an update on its sustainable clothing action plan (SCAP) sector commitment, which has targets to reduce water, carbon and waste to landfill by 15% by 2020 compared with 2012. The 82 retailers, brands and organisations signed up to the scheme have also achieved a 3.5% carbon reduction per tonne of clothing. The reductions have been achieved through using more recycled material over virgin options, particularly for polyester, and use of lower impact cottons such as those accredited by the Better Cotton Initiative. Wrap said it would soon publish industry guidance on sustainable clothing to help designers, manufacturers and retailers enhance clothing durability and performance (see feature, pp.12–15). George at Asda became the latest retailer to sign up to the commitment in November.

EU plans a sustainable TTIP

The European commission wants sustainable development, labour and environment provisions included the Transatlantic Trade and Investment Partnership (TTIP) agreement it is negotiating with the US.

With the talks on the bilateral deal continuing, the commission is proposing a chapter on trade and sustainable development. This would aim to establish high standards for labour and the environment and ensure the EU and US work together to address challenges such as child labour, health and safety at work and protection of the environment.

Trade commissioner Cecilia Malmström said: “Child labour, insufficient workers’ rights or irresponsible corporate behaviour are global scourges that I want trade policy to help us deal with.”

The plans were outlined by the commission in a new strategy, “Trade for all”, which it said aimed to make trade policies more responsible both in Europe and globally. The EU text on environment issues covers: better cooperation between the bloc and the US on tackling illegal logging and fishing; measures to prevent or minimise adverse effects on human health and the environment from chemicals and waste; support for trade and investment



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in green goods and technologies; and a commitment to the conservation of biodiversity and ecosystems.

Negotiations started in February on the TTIP, which seeks to lower trade barriers between the EU and US. The plans have been condemned by environment campaigners who fear “regulatory convergence” would result in less stringent regulations on pesticides and toxic substances, for example. Ilana Solomon, at the environmental body, the US Sierra Club, described the proposal was anything but sustainable. “It’s window-dressing, at best. Not only are the supposed environmental safeguards toothless but the proposal lacks any enforcement mechanism,” she said.

Tackling poor UK air quality

Retrofitting buses with emissions control technology, restricting emissions from construction site machinery and a scrappage scheme for owners of old diesel vehicles to replace them with new models are among the recommendations in a report on improving air quality in the UK.

A clear choice for the UK: technology options of tackling air pollution from trade body Environmental Industries Commission (EIC), which includes modelling by consultancy Temple Group, examined five scenarios for tackling the UK’s poor air quality. These were: widespread rollout of electric cars; replacing old diesel cars with models that meet Euro-6 standards or fuelled by liquid petroleum gas; retrofitting 10,000 old buses with emissions control exhaust systems; switching to renewable diesel for construction site generators; and applying photocatalytic treatments to polluted roads.

The modelling revealed that no single solution would cut air pollution enough, and that the scenarios had different strengths and weaknesses, such as whether they could be targeted on pollution hotspots and whether they reduced CO₂ as well as NO_x and particulate matter. It also found that electric cars could cost five times as much per tonne of pollution reduction compared with the other technologies modelled. “Electric vehicles have the potential to transform air quality but they are only one part of the jigsaw and in the short term appear relatively expensive compared with the other technologies modelled,” said EIC director Matthew Farrow.

Other proposals in the report to reduce pollution include the establishment of an Air Quality Committee. This would be similar to the Climate Change Committee created by the Climate Change Act and would report annually to parliament on progress in meeting legal air pollution limits.

Voluntary schemes not an alternative to regulation

Voluntary approaches to protect the environment have failed, according to the RSPB after a review of more than 150 schemes across several business sectors.

The conservation group undertook the study to fill what it says is a lack of evidence on the value of regulation for protecting the environment.

More than 80% of schemes it assessed performed poorly on at least one measure. Most schemes set unambitious targets, with many also failing to meet these. Many voluntary schemes are undermined by low rates of participation, leaving those who do take part and want to improve their performance at a disadvantage, it found.

An example highlighted by the organisation is the failure of a voluntary scheme for retailers to reduce the number of single-use plastic bags given to customers. Mandatory charges have now been introduced in England after the success of schemes in Wales and Scotland, the RSPB said. Two decades of voluntary approaches to cut the use of peat-based compost had also failed, despite good efforts by some producers and retailers, it said.



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The study found no guarantee that costs would be lower under a voluntary approach, since the design, negotiation and implementation can involve considerable expense. "There are limits to what is possible based on voluntarism alone given the commercial pressures that all businesses face," said Donal McCarthy, an economist at the RSPB.

When voluntary schemes do work, it is usually due to a close alignment between commercial drivers and environmental benefits. McCarthy said voluntary schemes need to include clear and credible targets, transparent reporting, independent monitoring and incentives.

Case-by-case EIA monitoring

Responsibility for monitoring the environmental impacts of developments under new European rules should be decided case by case, according to the civil servant leading the UK's transposition of the revised EIA Directive.

Tom Simpson, team leader at the communities department (Dclg), told IEMA's EIA conference that the details of how to transpose rules on post-development monitoring brought in by the revision were still being discussed.

The environmental statement would identify issues that might not be solved by mitigation and should be monitored, Simpson said. It would be up to the decision-making body, in many cases the local council, to work out who was responsible and how long monitoring should last. "We would look to Natural England or the Environment Agency to advise on that," he said. Simpson did not think the revised directive, which must

be transposed by spring 2017, would place extra pressure on councils because it would lead to fewer EIAs. Many local authorities conclude after screening that a project will not cause any significant environmental effects, which, he said, rendered EIA unnecessary. "Several marginal projects should be taken out of the process, which will free up councils," Simpson said.

Josh Fothergill, policy and practice lead at IEMA, said a reason behind this was that any potential threats would have been identified early on in the EIA process and designed out of the project.

Simpson said monitoring should be linked to a way of rectifying an impact if it finds that mitigation is not working. "You'd need some way of making use of monitoring, not just do it for the sake of it." Dclg would consult on the UK's transposition of the new directive next summer, he confirmed.

Short cuts

New guides to REACH

The UK Chemicals Stakeholder Forum has produced new guidance on the REACH 2018 registration deadline and a revised guide on REACH authorisation. From 31 May 2018, companies manufacturing or importing chemicals in Europe in annual volumes of between one and 100 tonnes will have to register the substance with the European Chemicals Agency (ECHA). They can do so independently or jointly with other firms. The new guidance aims to raise awareness of the deadline and to help companies consider what they have to do, in particular to prepare and submit dossiers to the ECHA. It will also provide advice for downstream users that need to assess the potential for disruption of their supply chains if substances on which depend are not registered. Authorisation is one of the REACH processes for managing the risks of particular hazardous substances and promoting their replacement with others that are safer. The updated authorisation guide aims to assist SMEs and downstream users, in particular, by providing practical advice on the authorisation process. Both guides are available at bit.ly/QYLMPT.

Paper and pulp sector

The 2015 WWF environmental paper company index reveals greater transparency and more interest in sustainability issues by some of the world's major manufacturers in the sector. Thirty-one companies participated in the index, up from 25 in 2013, disclosing an ecological footprint of 85 million tonnes of pulp and paper. The NGO evaluated firms' environmental policies and targets as well as environmental performance in the production of newsprint, graphic paper, tissue, packaging and pulp. Companies were assessed on responsible sourcing, clean production, environmental management systems and reporting. WWF said there had been progress since 2013 in companies that had participated in both indices, with overall scores increasing in more than 90% of product categories.

In parliament

Human health
and diesel cars

The widespread use of defeat devices by Volkswagen has led to thousands more tonnes of deadly pollution being emitted. This is a wake-up call to us all. We have to fix the much broader problem of diesel emissions in our towns and cities. A recent government study found that nitrogen oxides (NOx), largely emitted by diesel vehicles, are responsible for 23,500 early deaths in the UK each year. This is a public health crisis on a massive scale that has been ignored for far too long.

Yet, at a technical meeting at the end of October, EU governments agreed to double the legal limit for diesel emissions for the new, stricter testing regime that will come into force in 2017. The point of the proposed real driving emissions (RDE) tests is to reflect actual emissions on the road and prevent carmakers optimising conditions in laboratory tests. This should preclude the absurd situation in which some diesel cars emit up to six times more pollution than the legal limit when on the road but can still pass tests in the lab. But, although the new tests should lead to an overall reduction in diesel emissions, cars will still be permitted to belch out twice the amount of pollutants they were supposed to under current limits. Worse, the stricter tests will not apply to all cars until 2019, and even from 2021 diesel cars will be able to emit 50% more NOx than under current rules. The car industry has known since 2007 that this more exacting testing regime was on the way. The technology to reduce diesel emissions is available and affordable.

The technical committee's decision was taken behind closed doors. I put in a freedom of information request to clarify what position the UK had taken. The reply was remarkably candid, admitting that the UK government had voted in favour of delaying and watering down these new tests to cut deadly diesel emissions.

Catherine Bearder, Liberal Democrat MEP and a member of the European parliament's environment committee.

Natural capital risks to firms

Business-critical operations of UK companies are at risk due to diminishing stocks of natural capital, according to a study by consultancy AECOM and non-departmental public body JNCC.

It warns that overexploitation, increasing demand and the effects of climate change threaten natural capital and could have a significant impact on the bottom line for many UK businesses unless they take steps to understand their dependency on natural assets. Companies in the electricity supply and agriculture, forestry and fishing (AFF) sectors are particularly vulnerable, the study says. Electricity suppliers draw on natural resources to generate power as well as wider ecosystem services, such as water for cooling power stations, while the AFF sector relies heavily on natural capital, with soil quality and a secure water supply vital to business operations.

Petrina Rowcroft, AECOM associate director, said: "When examining natural capital, UK companies have typically focused on reputational impact rather than business continuity and the bottom line. It is therefore vital that finance departments are involved in discussions about the risks and rewards around natural capital."

Improving understanding of natural capital could help companies realise



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new revenue streams, says the report.

"Incorporating natural capital into business decisions is an important step to reducing risk and realising value," said Rowcroft.

Potential commercial opportunities highlighted in the study include generating revenue streams from stranded assets, such as contaminated land, as well as measures such as carbon or biodiversity offsetting and payments for ecosystem services.

In May, AECOM and JNCC produced a joint report, *Realising nature's value in UK businesses*. The new study aims to help companies operating in the electricity supply and AFF sectors to incorporate natural capital into their decision-making.

EU set to exceed 2020 target

Greenhouse-gas emissions in Europe decreased by 23% between 1990 and 2014 and have reached the lowest levels on record, according to analysis from the European Environment Agency.

The agency's *Trends and projections in Europe 2015* report reveals that the EU is heading for a 24% reduction by 2020 with current policies, and a 25% cut with additional measures already planned in member states. The EU's 2020 target is a 20% reduction on 1990 levels.

Commissioner for climate action Miguel Arias Cañete welcomed the 23% reduction, pointing out that the EU economy grew by 46% over the same period.

The report also finds that EU emissions fell by about 4% in 2014 compared with 2013. The agency said this was partly due to an unusually warm year, which lowered energy demand. It is estimated that by 2030, GHG emissions would be between 27% (with current

measures) and 30% (with additional measures being planned by member states) below 1990 levels, according to the analysis. This means that further action will be required if the bloc is to meet its 40% reduction target by 2030.

Meanwhile, a report from the New Climate Economy (NCE) think tank shows that improving energy efficiency in the G20 and other countries could reduce annual GHG emissions by up to 6.9 Gt CO₂ equivalent by 2030. The reductions would be accompanied by cost savings in appliances, buildings, industry and transport. NCE programme director Helen Mountford called for energy standards to help overcome barriers to improving energy efficiency. "Standards provide certainty for manufacturers and consumers, encourage technological innovation, remove inefficient technologies from the market, and reduce transaction costs," she said.

Tax must prioritise energy cuts

Responses to a review of energy efficiency taxes reveal strong ambition to retain environmental benefits as the central aim of a new system.

The Treasury's consultation ended in November. It proposed that businesses should be covered by a single tax and reporting scheme rather than the existing overlapping policies, which include the carbon reduction commitment (CRC), energy savings opportunity scheme (ESOS) and the climate change levy (CCL). The Treasury's stated aim is that a revised system would cut costs for government and businesses and protect energy-intensive businesses. It would also support productivity by improving incentives for energy efficiency and carbon reduction.

IEMA supports the principle of the consultation, but wants any replacement tax and reporting scheme to have carbon reduction as its central aim, against which all policies should be transparently assessed. The new system should reduce overall carbon emissions beyond the combined levels projected for existing policies, a principle that 90% of IEMA members supported (see panel below).

Support for clear environmental objectives in the new system also came from the Chartered Institute of Taxation (CIOT), which said that the direction of environmental tax policy ought to be clarified after all the changes made in recent years. Businesses would benefit from a single coherent climate tax as long as it is simpler to administer, understand and pay, it said. "However, for it to remain an environmental tax there must be clear environmental objectives," said John Cullinane, CIOT's tax policy director. "We



seem to be moving from green taxes that try to reduce energy use to them becoming just another revenue-raising mechanism."

The Electrical Contractors Association welcomed less administration and greater clarity, but said energy saving and reduction incentives should be retained in any new system.

IEMA has also asked for a reformed system to be durable and give business long-term certainty. A major part of the administrative burden an organisation experiences with any system is in preparing for it, IEMA's policy and engagement lead Nick Blyth, pointed out.

Manufacturers trade body EEF, meanwhile, wants the new system to demonstrate either a lower cost, a reduction in administrative burden or improved energy efficiency for businesses. Richard Warren, senior energy and environment policy adviser, said many businesses did not trust the government to maintain incentive schemes. He pointed to the CRC, which was originally designed with features to incentivise businesses. But these were subsequently cancelled, while the tax element was retained. "What's to say if fiscal circumstances demanded it, they wouldn't do the same again?" he said.

Business plans

Ikea has announced that all the cotton it uses in its products, from sofas to towels, is from sustainable sources. The Swedish company claims it is the first major retailer to use 100% sustainable cotton grown to the Better Cotton standard. The **Better Cotton Initiative** (BCI) was established in 2010 and works with cotton farmers to reduce their use of water, chemical fertilisers and pesticides. Meanwhile, BCI has reported that 1.2 million farmers participated in its programme in 2014, a 79% increase from 2013, and that "better cotton" made up 7.6% of global cotton production last year.

Air Products reports that it has achieved almost all its 2015 environmental sustainability goals. The industrial gases company's latest sustainability report reveals that it has reduced greenhouse-gas emissions from its production facilities by 7% against a 2007 baseline; cut water intensity in 2014 by 5% from 2013, resulting in a 28% overall reduction in water used to make each product since 2009; and cut energy consumption (primarily natural gas and electricity) at its large air separation units on an intensity basis by 7% against a 2007 baseline.

Packaging company **Tetra Pak** has published an update on its sustainability aspirations and said it was making good progress towards its long-term objectives, including capping carbon emissions in 2020 at 2010 levels. In 2014, emissions across its value chain fell by 16%, despite a 14% rise in production. The firm also reported that 650,000 tonnes of its beverage cartons were recycled globally in 2014, up from 623,000 tonnes in 2013. In January, Finnish dairy producer **Valio** became the first firm to sell products in Tetra's Rex bio-based carton, which is made entirely from plant-based materials.

United Biscuits has converted another six Euro VI vehicles to "ultra biofuel". It brings to 16 the number in its delivery fleet powered by waste oil. The firm said the vehicles were operating a dual-fuel system, with biofuel making up 85% of the total fuel consumed. This generated an overall carbon saving over conventional diesel of 82.5%, equivalent to removing 1.5 million truck miles from the road each year.

Poll highlights members' concerns on energy efficiency tax review

A survey of IEMA members in November found overwhelming support for a more joined-up approach to the energy efficiency tax landscape that includes both carbon reporting and pricing. Most respondents (90%) agreed that the allowance process in the CRC has been effective in raising the profile of energy and carbon costs. Nearly two-thirds (61%) agreed that, if the CRC is removed, the scheme's current allowance price of £16 a tonne should continue to function for companies subject to the scheme,

and possibly be extended to large energy users that are not covered. The introduction of an escalator on either carbon or an energy tax is supported by 79%. This should be similar to the landfill tax, which respondents said was a good example of a fiscal driver that had delivered change. Some 90% said taxes, mandatory reporting or scheme compliance aimed at reducing energy and carbon emissions work most effectively when combined and are visible, and rarely work in isolation.



In court

Oil firm fined almost £500,000 for permit breaches

Essar Oil UK has been fined £497,284 at Chester Crown Court for breaching permit conditions at the Stanlow Oil Refinery in 2012.

The court was told that on 31 July 2012 the roof of a storage tank failed under pressure, causing 3.7 tonnes of oil to be released into the atmosphere. Fine oil droplets fell over an area measuring 5.3km X 0.8km. Less than four weeks later, on 19 August, five tonnes of oil from the refinery entered the Manchester ship canal after failures in the site's effluent management system. The discharge forced the closure of the waterway for two days. Both incidents triggered extensive and expensive clean-up operations.

Richard Bradley, prosecuting for the Environment Agency, told the court that the first incident was due to a "catastrophic failure" at the refinery, which had run out of space to store long-residue oil in the usual hot tanks and was attempting to cool the liquid for storing in cool tanks. Long-residue oil is used for making oil products and the Stanlow operators failed to cool it enough, causing the tank to explode. Essar spent £1.2 million on the clean-up. The pollution of the canal occurred after the system to filter oil from water failed. That incident cost Essar a further £210,000 to clean up. The company pleaded guilty to both offences.

Judge Shetty said: "In my judgment this fine will achieve the statutory purpose. The penalty is not only proportionate and just but will bring home to the management and shareholders the need to protect the environment."

A spokesperson for Essar Oil UK, which is part of an Indian multinational corporation, said: "We take these matters very seriously. We conducted a thorough investigation following the incidents in 2012 and measures were put in place to ensure they could not happen again."

Nigel Glasgow for the regulator said: "Permit breaches of this nature are taken seriously by regulators and the courts. Since these incidents the agency has worked closely with Essar, which has improved its environmental performance."

In addition to the fine, Essar was ordered to pay costs of £40,000.

The company acquired the refinery at Ellesmere Port from Shell in 2011. The plant has the capacity to refine up to 296,00 barrels of oil a day, about 15% of the UK's demand for motoring fuel.

Packaging violations aid charities

Baby food company HiPP has paid £414,960 to charities for failing to meet its producer responsibility obligations.

The Producer Responsibility (Packaging Waste) Regulations require eligible companies to register as producers of packaging and to recover and recycle packaging waste. HiPP failed to meet these requirements between 2004 and 2011.

The Reading-based firm agreed an enforcement undertaking with the Environment Agency, which includes a payment to three environmental charities. Under the arrangement, HiPP is making three equal annual payments totalling £138,320. The Bumblebee Conservation Trust will receive £75,000; the Woodland Trust £189,960; and the Yorkshire Dales Millennium Trust £150,000. HiPP has also pledged to remain compliant in future.

£214,000 fine for water company

Plymouth Crown Court has fined South West Water £214,000 for breaching controls at its Camel's Head sewage treatment works in the city and failing to stop sewage polluting the River Tamar.

The court was told that, between March and September 2013, South West Water failed to operate and maintain the treatment works in accordance with good operational practice and to properly treat effluent. Judge Lawrie said there had been a complete failure to anticipate and take measures to counter some of the operational problems affecting the treatment works. "It is clear that water from this site did on a number of occasions contain polluted material and the fact that happened on an assortment of occasions and over a period of time should have prompted greater efforts by South West Water to reduce that significant risk."

Case law

Planning conditions justify the public good

The High Court's decision in *Horada v Secretary of state for communities and local government* shows that conditions and obligations can provide effective safeguard mechanisms to demonstrate a sufficiently compelling case in the public interest to justify a compulsory purchase order (CPO).

Planning permission was granted for the phased redevelopment of Shepherd's Bush, London, and an agreement made under s.160 of the Town and Country Planning Act 1990. This contained covenants guaranteeing the market's future. The planning authority made a CPO under s.226(1)(a) of the Act to secure the long-term future of the market. At appeal, an inspector found the redevelopment proposal had the potential to bring about significant improvements to the area, boost its economy and generate social benefits. However, the inspector considered the case insufficiently compelling in the public interest to justify a CPO because the environmental, economic and social benefits would materialise only if the essential ingredients and uniqueness of the market were retained. The secretary of state disagreed with the inspector's recommendation. That decision was challenged on the grounds that the secretary of state had failed to properly understand the schedule to the s.106 agreement and the effectiveness of the mechanisms available to secure the future of the market and its traders.

The court found that there had been no error of law in the secretary of state's decision. He had been entitled to consider the overall suite of measures sufficient to protect the vital characteristics of the market, including planning conditions.

Jen Hawkins

Lexis®PSL

New regulations



In force	Subject	Details
29 Sept 2015 	Energy	The Renewables Obligation Closure Order (Northern Ireland) 2015 makes provision for no renewables obligation certificates to be issued after 31 March 2017. bit.ly/1GvRITE
30 Sept 2015   	Environment protection	The Offshore Installations (Safety Zones) (No. 3) Order 2015 establishes, under s.22 of the Petroleum Act 1987, safety zones with a radius of 500 metres from a specified point around four listed subsea installations. These include territorial and tidal waters and waters in areas designated under s.1(7) of the Continental Shelf Act 1964. bit.ly/1FWyNX8
1 Oct 2015 	Environment protection	The Marine Licensing (Delegation of Functions) (Amendment) Order 2015 amends the 2011 Order to allow the secretary of state to determine a marine licence application. bit.ly/1KZoLUc
1 Oct 2015 	Planning/ environment protection	The Town and Country Planning (Historic Environment Scotland) Amendment Regulations 2015 amend legislation on environmental impact assessment, development planning and development procedures to reflect the formation of Historic Environment Scotland. bit.ly/1iJb7Lx
5 Oct 2015 	Planning	The Planning (Wales) Act 2015 (Commencement No. 1) Order 2015 brings into force provisions of the Planning (Wales) Act 2015 relating to the constitution and financial arrangements of panels, designation of strategic planning areas and establishment of strategic planning panels. bit.ly/20tDNcQ
5 Oct 2015 	Waste	The Single Use Carrier Bags Charges (England) Order 2015 introduces a charge of 5p for single-use carrier bags in England. The order also provides for a supporting enforcement regime. Under the scheme, sellers are required to maintain records, which must be supplied annually to the secretary of state and retained for at least three years. bit.ly/1VcF2tr
9 Oct 2015  	Energy	The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2015 amend the 2012 Regulations to include measures in art.27 (penalties) of EU Directive 2010/31/EU on the energy performance of buildings (recast). bit.ly/1OXDDq0
16 Oct 2015 	Environment protection	The Wellbeing of Future Generations (Wales) Act 2015 (Commencement) Order 2015 confers on Welsh ministers powers under the Wellbeing of Future Generations (Wales) Act 2015. bit.ly/1MyHYcZ
23 Oct 2015 	Water	The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 transpose EU Directive 2013/39/EU on priority substances. They introduce 12 further named substances to the list in the Priority Substances Directive (2008/105/EC). Directive 2013/39/EU revises environmental standards for some priority substances, requiring action to reduce emissions to water of 45 named substances. bit.ly/1RuWXcj
26 Oct 2015 	Emissions	European commission Decision EU/2015/1814 amends Directive 2003/87/EC, which established the EU emissions trading system (ETS). Decision EU/2015/1814 establishes a market stability reserve for greenhouse-gas emissions under the ETS to tackle structural supply-demand imbalances. bit.ly/1PIWkCy
26 Oct 2015 	Water	EU Directive 2015/1787 amends annex II and III to Directive 98/83/EC on the quality of water intended for human consumption. Minimum requirements for monitoring programmes and the specifications for the method of analysis of different parameters will be aligned to the latest updates in the guidelines for drinking water quality and standard EN 15975-2. bit.ly/1WvSooJ

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

New regulations



In force	Subject	Details
28 Oct 2015 	Energy efficiency	The Energy Savings Opportunity Scheme (Amendment) Regulations 2015 amend sch 1, 2 and 4 to the 2014 Regulations to correct drafting errors. bit.ly/1VEso4G
30 Oct 2015  	Environment protection	The Environmental Permitting (England and Wales) (Amendment) (No. 3) Regulations 2015 amend the 2010 Regulations by giving regulators more powers. Regulators can now serve a suspension notice if they consider that there has been a contravention of an environmental permit condition and there is a risk of pollution. They can also arrange for the removal of risks of serious pollution at permitted or exempt facilities. The previous requirement to apply to the High Court to secure compliance with notices before enforcement action can proceed has been removed. bit.ly/1MbVP9T
20 Nov 2015 	Water	The Water Act 2014 (Commencement No. 1) (Scotland) Order 2015 partly commences the arrangements made with Ofwat and set out in the Water Act 2014. These include allowing Ofwat and the Water Industry Commission for Scotland (WICS) to accept a single application for water and sewerage licences in each jurisdiction; and require WICS to forward applications for water services or sewerage services licences and associated information to Ofwat. bit.ly/1H76oOI
25 Nov 2015 	Reporting	The Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015 requires public bodies, including NHS organisations and local authorities, to prepare reports on compliance with duties imposed under s 44 of the Climate Change (Scotland) Act 2009. The bodies are listed in sch 1 and the issues they must report on include their total annual emissions and climate change targets. bit.ly/1RuWIy0
28 Nov 2015 	Water	The Natural Mineral Water, Spring Water and Bottled Drinking Water (Scotland) Amendment Regulations 2015 amend the 2007 Regulations by implementing EU Directive 2013/51/Euratom in relation to bottled spring water and drinking water. The Directive lays down the requirements for the protection of the health of the public with regard to radioactive substances in water intended for human consumption. bit.ly/1PvN8x5
28 Nov 2015 	Water	The Water Supply (Water Quality) (Amendment) Regulations (Northern Ireland) 2015 amend 2007 Regulations and the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009. The 2007 Regulations have been amended to include an additional analytical parameter (radon), with associated threshold values and sampling frequency. They also update sampling frequencies for tritium and indicative dose. References to Directive 89/106/EEC in relation to construction products in the 2009 Regulations have been replaced with references to the Construction Products Regulation (EU) 305/201. These regulations set harmonised conditions for the marketing of construction products and repeals 89/106/EEC. bit.ly/1X28HVh
14 Jul 2016 	Water	Directive 2014/80/EU on the protection of groundwater against pollution and deterioration amends Directive 2006/118/EC to clarify groundwater information that member states must provide to the European commission. States must provide details of groundwater bodies classified as being at risk and threshold values for various pollutants and indicators. bit.ly/1KhZPUj
27 Nov 2016 	Waste	EU Directive 2015/720 amends the packaging and packaging waste Directive (94/62/EC) by introducing measures to reduce the use of lightweight plastic bags. A labelling or marking specification for biodegradable and compostable plastic bags must also be developed at the European level by 27 May 2017 and applied by 27 November 2018. bit.ly/1NrAf4E

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

Latest consultations



11 Dec 2015

Non-domestic water rules



From April 2017, 1.2 million businesses and other non-household customers, mainly in England, will be able to choose their supplier of water and wastewater retail services. The water regulator, Ofwat, is reviewing the retail price controls that were established in December 2014, and cover the period 1 April 2015 to 31 March 2017 so that it can set appropriate controls when the market is opened to competition. bit.ly/1iFglXP

16 Dec 2015

Fracking in protected areas



Decc is seeking views on proposed surface development restrictions for hydraulic fracturing or fracking in specified protected areas, such as national parks and areas of outstanding natural beauty. The plans come after the government announced a commitment in July to not allow fracking to be conducted from wells that are drilled at the surface in specified protected areas. The energy and climate change department says it is particularly interested to receive evidence about the impacts the proposals would have on operators with

existing and new petroleum exploration and development licences (PEDLs), and on the specified protected areas. bit.ly/1Mcnx6x

18 Dec 2015

Standard permitting rules



The Scottish Environmental Protection Agency (Sepa) is consulting on the introduction of standard rules for permitting dry-cleaning. Part IV of the Pollution Prevention and Control (Scotland) Regulations 2012 allows Sepa to specify standard rules to be conditions of a permit for a standard installation, and the regulator intends to apply this approach to the regulation of dry cleaning activities in 2016. The regulator wants feedback on its plans from regulated customers, trade associations, representative bodies and local authorities. bit.ly/1XSmCzq

8 Jan 2016

Climate change levy



Energy regulator Ofgem is seeking the views of stakeholders on proposed changes to the process for presenting Guarantees of origin (GoOs)

after the removal of Climate change levy (CCL) exemption for renewables from 1 August 2015. GB electricity supply licensees used to present levy exemption certificates (LECs) alongside GoOs. But since the exemption was axed Ofgem has been unable to issue LECs. It is now consulting on an alternative way of receiving GoOs. bit.ly/1KZkVa1

15 Jan 2016

Car labelling



The European commission is reviewing the EU Directive 1999/94/EC – the so-called “car-labelling” directive – to determine whether the legislation remains “fit for purpose”. As part of its review, which covers the relevance, effectiveness, efficiency, coherence and EU value added, the commission has issued a public consultation to gather the views of vehicle manufacturers, suppliers and traders and their representative bodies, consumer organisations and vehicle users, among others. 199/94/EC requires information on the fuel economy and CO₂ emissions of new passenger cars offered for sale or lease in the EU to be made available to consumers. bit.ly/1Xfc2lO

New guidance

Enforcement and sanctions

The Environment Agency has updated its guidance on enforcement and the use of civil and criminal sanctions, which sets out how the regulator makes enforcement decisions, the types of tools and associated processes available to it (bit.ly/1XSywJK). The guide includes sections on: outcome-focused enforcement, which are sanctions, such as suspension and restoration notices, to achieve specific outcomes; general enforcement responses, including warnings and a range of criminal and civil sanctions; and choosing the appropriate response, including its “sanction decision tree”.

Marine plans

The Marine Management Organisation (MMO) has produced a user guide to marine plans (MPs), which are statutory plans on how the 11 English MP areas are used and developed (bit.ly/1OqT8Ha). MPs cover inshore (up to 12nm) and offshore (12 to 200nm) waters. The guide covers the use of plans by public authorities and applicants for new or existing development or activity.

Environmental metrics

An interactive briefing guide on the range of metrics the government uses to assess and report on sustainable development and environmental protection has been produced by the National Audit Office (bit.ly/1N7uNQO). It covers qualitative information, such as longer-form reports that provide a narrative view of progress, as well as quantitative information, such as standalone data sets. The government is developing a planning and performance framework for departments to replace departmental business plans, and the NAO says environmental metrics are likely to form part of this framework. Departments will be asked to incorporate metrics related to the sustainability of their estate and business travel and actions and milestones related to the government’s manifesto commitments.

Dedicated followers

With clothing production behind only oil as the planet's most polluting industry, **Samantha Lyster** finds that the fashion world is finally waking up to the environmental nightmare it has created

Every year news reports of post-Christmas sales and, more recently, Black Friday are accompanied by images of frenzied shoppers storming department stores. Sales of clothing and footwear account for much of this consumer activity. Aside from the environmental problems associated with mass consumption, before the average chain store garment even hits the rails it will have racked up an impressive list of ecological damage.

Such is the scale of the natural degradation associated with the manufacture of clothing, the Danish Fashion Institute (DAFI) ranked it second only to the oil industry in terms of polluting the planet. However, many of the larger brands are also facing up to the fact they are running out of resources and are trying to clean up their act.

Changing business model

"The clothing industry is facing a lot of challenges that have been caused by the changes in its business model," says Stella Claxton, lecturer in international fashion business at Nottingham Trent University. "In 1995 the average cost of a man's jumper was around £29; today it costs the same, and that's due to the globalisation of production.

"Consumers only think of the increases in volumes of textiles, but behind that is an increase in production processes. More growing of fibres means increased use of pesticides and herbicides, more dying of material, and more shipping of products."

Claxton, who is part of the university's sustainable consumption research group, adds that the clothing industry is now looking to use fibres that are more sustainable than cotton, which is a difficult crop to grow

and requires large quantities of chemicals and water. According to conservation NGO WWF, 2.4% of the world's cropland is planted with cotton, yet it accounts for 24% and 11% of the global sales of insecticide and pesticides respectively. Conventional cotton (rather than the organic variety) for one T-shirt can consume as much as 2,700 litres of water, says WWF.

"There's not enough organic cotton in the world, so brands are looking for materials made from sustainable sources," Claxton says. "There is also a lot of work going on in the industry around the lifecycle of clothing, looking at materials that compost."

Sustainable fibres include bamboo, pineapple plant fibre and Tencel, which is made from fast-growing eucalyptus trees. Amsterdam-based jeans brand G-Star Raw has pioneered the use of Tencel in its manufacturing, and it is also one of the first to use another new fibre, bionic yarn. Made by Return Textiles, which counts the US music mogul Pharrell among its investors, bionic yarn is spun out of discarded ocean plastic. The South African chain store Woolworths announced in April that it had appointed Pharrell as style director for its sustainability initiatives, which will include selling T-shirts made from bionic yarn.

The use of recycled plastics in clothing manufacturing is quickly moving from a celebrity-backed niche to the mainstream thanks to the idea being taken up by Levi Strauss. The company, famed for its 501 denim jeans, introduced its Waste Less men's collection in 2013, with 20% of the material made from recycled plastic bottles. Sportswear brand Nike also turns discarded plastic bottles in clothing. At the 2014 World Cup, each of the kits worn by the footballers of Brazil, France, Greece,



of fashion

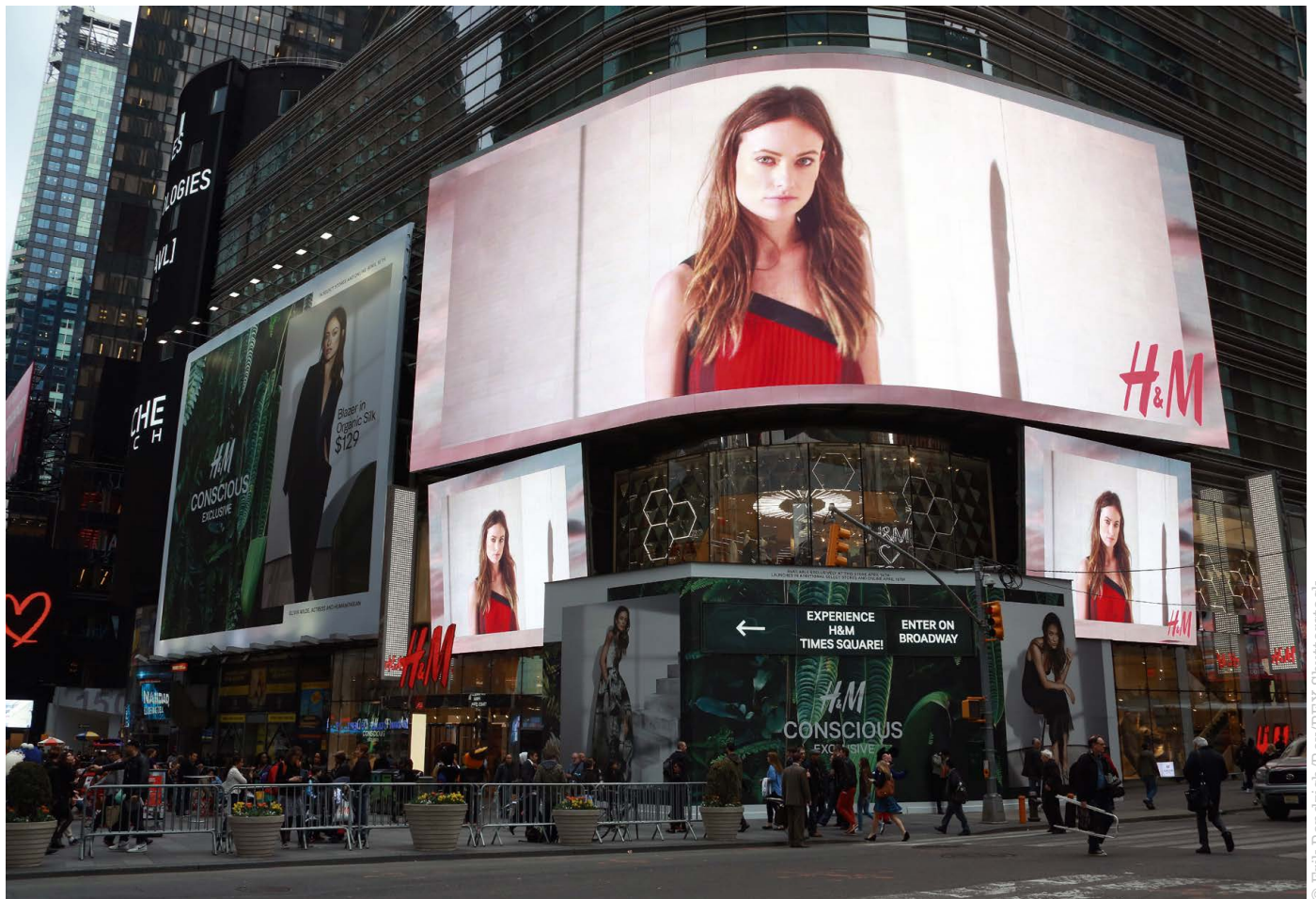
Portugal, the US, Australia, South Korea, Croatia, England and Holland contained 13 recycled bottles.

Levi's Waste Less collection is one of many projects by the company to reduce its ecological impact, including helping to launch the Better Cotton Initiative (BCI) alongside several other retailers. Not only does BCI include research into improved cotton-growing practices, it has also halted the buying of cotton from Uzbekistan, where water mismanagement had reduced the Aral Sea to 10% of its original size by 2007 and, according to images released by NASA in 2014, had almost completely dried out in parts. "Sustainability is at the core of everything we do at Levi Strauss & Co," says Michael Kobori, vice-president of sustainability. "There is huge potential to drive new breakthroughs in our industry, business and products through sustainable innovation."

A European plan

While brands are working together for solutions, UK waste and resource body Wrap is leading a Europe-wide plan to significantly change the way clothing is made and disposed of. The European Clothing Action Plan (ECAP) is a €3.6 million pilot project funded through LIFE, the EU's financial instrument supporting environmental, nature conservation and climate action projects, and will work with brands, retailers, manufacturers, reuse and recycling organisations, charities and consumers (see panel, p.14). One of its missions is to support the design of garments and products in closed-loop production processes to reduce carbon, water and waste footprints by turning old clothes into new garments. Wrap is working with sustainability consultancy MADE-BY, Rijkswaterstaat (part of the Dutch environment and infrastructure ministry), DAFI and the London Waste and Recycling Board. All of the ECAP partners have experience in the field.

In the Netherlands, Rijkswaterstaat is working on the Dutch national programme, From waste to resource, which supports the creation of a circular economy, recycling and resource efficiency in several supply chains. It is hoped this work can be an example for clothing companies throughout Europe. DAFI will contribute by educating designers and manufacturers in the area of sustainable design.



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Recycling materials

The problems of discarded textiles are well documented, from ending up in landfill to unsold charity donations flooding the developing world's local markets, and having an impact on homegrown clothing businesses.

However, there is now an emerging economy in recycled fibres, turning the waste material into new threads with which to create future fashion collections, or even provide insulation for housing.

US-based I:CO, which stands for I Collect, has partnered with brands including H&M, American Eagle, Levi, North Face and Puma to replace materials with recycled options over the next five years. The company was founded in 2009 by Stephan Wiegand to tackle the mounting problem of textile waste.

Consumers donate unwanted items to local retailers, and these are delivered to an I:CO facility where there is a team of sorters. Any clothes good enough to be worn again are resold. The rest is sent to different stations depending on quality. Absorbent fabrics are put through a shredder and will eventually become windshield wipers. Others are pulled through massive rollers, and before fabrics are pressed, hard materials such as buttons are removed. The material is used to fill stuffed animals or turned into insulation.

Meanwhile, Finnish company Pure Waste Textiles sources textile waste from global supply chains and reuses it to create new fabrics. Its flagship product is recycled denim, which has already been dyed, and therefore eliminates this particularly damaging aspect of making a pair of jeans.

Jonas Eder-Hansen, vice-president and development director at DAFI, says this is important because many of the problems associated with clothing production could be averted at the start of the process. "Up to 80% of a garment's environmental impact is decided in the design phase," he says. "Only a few designers and product developers realise their potential to create sustainable change through their decision. As part of ECAP, DAFI is creating an online learning platform for designers and product developers to fulfil their potential and design for longevity. The results will build on DAFI's long tradition of working with designers through its fashion source library of eco and innovative materials."

As part of the initiative, Wrap will be launching campaigns targeting consumers in association with recycle and reuse charities and organisations. The Love Your Clothes campaign, which is coordinated by Wrap and has been developed with the industry as part of the Sustainable Clothing Action Plan (SCAP), aims to raise awareness of the value of clothes, how to take care of them so they last longer, as well as what to do with unwanted items. SCAP was launched in 2013 and, in a progress report in November, Wrap said the sector was beginning to make positive changes to the way it designed and manufactured products. For example, there is a move towards more sustainable fibre choices where recycled material is chosen over virgin options, particularly for polyester. It also reported that the industry was moving away from conventional to lower impact cottons.

Design systems

One aim of the European Clothing Action Plan is to encourage designers to take into account sustainability at the start of the creative process. New York-based designer June Sohn is an example of what can be achieved by thinking in sustainable terms. Her contemporary outerwear line JUNGWON uses 100% recycled materials, and is worn by celebrities such as the singer Sam Smith, whose song *Writing's on the wall* features in the latest James Bond film, *Spectre*.

"After working at a fashion outerwear company, I moved to a company that launched a line of organic products ranging from baby to adult," Sohn says. "During this time my eyes were opened to considering organic products more and their benefits. It made me realise we have to take more responsibility for the environment. Europe is very advanced in this area, and I studied [there] from the yarns to production to the complete product."

"From this I learned I could make the choice to design with nature and the future world in mind – even though it costs more. Consumers appreciate the design and product but I feel they need to be more educated about sustainable fashion. [They] are keen to learn more about eco-products for children but the mindset changes when adults shop for themselves as many have the priority to look good first; the ethical element is appreciated, but secondary."

Sohn says designers and manufacturers should continue to create collections that appeal to the consumer, yet ensure the clothes are sustainable.

Barriers to change

Claxton says there is so much to be done that many companies are unsure where to start. But price will always be a sticking point for many, especially in a climate in which stores are still competing through cost. "We have in a sense let the genie out of the bottle, and shoppers are now used to cheap, disposable clothes," she says. "Therefore we have to look at the manufacturing, and how that can not only lessen the consumption of energy and water, but also reduce costs."

M&S has been concentrating on this as part of Plan A. Since 2007, under the guidance of the retailer, 102 of its largest clothing factories have adopted energy-efficiency measures, reducing costs by 10%. The retailer is also trying to tackle the problems associated with dyeing materials by working with four "eco dyehouses" – one in China, three in Turkey – to develop best practice on chemical management, water use, energy efficiency and waste.

Mike Barry, director of Plan A, says there remains more work to be done to achieve the sustainability goals the business has set for 2020. "In the months ahead we'll step up our efforts to help create a circular economy by joining up many existing initiatives and filling a few gaps with new ones," he says.

The fashion industry in the UK contributes £26 billion to the economy so it is understandable that measures to stem consumption may not be welcome, but with the right support it is hoped that the sector will continue to find ways to reduce the ecological impact while offering exciting new clothes.

Samantha Lyster is a freelance writer.



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According to Zero Waste Scotland, about 350,000 tonnes of clothing are sent to landfill in the UK each year, while in the US the Council for Textile Waste claims 85% of discarded clothing goes straight to landfill sites.

Several clothing retailers, including H&M and Marks & Spencer, are pioneering efforts to collect and reuse garments. In February 2013, H&M launched its garment collection initiative, which the Swedish-owned retailer claims was the first global scheme. It estimates that 95% of the textiles thrown away each year can be reworn or recycled, and reported earlier this year that it had collected 18,000 tonnes of clothing worldwide. In September, H&M launched its first "close the loop" range of denim clothing, made using recycled cotton from the textiles collected. "Creating a closed loop for textiles, in which unwanted clothes can be recycled into new ones, will not only minimise textile waste, but also significantly reduce the need for virgin resources as well as other impacts fashion has on our planet," said Karl-Johan Persson, chief executive of H&M.

The firm says it can use 20% recycled cotton from collected clothes and is investing in technology to increase this share without losing quality.

M&S launched its "shwopping" scheme in partnership with Oxfam in 2012 as part of its Plan A sustainability strategy. It encourages customers take an old item of clothing into an M&S store when they buy something new. The clothing is sent to Oxfam and sold in the charity's stores. Some items are forwarded to people in developing countries or they are recycled, with the fibre turned into new material. In the first year of the scheme, Oxfam reported that more than 6.9 million garments had been donated, worth up to £4.5 million to the charity.

Rebuilding Europe

Robin Lancaster finds out what the UK could learn from retrofit schemes on mainland Europe

Buildings accounted for 18.4% of global greenhouse-gas emissions in 2010, according to the UN's Intergovernmental Panel on Climate Change (IPCC). With the human population forecast to rise to almost 10 billion by 2050, which will result in more homes and offices being built, the panel noted in its assessment that emissions from buildings had the potential to triple in that time. However, it also said these could fall if cost-effective best practices and new technologies are used.

One solution the IPCC proposed was housing stock renovation, which, it said, could deliver energy savings of 50% to 90%. But in the UK policies to incentivise housing retrofits have been cancelled and a replacement regime has yet to be agreed. The UK's green deal scheme became a victim of the government's spending constraints when, in July, Decc announced no further funding for energy-saving improvements, such as insulation or double-glazing.

By the end of June, about 10,000 properties had been renovated using green deal finance, with a further 5,600 finance plans currently in progress. Despite the numbers, Decc claimed that low take-up and concerns over industry standards were the reasons for the scheme's demise. It has commissioned an independent review to look at standards, consumer protection and the enforcement of energy-efficiency schemes for buildings. But, for the time being, the only government-led scheme to retrofit buildings is the Energy Company Obligation, which targets properties occupied by low-income families.

Looking across the channel

While the UK considers the options, it could do worse than seek inspiration from projects elsewhere in Europe.

One, the two-year multilateral Build Upon initiative, was launched in March by various European green building councils with €2.35 million funding from the EU's Horizon 2020 project. Build Upon aims to stimulate the creation of energy-efficient renovation strategies in Bulgaria, Croatia, Czech Republic, Finland, Ireland, Italy, Latvia, Romania, Slovakia, Slovenia, Spain, Sweden and Turkey.

38%
reduction in
buildings'
energy use
is the target
in France

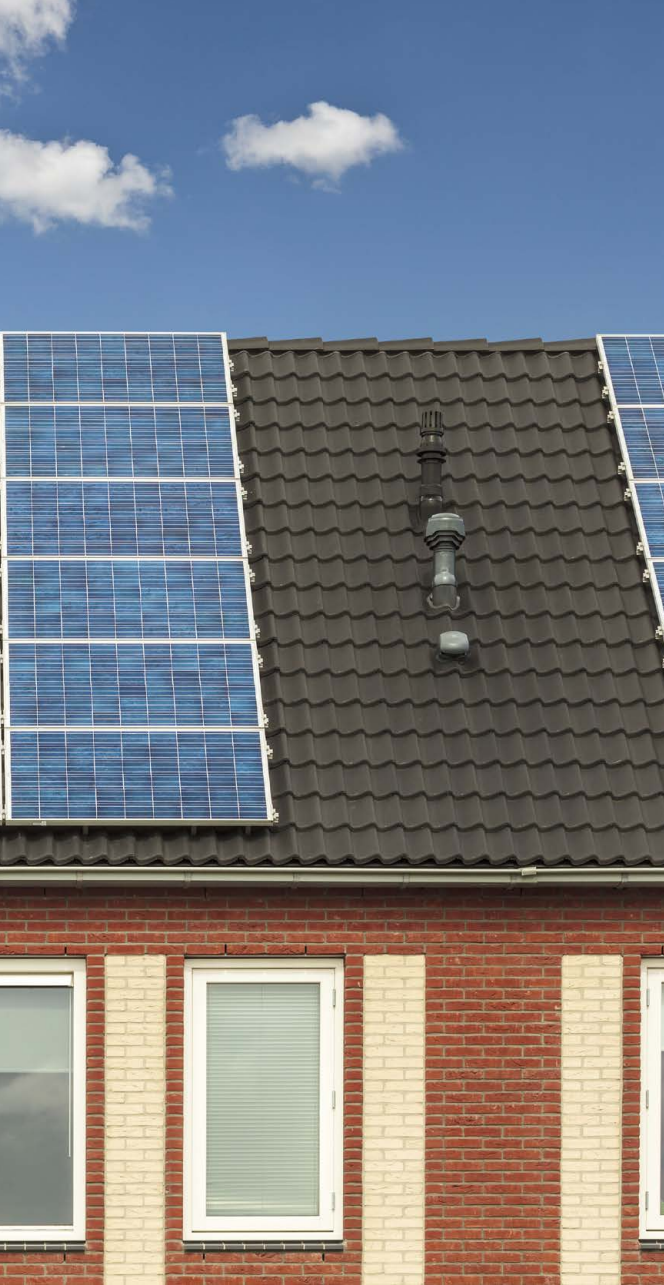


Build Upon has taken its lead from initiatives in other sectors that, despite a lack of resources, have brought together stakeholders to solve long-term problems, says James Drinkwater, senior policy adviser for the European regional network of the World Green Building Council. The buildings sector is a massive, fragmented market, he says, and the initiative involves key stakeholders collaborating on the design of retrofit strategies.

Build Upon is still in its early stages and is focusing on organising events and workshops to stimulate a dialogue between stakeholders. It is also mapping out the current renovation landscape and Drinkwater himself has been working on Renowiki, a database of about 500 renovation schemes in Europe. Build Upon plans to expand and strengthen retrofit strategies before putting forward ideas for country plans and generating buy-in to deliver them.

Drinkwater stresses the importance of collaboration and developing a multi-stakeholder process to achieve successful retrofit strategies. The significance of such collaborative approaches is already bringing benefits to some European countries, including France and Denmark.

France has set a target to reduce energy consumption from buildings by 38% by 2020. To this end, the ministry of ecology, sustainable development and energy has held meetings with more than 1,000 stakeholders nationally and 5,000 regionally. The country plans to renovate about 500,000 homes a year by 2017.



The Danish example

Denmark also used a multi-stakeholder process to devise action plans to renovate buildings. In 2012, it brought together manufacturers, architects, engineers, housing associations, investors, local municipalities, the financial sector, NGOs and industry associations in a project called the Network for Energy Retrofit. They divided into groups to look at six areas: single-family houses and small buildings; multi-storey family buildings; offices and industrial buildings; integration of renewable energy; financing structures; and research and development.

After six months the groups had drawn up more than 300 recommendations, which were eventually whittled down to about 180. These were reduced further by a steering committee of experts before the government chose 21 of them.

"The focus was on the quality of the renovation and additional values," says Kurt Emil Eriksen, senior political adviser for corporate social responsibility and public affairs at one of the stakeholders, specialist window company Velux. "We talk about energy savings but that often does not cover the value of the investment and so we identified other qualities from the renovation," he says. These other qualities included the indoor climate, which focuses on improving the comfort levels of a home, such as daylight and more efficient air quality, on which we tend not put a value," says Eriksen.

Another recommendation was to create long-term targets for industry to work towards. "Now we know what the situation has to be in 2020 – the outlook is clear," says Eriksen. "We all start working on this and have a long period to train ourselves and learn before buildings have to meet the new demands."

The government also approved taking a holistic approach to renovations rather than base it on individual aspects. In the past, says Eriksen, energy saving values were applied to individual components, such as a wall or a window. "Now we have an overall classification for buildings, which means we can meet all the requirements rather than focus on individual components [during the renovation]."

The Danish initiatives are in the early stages of implementation so the overall impact is not yet discernible.

Velux, meanwhile, is participating with three other companies – Rockwool, Danfoss and Grundfos – in a private sector scheme called Better Homes. Under this, a website provides a homeowner with a rough overview of the types of renovations that could be implemented. The owner can then contact Better Homes to receive a more detailed analysis of what is feasible both in energy-efficiency and cost terms.

Going Dutch

In the Netherlands, tenants, housing associations and construction companies have come together on an ambitious project called De Stroomversnelling. The aim is to turn typical Dutch terraced houses built between 1945 and 1970 and owned by housing associations into modern, net-zero energy buildings in just 10 days.

Because of their age these homes have a large scope for saving energy and their sheer numbers provide huge market potential. "The industrial way these houses were built makes the development of a systematic approach and technological solution replicable and therefore a valuable investment," says Linda van Leeuwen, a technical developer in the housing renovation department at the Royal BAM Group, one of the construction companies involved in De Stroomversnelling.

The scheme is still in the prototype phase, she says, but has a goal of making 1,000 retrofits a year just for BAM. The work includes installing a prefabricated roof with integrated solar panels and prefabricated insulated facades. In backyards a prefabricated energy module is positioned to provide heat, hot water, power and ventilation. Bathrooms, kitchens and toilets are also replaced and the houses are converted from gas to electric.

The money the tenant would have spent on energy is paid to the housing association as an "energy performance fee". The association reinvests this in more retrofits. The result is a more modern, comfortable home for the tenant, good quality housing stock for the associations and more business for construction companies, says van Leeuwen. She adds: "There is only a business case when all the partners involved benefit either financially or socially. Collaboration is needed to create a viable business case between the partners involved."

21

the number of measures in Denmark being used to retrofit buildings

10

days is all it will take to improve the efficiency of Dutch houses



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24k
apartments in
Estonia have
been made
more energy
efficient

The scheme has been recognised by the EU and, through the Horizon 2020 project, a €5m grant has been provided to expand De Stroomversnelling. The new initiative, RENnovates, focuses on the wider energy use in the retrofit. It aims to use technology to make the operation of the energy modules more flexible and offer services to the grid. Stedin, the network operator, is a partner in the project.

The key to RENnovates is that the households that go through the De Stroomversnelling process end up using electricity only. Therefore, in winter there is high demand for power but residents can give back the summer surplus to the grid. The use of heat pumps and batteries ensures that Stedin can minimise or avoid costly investments in extra capacity on the electricity network. The RENnovates project, so far, includes 200 homes in De Stroomversnelling, but the partners are looking beyond the Netherlands.

"We are currently looking for opportunities to replicate the deep renovation approach in the RENnovates project across Europe," says van Leeuwen. Poland and Spain are likely to benefit next given that other partners in the project include Warsaw-based construction company Mostostal and Basque-based corporation Mondragon. But other markets will also be considered, she says.

The Baltic experience

Elsewhere in Europe, some countries have instigated loan and grant programmes to stimulate retrofit building schemes. Estonia has a "revolving" loan scheme set up through its credit and export guarantee fund (KredEx). The fund, which ran from 2009 to 2013, has been used to renovate apartment buildings – which house 75% of the Baltic state's 1.3 million people.

Working with the country's two largest banks – SEB and Swedbank – KredEx dispersed €72 million in loans to associations that owned at least three apartments. Financial backing, which came from the European Regional Development Fund, the Council of Europe Development Bank, KredEx and the Estonian government, covered up to 85% of the renovation value of each apartment.

The scheme resulted in average energy savings of 48% in more than 20,000 apartments, says Madis Laaniste, strategic planning manager in the energy

department at Estonia's ministry of economic affairs and communications. The average loan was about €110,000, with the efficiency improvements targeted at different features of a building, including heating, ventilation, windows, roofs, doors, ceilings and facades.

Estonia also created its green investment scheme (GIS), which used funds from the sale of assigned amount units (AAUs) – and are tradable under the Kyoto protocol – to renovate the buildings. Each AAU is equivalent to one tonne of CO₂. The protocol's goals are set mainly against 1990 baselines, so most countries in central and eastern Europe, including Estonia, could easily meet Kyoto targets because of economic contraction since the collapse of the Soviet Union. GISs were established in some countries to provide an environmental benefit from the proceeds of surplus AAUs, which countries with Kyoto caps can sell to each other.

KredEx also distributed funding through a grant scheme that provided money towards 15%, 25% or 35% of the renovation costs, says Lauri Suu, grant manager at the organisation. The required energy efficiency improvements and complexity of the retrofit depended on the size of the grant. To receive a 15% grant, energy savings had to amount to between 20% and 30%; a 25% grant was linked to efficiency improvements of 40%; and the 35% grant to energy savings of at least 50%.

In terms of the complexity of the renovation, a 35% grant required work on a building's roof, façade, windows, heating system, heat-recovery ventilation system, and targeted energy consumption of less than 150kWh per m². A 25% grant does not include the heat-recovery ventilation system, while the energy consumption target is less than 200kWh per m².

Fully 661 buildings and about 24,000 apartments have so far benefited from the scheme, achieving average energy savings of about 40%, says Suu. The grant scheme is still operating in Estonia but the revolving loan has been discontinued mainly because banks are now providing their own funding for retrofits.

Germany has a similar scheme through its state-owned development bank KfW, says Eriksen at Velux. The bank provides loans for renovation activities that go beyond what the law requires, he says. For example, if a window is to be replaced it will need to meet a particular standard level of efficiency, but the replacement could qualify for support from KfW if the savings are 20% greater than the legislation requires.

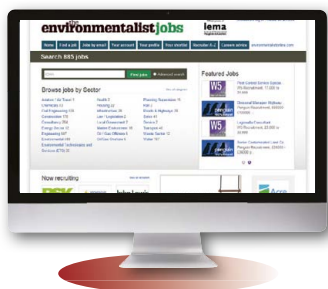
Multiple benefits

For a renovation scheme to be successful it needs to provide multiple benefits that go beyond thinking in terms of a payback from the energy saving. Eriksen says: "No-one buys a new kitchen or bathroom for a payback. In all other areas [of the building sector] no one talks of a payback. They do it because they would like a modern house and a nice place to live. But when it comes to renovation strategies we talk of providing a payback. We need to consider the other qualities, such as a more healthy building to live in as well."

Robin Lancaster is an environment writer.

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All roads lead to Paris

Ahead of the UN climate summit, **Catherine Early** gauges opinion from IEMA members and businesses

Copenhagen vs Paris

Campaigners had high hopes ahead of the Copenhagen climate summit (COP15), but the talks were widely seen as a failure, amid diplomatic chaos and distrust among global leaders. But commentators are confident that the Paris talks, from 30 November to 11 December, will be different for many reasons.

- **The US and China are now both engaged.** Before Copenhagen, these two major sources of greenhouse-gas (GHG) emissions were not cooperating on climate action. They have since made major commitments that have helped to build mutual trust as well as encourage other countries to act.
- **Countries have pledged climate action ahead of Paris.** In Copenhagen, national pledges were unclear or non-existent, creating distrust and frustration. At the time of going to press, more than 150 countries have submitted climate action plans, known as intended nationally determined contributions (INDCs).
- **More climate legislation is now in place.** Ahead of the Copenhagen summit in 2009, only a handful of countries had implemented climate legislation. Now, 75% of GHG emissions are covered by legislation.
- **Climate action is beneficial to the world economy.** A series of studies, including from the New Climate Economy collaboration, has provided significant evidence that tackling climate change is good for the global economy, while business as usual will be bad.
- **Unprecedented growth in renewables.** Global renewable energy capacity, including hydro, has grown almost 40% since Copenhagen, with significant cuts in cost.
- **More voices are calling for action.** Environmental campaigners were the most vocal proponents of a global climate deal in 2009. Pre-Paris, those urging action include mainstream businesses, investors, world leaders, the Pope, Islamic scholars, senior Buddhists including the Dalai Lama, and powerful voices in finance, such as the governor of the Bank of England, Mark Carney, and IMF managing director Christine Lagarde.
- **French diplomacy.** The French government has already garnered widespread praise for the way it is coordinating the talks. French diplomats globally have been ordered to make climate change a priority. Political leaders are to attend the talks on the first day, rather than at the end, to prevent the chaos of Copenhagen.

Heasy in politics and technical jargon, the UN climate negotiations may seem a long way from day-to-day business operations. Although it is yet to be seen how strong an agreement will be, optimism is high that there will be some kind of deal in Paris (COP21), so businesses will need to prepare for more stringent regulations in the years ahead.

"If you're a chief executive, you've got 15 years of tightening regulations," warns Jon Williams, partner in sustainability and climate change at PwC.

Many businesses still view climate change as a long-term issue, he says. More than half of chief executives surveyed this year by PwC said their board discussed climate change and extreme weather risks only after they were affected by them. To Williams, this reveals a tendency to view the issue through the lens of crisis and risk management rather than strategic business planning.

Eliot Whittington, deputy director of the Prince of Wales Corporate Leaders' Group (CLG), says the extent to which companies are engaged with what is going on at the COP21 talks varies and can depend on the sector in which they operate.

A multinational energy company is likely to pay far more attention than a general services company, Whittington says. But he adds: "From whatever level an organisation is looking at it, they want to know how this will affect the policies they operate under."



Key issues at the Paris negotiations

- **Differentiation** – This is the difficult issue of whether to treat developed and developing countries differently. It cuts through most elements of the deal. In the past, responsibility for climate action has fallen on developed countries, but many favour changing this now that many developing countries are growing at pace. At the UN climate talks in Lima last year, countries agreed that those “in a position to do so” would take more action, but disagreements over this re-emerged in Bonn at the end of October during talks on the draft text for a global agreement.
- **Finance** – This is one of the most contentious elements of the deal. Some developed nations, including the US, want to broaden the number of countries contributing to an international climate fund, while the G77 group of developing nations believes that only developed countries should provide finance. There are also disagreements between these two groups over whether private finance should be included, or just public.
- **Long-term goal** – This will set the direction of travel for future emissions reductions. After the culmination of the Bonn talks, three options remained in the text, but each contained several sets of choices such as whether there will be a percentage target and date for peaking of emissions.
- **Ambition mechanism** – This will establish a regime to work towards keeping global temperature rise below 2°C, above which scientists warn of potential catastrophic climate change. Key questions include: How often should country pledges be reviewed? How will emissions reductions be monitored and verified?
- **Market mechanisms** – These include taxes, emission-performance standards and emissions trading. A deal in Paris is not expected to spell out a specific scheme. However, many businesses want recognition of the role of market mechanisms in reducing emissions and a framework for linking schemes from different countries – such as the EU emissions trading system and the US regional GHG initiative. The wording of the post-Bonn text clarifies how countries can cooperate on markets, with proper accounting of transfers and avoiding the double-counting of emissions reductions. It also creates a sustainable development crediting mechanism.
- **Loss and damage** – This refers to the compensation developing countries will receive for climate change impacts that are difficult or impossible to adapt to, such as sudden events like major storms, as well as slower impacts, such as soil becoming too salty for agriculture. Some negotiators want this section removed from the text altogether.

According to Whittington, the number of businesses in the vanguard of tackling climate change has grown dramatically over the past 18 months, particularly in the consumer goods sector: “More and more businesses are engaging more seriously. What’s been apparent is a much louder voice from companies that are already affected by climate change or see it coming soon.”

IEMA’s climate change network has been conducting a webinar campaign to mobilise other members on climate action. Nick Blyth, IEMA’s policy and practice lead for climate change, says: “One thing that’s going to be really important is keeping momentum after Paris.

“Implementation of the climate pledges will be important, and we’re very interested in how the monitoring and verification will work.”

Network member Anna-Lisa Mills, group sustainability manager at Innovation Group, says her company, being in the insurance sector, is concerned. There have been lots of internal meetings to discuss the implications of climate change on the business and the group’s chief executive, Andy Roberts, co-signed a letter supporting Bank of England governor Mark Carney’s speech in September on climate change, she says.

“Our clients are all paying for the impacts of climate change. We want strict targets and that’s why we’re calling for action,” Mills says.

Another network member, Jae Mather, director of sustainability at the Carbon Free Group and partner

at Responsible World, says there are far more business leaders attending the Paris talks than there were at the Copenhagen round in 2009. “This should make a big difference. There’s an undercurrent that things are going to change, a sense of inevitability,” he says.

There remains a sustainability skills gap at the top of businesses, but Mather says: “Ultimately it doesn’t matter whether business gets this or not, the inevitability of market failures from climate change is coming. It will make business models obsolete.”

Williams believes that COP21 could be a tipping point for the low-carbon transition and urged IEMA members to seize the opportunity. “Now is the time to do that internal lobbying so that the board understands what could happen after Paris,” he says.



More than 80% of product-related environmental impacts as well as the major lifecycle costs are determined in the design phase

Design for life

Paul Suff looks at how designers can help achieve sustainability goals

After a redesign of its inflight economy meal service, which reduced the weight of each aircraft by 129kg, Virgin Atlantic is saving 762 tonnes of fuel a year, equivalent to reducing annual carbon emissions by 2,400 tonnes. It was an achievement recognised at the Design Business Association's 2015 design effectiveness awards when the airline picked up a Gold award.

It was BT, however, that picked up the coveted Grand Prix for its Hub5 integrated VDSL modem and router. This supports a web-based set-up, resulting in fewer engineer visits for installation, and dispenses with set-up CDs and leaflets. Packaging is also reduced. These measures save the media and telecoms firm 147 tonnes of carbon each year and 82,000 miles in distribution costs. As well as the Grand Prix, BT also picked up the annual sustainability award.

The underlying message behind these accolades is that it is possible to apply ecodesign principles to revamp products and services to improve resource efficiency yet save money and cut emissions (see panel, p.24).

Driving change

Although some companies are long-standing users of ecodesign, more are developing greener products. This is being driven by regulation and firms' sustainability strategies as well as difficulties accessing increasingly scarce resources.

In Europe, the first Ecodesign Directive (2005/32/EC) dealt with energy-using products. It was recast (2009/125/EC) to include energy-related products. For these, several main environmental aspects are considered: energy, material and water consumption; emissions to air, water and soil; hazardous content; and waste aspects – waste generation, possibilities for reuse, recycling and recovery. The directive is implemented through product group-specific regulations known as implementing measures. These cover more than 50 product groups, from air conditioners and computers to power transformers and water pumps. The European commission will soon consult on which products should form part of the next wave.

The commission's imminent circular economy package will see an even greater focus on ecodesign. As part of its work to develop this, the commission held a stakeholder conference in June at which more than 700 people attended. Referring to the conference delegates

in a speech at the end of October, environment commissioner Karmenu Vella said: "Their messages were loud and clear. They want a greater focus on ecodesign to boost the material efficiency of products. They want to see products made easier to repair, more durable, and easier to recycle."

Responses to the consultation on the circular economy package earlier this year, 45% of which were from businesses, also backed better and greener design. Nearly 64% said establishing binding rules on product design was either very important or important; 73% said it was very important or important to extend producer responsibility to support eco-innovation and sustainable product design; and 75% said it was very important or important to encourage the consumption of greener products.

In its response, environmental campaign group Green Alliance said the package ought to focus on improving design standards to promote demand for reused products and recycled materials. Indeed, Dustin Benton, head of energy and resources at the Green Alliance, told the House of Commons' environmental audit committee (EAC) last year that further ecodesign legislation could enable a more circular economy. "It has been strikingly effective on energy, which is what it was originally intended to do," he said.

The Royal society for the encouragement of arts, manufactures and commerce (RSA) told the committee there needed to be more guidelines for circular approaches to be included in design briefs. "Currently, there is no requirement for designers to consider the end-of-life implications of the products they create," it stated. "The recasting of the ecodesign directive framework is the first step towards potentially providing some guidelines for some product groups, but does not go far enough into circular or system thinking. This means that business invests a significant amount into creating consumables, which are designed for ease of manufacturing."

In its subsequent report, *Growing a circular economy: ending the throwaway society*, the EAC advised the government to use tax policy to incentivise products that are designed to have a lower environmental impact and support greater reuse and repair.

Meanwhile, UK waste and resources body Wrap called for the commission to include a vision of what Europe could be like by 2025 if ambitious action is taken to create a more circular economy across the EU,



Design support at Virgin Atlantic and BT

External designers and sustainability consultants were involved in the award-winning BT and Virgin Atlantic projects.

Sustainable design consultancy Giraffe Innovation helped to train Virgin's in-house design and procurement teams in sustainable design and buying practices; and design firm Map worked with the airline's teams on developing a new tray and other innovations that have reduced the weight of inflight meals. Map says the objective of the redesign project, which started in 2010, was to explore the product and service design aspects of the inflight meal.

Giraffe's co-founder and director, Rob Holdway, defines ecodesign as "the process by which we understand, control, communicate and take responsibility for a product's environmental, health and safety related impacts throughout its lifecycle, from selection of raw materials, to design, production and final disposal or reuse".

Giraffe undertook environmental modelling of all economy and business-class meal items, using lifecycle inventory data software and scientific calculations. It considered several aspects including material type, density and manufacturing process; recycled plastic options and recyclability; and disposal versus reuse. The redesign involved changing some of the lids for passengers' meal dishes from PET (polyethylene terephthalate) to recycled PET and the acrylic tray to ABS (acrylonitrile butadiene styrene). The airline says these are respectively about 65% and 46% more greenhouse-gas efficient than those they replaced.

Holdway reports that the redesign has saved Virgin Atlantic £8.6 million a year and, compared with the baseline year of 2009, reduced total waste by 10% and increased recycling by 52%. The company described the outcome in its sustainability report as "a win-win for us and the environment as using fewer materials means less weight, less fuel burned, and less CO₂ emitted".

The development of BT's Hub5 involved design agency The Alloy, manufacturer Sagemcom and packaging specialist Pentagram Design. A key design factor was that the packaged hub had to fit through a standard letterbox, ensuring customers received it even if they were out. To meet this objective, the hub contains an integrated VDSL modem as well as deployable feet, which "spring out" from the casing when the device is removed from its packaging. The packaging is made from biodegradable recycled cardboard and uses soy-based inks, which reduce embedded CO₂. The Alloy reports that the hub's industrial design applied CAD data to manage chipset temperatures when in use as well as advanced software, which reduces energy consumption by 30% compared with the previous hubs. This saves BT around 13,000 tonnes of CO₂ a year.

and said this should include products being designed for durability, reparability and recyclability.

In the UK, the government in Edinburgh is keen to develop a more circular economy in Scotland, with products designed with their full lifecycle in mind, ready to be disassembled and repaired, and eventually recycled. The consultation document on creating a circular economy in Scotland, published on 20 August, states: "Action starts with design: the design of products, the design of business models, the design of services, and the design of systems. The design of products is key in determining how far their value can be retained in a more circular approach. Design for disassembly, using standard components, recyclable materials etc are fundamental to enabling greater repair, reuse, remanufacturing and recycling."

Ecodesign is important to policymakers because it is the key to a more circular economy. Research by the Technology Strategy Board and the RSA found that more than 80% of product-related environmental impacts as well as the major lifecycle costs are determined in the design phase.

The design world

The role of designers is therefore crucial if products are to be more environmentally friendly, last longer, and be easier to disassemble and the materials reused. *Delivering resource-efficient products*, a report from the European Environmental Bureau published in March, stated that design decisions influence the type and amount of materials used in production, how long a product will last, whether it will be repairable and whether the components can be recycled. The EAC report found that design for the circular economy requires specialist expertise. "It is not just about making things, but understanding materials and building links between organisations," it said.

Some designers and companies have long placed environment considerations at the forefront of design principles. Dieter Rams, chief designer at Braun in the 1960s and 1970s, included environmental considerations in his 10 principles for good design. He said: "Good design is concerned with the environment. It can and must contribute to the maintenance and protection of resources."

Dutch electronics company Philips established its ecodesign procedures in 1994. These deal with all phases of product development to offer better environmental performance. The firm reported in February that “green products” had accounted for 52% of its sales in 2014, achieving its green innovation target (50% of sales) one year early. Samsung introduced its product lifecycle assessment (LCA) programme in 1995. The Korean electrical goods company now conducts LCAs for representative models of all its product categories, from TVs and monitors to smartphones and semiconductors. In 2014, 279 product models received carbon footprint certifications globally, including from the Carbon Trust, up 11% on 2013.

Equipping designers with sustainability knowledge helps to focus minds, while giving them access to the right tools, such as lifecycle assessment, helps them to take action. The focus of the ecodesign brief will depend on whether the goal is to reduce embedded carbon or to improve recyclability or longevity.

Lighter, more aerodynamic vehicles, greater use of renewable and recycled materials, and easier disassembly at the end of life are all design specifications at Jaguar Land Rover. New Range Rovers maximise the use of aluminium, saving up to 420kg on the outgoing model, delivering a 23% reduction in tailpipe CO₂ emissions, while 85% of the materials in the vehicle can be recycled at end of life.

Producer responsibility

The EAC report on the circular economy quotes Kate Goldsworthy from the University of the Arts on how extended producer responsibility could have an impact on how products are designed. “If the take-back systems are looked at alongside the design, you see some really interesting things happening,” she says. “If a company knows that their product is coming back full circle to them, it is in their interest to design it in such a way that they can get maximum value from it.”

Producer responsibility laws in the UK stem from EU directives and include electrical and electronic equipment and batteries. Their purpose is to ensure firms that make, import and sell these products are responsible for their end-of-life environmental impact. They require businesses to design products that reduce material use and enhance reusability and recyclability. However, most product waste is not covered by existing schemes. Joan-Marc Simon, director of the NGO Zero Waste Europe, believes the current rules have been useful in increasing recycling rates over the past 20 years but they will need updating to help move Europe towards a circular economy.

Legislation will undoubtedly accelerate the pace of change but, with access to many resources becoming harder and the need to achieve ever-tougher self-imposed sustainability targets, companies themselves will be increasingly willing to design products and put systems in place to recover materials more easily.



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14034 reasons for environmental technology verification

With a new standard for verifying the performance of innovative environmental technologies imminent, **Rick Gould** examines progress and how it will benefit sustainability

This year has proved a busy one for the International Organisation for Standardisation (ISO), with publication of the revised 14001 environmental management-system and 9001 quality standards. The environment and sustainability profession eagerly awaited 14001: 2015, which was finally published in September, and now another standard, produced by the same ISO technical committee, is nearing completion, with publication likely next year.

ISO 14034 – environmental management; environmental technology verification (ETV) – describes how assessment bodies are to verify the performance of innovative environmental technologies (ETTs). Although development of the standard has been overshadowed by the revision to 14001, the emergence of 14034 coincides with significant developments in ETV.

Requirements for the EU ETV pilot programme

The technology must:

- Be “innovative” – the European commission defines this as presenting a novelty in terms of design, raw materials and energy involved, the production process, use, recyclability or final disposal.
- Be ready for market – that is, ready for commercialisation or already commercially available.
- Be excluded from the scope and application of existing regulations and standards for design and performance requirements.
- Fit in one or more of the three technology areas: water treatment and monitoring; energy technologies; and materials, waste and resources.
- Have demonstrable potential to meet the needs of users and to perform according to legal requirements.

Technology areas in the ETV pilot programme

Areas of technology	Technology group examples/illustrative technology applications
Treatment and monitoring of water	Water quality monitoring for chemical contaminants and contaminants containing microbes, such as probes, test kits and analysers. Wastewater treatment, such as separation techniques, electrochemical methods, biological treatment, for contaminants containing either or both microbes and chemicals. Industrial water treatment, such as purification, filtration and disinfection.
Resources, materials and waste	Recycling industrial waste and by-products into new materials. Recycling of construction waste into building materials. Recycling farm waste and by-products for non-agricultural uses. Techniques for sorting and separation for solid waste, such as reworking of plastics, mixed waste and metals, and recovery of materials. Biomass products, including health products, bioplastics and biofuel.
Energy technologies	Heat and power production from energy sources deemed renewable, such as sea, geothermal and wind. Energy gained from reuse of side products or biomass, such as third-generation biofuels and combustion technologies. Generic energy technologies, such as heat pumps, micro-turbines and heat exchangers, and those for distributing and storing energy. Industrial processes and buildings that use energy efficiently, such as thermal envelope, heating and energy-efficient windows.

Proving performance

According to the European commission, EITs have a crucial role in Europe's sustainability strategy. Many challenges, such as developing a circular economy (the commission's new package is imminent), might only be solved through innovation. Yet, for producers of novel technologies, the challenge lies in gaining both acceptance and investment to bring products to market. Overcoming these hurdles tends to be easier for mature technologies.

Many technologies in established markets are supported by standards and official approval schemes. The EN 61400 series of international standards includes specifications for the performance and testing of wind turbines. Accredited bodies use the 61400 series to test and certify the machinery to provide investors and buyers with assurance and confidence in the products.

However, EITs are not sufficiently established to have stimulated the development of standards and the type-approval or certification schemes to assure them. Indeed, research by the commission found that, in the field of

Boosting anaerobic digestion

Humans have exploited anaerobic digestion (AD) for more than 1,000 years, but the methods have been rediscovered in the past 10 years. As a technique, AD has all the potential hallmarks of a sustainable, low-impact process, turning a constant source of organic waste into biogas for renewable energy and a wet-digestate that farmers can use for conditioning land. When AD is married to modern technology, scientists and engineers can boost the efficiency of biogas production. However, the limited use of the liquid-digestate by-product has constrained AD's growth.

In 2011, UK waste and resources body Wrap commissioned research to look at new markets for the liquid digestate from AD (bit.ly/1KFsti4). The researchers, Hannah Rigby and Stephen Smith from the department of civil and environmental engineering at Imperial College London, concluded that the main outlet for liquid digestate was agricultural application to land. They said technologies to further process the digestate and use the by-products ought to be investigated further. The new substrate technology concept (NSTC) from JS Trading in Denmark does exactly that. The NSTC process involves:

- A screw-press separating a large proportion of the liquid from the solids in the digestate. The remaining solids, which contain about 65% water by mass, are dried in a rotating drum heated by burning wood pellets. As it dries the digestate, the process strips ammoniacal-nitrogen through evaporation. The heat from the kiln is then recovered and fed into two nitrogen strippers. These are used to treat the liquid fraction of the digestate and the strippers remove ammoniacal-nitrogen from the liquid. The air containing the ammoniacal-nitrogen from the dryer and nitrogen strippers is passed through an absorber containing sulphuric acid to produce a fertiliser rich in sulphur and nitrogen. The remaining liquid is fed back into the digester vessel, which increases the efficiency of the AD process. As the NSTC recovers heat – and since the liquid returned to the AD vessel is already warm – the energy that would ordinarily be required to maintain the temperature of the vessel is reduced.

ETV Denmark, which tested and verified the technology, reported a net energy reduction because of the increase in efficiency and heat recovery. As well as producing a fertiliser from a by-product, the remaining dried solid-fraction would be suitable as a medium for growing mushrooms, whereas the raw digestate would not. ETV Denmark published the verification statement in May (bit.ly/1WhLbZd).

environmental technology, investors, specifiers and buyers of products have a low appetite for risk and prefer to rely on older, established and often certified technologies rather than take a chance with something new.

Even if supporting evidence, such as case studies and independent test reports, backs an EIT, investors and buyers are likely to put their money elsewhere unless the technology has an official seal of approval. This situation – whereby a viable and useful EIT never gets off the ground due to lack of financial support, either from backers or buyers – is often referred to as “the wall of death” for manufacturers, in particular those that are small or medium-sized.

ETV can provide manufacturers with the independent and credible evidence they need to convince buyers and investors that a product, in the words of the Ronseal slogan, “does what it says on the tin”.



One scheme for all

ETV is the objective and independent confirmation that an EIT performs exactly as the manufacturer claims or meets the specifications set by a third party. In the US, the Environmental Protection Agency launched the world's first ETV scheme in 1995 and other countries have followed. The different schemes have created a problem, however: namely, a lack of mutual recognition due to differences among the many ETV programmes.

In the mid-2000s, the European commission was displaying a strong interest in ETV, seeing verification as a means of promoting EITs as part of its approach to sustainability, but also with the aim of harmonising schemes globally. The commission's AdvanceETV project was established in 2008 and over the next four years the project team tackled the harmonisation challenge in two ways. First, the commission and other countries – initially including Canada, the US, Japan, South Korea and the Philippines – set up an international working group (IWG) to develop a harmonised approach to ETV. Under this, one of the AdvanceETV teams worked closely with the IWG to produce an embryonic, international standard, which became the starting point for 14034.

Second, the AdvanceETV team developed a generic verification protocol (GVP) for ETV, which is a standardised process. The GVP also describes the structure and governance of a European ETV scheme and adds provisions for quality assurance. To guarantee future compatibility, the AdvanceETV team ensured that the embryonic international standard developed with the IWG mirrored the core processes described in the GVP. After completing the project in 2012, the commission set up a pilot ETV scheme, using the GVP as a framework (see panel, p.26).

The commission decided that, to meet its dual objectives of credible verifications and mutual recognition – embodied in its motto “Verified once, accepted everywhere” – quality assurance would be crucial. So the verification bodies involved in the three technology areas in the pilot programme had to be accredited to ISO/IEC 17020 (p.27) This specifies the competence required of bodies performing inspection and ensures the impartiality and consistency of inspection activities. In addition, laboratories involved in testing EITs were required to be accredited to ISO/IEC 17025, the standard on the general requirements for undertaking these activities.

From pilot to standard

Since the pilot programme began in 2012, 13 organisations have been accredited as verification bodies, four of these in the UK: Water Research Centre, the National Physical Laboratory, the Building Research Establishment and the European Marine Energy Centre. By August 2015, there were more than 50 verification projects in progress, with the first three verification statements published earlier this year. One of these is a novel process that significantly increases the efficiency of anaerobic digestion (p.28).

A draft international standard was published for public comment in June and the final version of 14034 is likely to be published in 2016. So far, the standard mirrors the GVP. It also includes specifications for a verification plan, guidance on applying the standard, and explains how 14034 works with the accreditation standards, namely ISO/IEC 17020 and ISO/IEC 17025.

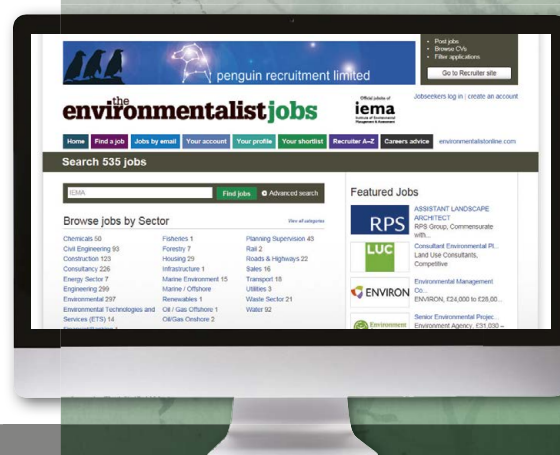
If ETV plays an important role in bringing innovative EITs to market, 14034 could serve as the glue that binds it to sustainable development.

Rick Gould, MIEMA, CEnv, works for the Environment Agency. He is writing in a personal capacity.

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Money, utility and

Jiggy Lloyd looks back to discover how economics has been used to protect the environment

In the run-up to the chancellor's spending review announcement on 25 November, campaigners and policy shapers were busy putting their case for the environment and using economics to support it. Many talked about ecosystem services or natural capital, citing the monetary value of, for instance, more woodland or better green space or improved water management in pursuit of their objectives. In the past year, *the environmentalist* has reported on Yorkshire Water's use of environmental accounting, the pricing of carbon and the third report from the Natural Capital Committee (NCC), which set out in January what a future government needs to do to ensure proper consideration is given to natural capital assets.

It seems that economics is taking centre stage in the environmental debate. It is not just language, such as "living off the earth's interest, not its capital"; there is a feeling that every objective requires economic justification.

Uneasy bedfellows

Environmentalism and economics have always been uneasy bedfellows. Throughout history, in the western world at least, utilitarian, moral, spiritual and aesthetic perspectives have variously underpinned environmental efforts.

As far as we know, the ancient Romans valued the environment primarily for its utility as a source of food, medicines and materials. During the Enlightenment, there was a strong interest in the material benefits that newly discovered territories might generate. Hence it is common to speak of early natural historians (such as Mark Catesby and Joseph Banks) as "economic botanists". But towards the end of the period appreciation of nature for its own sake emerged. William Bartram was sufficiently inspired by his travels in North America (and European Romanticism) to convey in his writings the aesthetic qualities of what he saw. Alexander von Humboldt was a polymath and a scientist, yet managed to include an aesthetic appreciation of nature in his extensive and influential writing.

George Perkins Marsh was one of the first to advocate environmental conservation in America and argue against consumption or "profligate waste" of the earth. He did so in terms economists would have welcomed. In *Man and nature*, published in 1864, Marsh argued for resource management to secure "the future welfare of mankind". But his compatriot and near-contemporary Henry Thoreau celebrated the spiritual importance of the environment and argued for wilderness conservation to provide for "inspiration and our true recreation".



Economic arguments did not feature in the early British conservation movement. The movement emerged among those who witnessed the destruction caused by industrialisation, suffered the depression of the 1880s, and lost confidence in the culture of "improvement" prevalent in Victorian society. They rejected the economic liberalism of the times and proposed an alternative values system based on nature.

Curiously, John Stuart Mills, an early exponent of economic liberalism, played a key role in conservation. He espoused non-material wealth and argued that it was not just the quantity but the quality of pleasure that was important. It was Mills who, in 1865, joined others to found the Commons Preservation Society.

US conservation policy at the turn of the 19th century can be attributed to aesthetic or economic values, or both. Yosemite was safeguarded because John Muir, the Scottish-born naturalist and writer, heralded its beauty. Muir's advocacy, and his lobbying of congress to enact the first National Parks Bill, was based on aesthetic arguments and his belief in nature as the route to God. Yellowstone and the Grand Canyon similarly gained protection because writers and painters conveyed their beauty. But this did not persuade the majority in the US to set aside large tracts of land for conservation. This was a nation based on private entrepreneurship where the wilderness was a place to be

the environment



were introduced to tackle America's pressing pollution problems from oxides of sulphur and nitrogen. But the academic birthplace of this approach was really the UK. Members of the environment profession may remember when in 1989, as secretary of state for the environment, Chris Patten appointed the environmental economist David Pearce as his adviser. Others will know that Pearce's work was not new; he had been developing this approach since the 1960s. There was a mixed reaction to Patten's enthusiasm for using economic tools, but *Blueprint for a green economy*, which was published in 1989, was hugely significant in making sustainable development a rational objective from an economic as well as a social or moral standpoint.

Is the current prevalence of environmental economics just a case of "here we go again"? Up to a point, yes. Earlier this year, RSPB conservation director Martin Harper welcomed publication of the Natural Capital Committee's third report but questioned whether environmental economists could ever capture the true "value" of the best bird-watching experiences. It sounded much like the sort of comment that accompanied the publication of the Pearce report in 1989.

But environmental economics is a huge field. Its applications may be discrete and relatively simple. The EU emissions trading system and the now-defunct aggregates levy are cases in point. The work of the NCC represents an all-encompassing approach in which monetary values are placed on attributes of the environment or ecosystem services to highlight their utility. Thanks to science, more attributes are recognised; thanks to the environmental economists, their valuation is more convincing.

When social reformer Octavia Hill advocated access to open spaces for the urban poor in the 1880s she described the benefits subjectively. The modern-day green infrastructure movement can cite National Health Service savings. These arguments are very powerful.

Former US vice-president Al Gore recently reminded an audience of UK environmental professionals that the country's greatest achievements, such as abolition of its trans-Atlantic slave trade and early leadership on climate change, were based on moral arguments. Environmental economist Michael Jacobs noted in his response that Gordon Brown used the economic case as chancellor to ensure his moral conviction could not be overridden.

Environment professionals will have their own views on this. Some may tend towards Pinchot's mantra. Some will note that the monetary system is only a mechanism for exchange and comparison. Others may feel they can make better decisions or make more convincing arguments with economic data to hand. But it would be a foolhardy professional who ignored environmental economics altogether.

exploited; early conservation efforts were seen as the work of idealists, nature lovers and socialists. It took a further 100 years for a convincing case for protection to be made to government, however. Gifford Pinchot, a forester and politician, argued that it was in the national interest for forests to be managed to limit waste and ensure efficiency. He advocated "progressivism" or "the greatest good of the greatest number in the long run". This approach, apparently using the dollar as the measure of success, secured the creation of the US Forest Service in 1905 with control over large parts of the US natural environment.

Blueprint for a green economy

Environmental economics did not feature strongly in Britain after the second world war. The conservation movement and policymakers focused on planning, accompanied, since the mid-1980s, by environmental assessment. What attempts there were to deploy environmental cost-benefit analyses did not invoke confidence. A cautionary anecdote featured a Dutch conservation group, which, to protect an estuary from development, estimated the "environmental value" of the site to be several million guilders. The developers responded by offering that sum of money for it!

It was the US that moved first to deploy environmental economics in practice. In the 1970s, tradeable permits

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IEMA's 2015 EIA and ESIA conference and masterclass

The ever-increasing size of environmental statements is leaving some practitioners with doubts over the scoping process, reports **Catherine Early**

Speakers at IEMA's conference and masterclass on environmental impact assessment (EIA) and environmental and social impact (ESIA) in November suggested that the process may consider too many issues, resulting in statements packed with superfluous information.

Jon Allen, senior environmental consultant at conference sponsor Royal HaskoningDHV, outlined to the 150 delegates his own organisation's study that showed a steady increase in the size of statements associated with offshore wind farms. In 2005 the Greater Gabbard project was covered in 2,267 pages but seven years later the Dogger Bank Creyke Beck scheme took up 9,509.

Neil Kedar, head of consents at Transport for London, highlighted several projects with unwieldy statements, including the Thames Tideway Tunnel, at 25,600 pages, and the HS2 rail project, at 39,610. HS1, in contrast, was 900 pages, he pointed out.

Rufus Howard, director of renewables and marine development at Royal HaskoningDHV, said one of the key reasons behind the growing size of environmental statements was the differing views from the various parties and stakeholders involved in defining the word "significant". For example, a project that may cause more traffic in a particular place would be considered significant by the local community but not by the secretary of state, who would focus on national impacts.

The EIA Directive states assessments should identify "significant" environmental impacts. The aim of the EIA was to inform the decision maker of these, not to be a comprehensive assessment of all impacts, Howard said. "If it was supposed to cover everything it wouldn't use the word 'significant'," he said.

Pointing to specific examples of huge environmental statements, such as that for HS2, Howard asked: "Is that



informing the decision maker? Or is that just confusing them by not identifying what is significant?"

A better system could be set up whereby existing developments are used to gain evidence of impacts. This would be used to inform the EIA process for future developments, Howard said (panel, right).

Kedar said: "The environmental statement is just one of a suite of documents. Do we really need all of it? It shouldn't be a dumping ground for everything in the submission, for example the case for the project."

Financial matters

Another theme emerging from the conference was the changing perspective of international banks in assessing environmental and social risks when deciding whether to finance development projects.

The World Bank is now updating its environmental and social policies that dictate its lending. Known as "safeguarding policies", the rules have been in place for 20 years. Since then, many issues have come to the fore that need to be included in the policies, said Agi Kiss, regional environmental and safeguards adviser at the World Bank. The most prominent of these is climate change, which, she said, "is arguably squeezing out some other issues". Rather than having a separate policy on climate change, the bank is proposing to address it partly at a national level and partly at a project



level. It has established specialist panels on issues such as fossil fuels that will be called on to assess projects.

Biodiversity is also a hot topic for respondents to the World Bank's consultation. The mitigation hierarchy, which is a way of prioritising action to reduce environmental harm to wildlife and habitats, is accepted in theory but, Kiss said, problems are caused in its implementation. Biodiversity offsets, whereby ecological harm is mitigated through the developer paying to make improvements elsewhere, are particularly controversial, and the bank has proposed that they should be used only as a last resort.

"The concern in many quarters is that, by identifying offsets as an option, people will go straight for it rather than through the mitigation hierarchy," Kiss said. She added that the bank was coming under increasing pressure to consider social issues such as human rights when deciding which projects to finance. The bank is planning to embed human rights within existing



environmental and social standards rather than have a separate policy. "There's lots of debate that we're weakening environmental standards, but we're not," she said. Overall, the changes would move assessments of projects from a very rules-based process to more of a judgment process.

Equator Principles

Claire Wallace-Jones, director of environmental and social risk management at Barclays Bank, told delegates about changes to the Equator Principles. These were established in 2003 as a framework to assess environmental and social risk in projects. Barclays was one of the four founding banks behind the principles and leads working groups on climate change and social risk.

At October's annual meeting of the financial institutions signed up to the principles, climate change and human rights were the two big topics of discussion, Wallace-Jones reported. "We are starting to consider more

seriously changing weather patterns, key natural dependencies, energy legislation and supply chain," she told the IEMA conference. In terms of human rights, specific due diligence may be required "in limited high-risk circumstances", she added. An example of a high-risk circumstance would be resettlement of a large number of vulnerable people due to a development project.

Similarly, Robert Adamczyk, senior environmental adviser in the environment and sustainability department at the European Bank of Reconstruction and Development (EBRD), said the organisation was "going very much into environmental and social due diligence". Its environment and social policy was updated in 2014.

The EBRD is different from other international finance institutions in that it requires projects to meet EU standards such as those in the EIA Directive, use of best available techniques and European energy community standards. Adamczyk said the EBRD's 10 performance

The missing link?

A better way to inform decisions on the impacts that need to be included in an environmental statement would be to review all statements for a particular development type and identify which ones consistently arise, said Rufus Howard, director of renewables and marine development at Royal HaskoningDHV. "For example, we always say that an offshore wind farm has no impact on air quality, but no-one's ever monitored that so there's no evidence to prove it. So lawyers see a risk and want it covered in the statement," he said.

Results from a sufficiently large number of schemes could be used to develop what Howard calls "industry evidence plans" to inform the scoping process for EIA for different types of development. "That way only significant issues are included, you get a proportionate assessment and the EIA has served its purpose," he said. Measures put in place to mitigate potential environmental impacts from a development should be monitored, and the results fed back into the industry evidence plan. "Therefore the missing link is completed via the evidence plan."

requirements were broadly equivalent to the Equator Principles.

Corruption is a challenge that the EBRD encounters in many countries, he said. This might manifest itself in the ease with which it is possible to buy a development permit. The bank cannot undermine an EIA that has already been done "in-country" because it is left in a difficult position legally and politically. However, it can undertake supplementary due diligence, he warned.

Three of the biggest issues the bank faces in assessing projects are:

- late consideration of environmental and social impacts by the developer;
- a disconnect between engineers, economists and environmental and social teams; and
- lack of scientific information and data such as biodiversity baselines.

IEMA would also like to thank AECOM, Ramboll Environ, Mott MacDonald, Peter Brett Associates, Waterman Group and WSP/Parsons Brinckerhoff for supporting the conference.

Policy update



Review of carbon and energy policy

In the run-up to the deadline for responses, I ran workshops discussing and shaping with members IEMA's response to the consultation on the business energy tax landscape. It was an important consultation and, despite some very understandable early reaction, which could be summarised as "here we go again", there is a real hope that a less overlapping and more effective policy landscape can emerge. It could lead to mandatory reporting (energy or carbon) being extended beyond the current listed companies. However, it also has to be said there was no shortage of cynicism among members. Why? It could be a sinking feeling of – yet again – needing to brief the leadership team on change; having a tricky conversation with finance about future uncertain carbon prices; or simply the risk of change that could undermine recently established systems and teams. Many members referred to the political short-term change on individual policies with the stated cross-party consensus of 2050 carbon targets.

Many cited the CRC as a good idea that has suffered from frequent change. To the energy efficiency scheme's credit it has exceeded its projected savings, as evidenced in a 2015 review by CAG Consultants. Views are mixed, but many members stated the CRC is now working for them, with the biggest administrative "burden" being initial set-up and simplification adjustment. Although the CRC is unlikely to survive long term, a transition period would be sensible. There is merit in the new policy landscape learning from its most positive elements and, in particular, its use of multiple and visible policy drivers.

A combination of UK reviews, uncertainty over Europe, and the critical Paris climate talks all herald change and hopefully progress ahead. Next year will be critical as IEMA continues to work with members and make our contribution to influencing and shaping policy.

Nick Blyth is policy and engagement lead at IEMA. n.blyth@iema.net; @NBlythIEMA.

Connecting with Paul Tebo

On 20 November an audience of leadership-level IEMA members heard an inspiring account of how the right leadership can transform an organisation and initiate a sea change in growth through exemplary sustainability performance.

Dr Paul Tebo, the former vice-president at DuPont, addressed senior members at IEMA's first "Connecting with..." event, which was hosted by Ricoh UK at Broadgate Tower in the City of London.

During his 35-year career, Tebo transformed DuPont from an environmental laggard to a position of global leadership in environment and sustainability by establishing the company's "The goal is zero" approach to stewardship. In recognition of his contributions to the company, in 2004 Tebo was the first recipient of



DuPont's Sustainable growth lifetime achievement award. During his inspiring and interactive presentation, Tebo outlined how to build business value through sustainable growth and guided the audience on the power of influence and leadership.

Members stayed on for an extended networking and drinks reception, and initial feedback shows that members would like IEMA to hold more similar events.

Campaign gathers more support

IEMA's skills campaign is continuing to attract support from business and industry more than a year after its launch.

The institute's campaign, *Skills for a sustainable Economy: preparing for the perfect storm*, aims to prompt action to bridge the sustainability skills gap that threatens the prosperity of businesses worldwide. Just 13% of organisations say they are confident they have the right skills to survive the "perfect storm" of climate change, population growth, energy security and material price volatility. IEMA and its campaign partners are working together to increase supply of the right skills into business.

In November, Novus Consulting became the 44th organisation to give its support. Partner George Crone said: "At Novus Consulting we believe that the need for sustainability skills follows logically from our common goal: creating a better future. Every day we work to deliver sustainable business benefits and develop professionals capable of doing so. This is shown in the way we do business



and our voluntary support of IEMA; it means we have a deep understanding of the importance of sustainability skills. That's why we will continue to support IEMA's skills for a sustainable economy campaign."

Novus joins organisations including EDF Energy, WSP|Parsons Brinckerhoff, matt:e, the NUS, Skanska UK, Royal HaskoningDHV, The Schumacher Institute and Rolls Royce as official campaign supporters, and IEMA would like to thank all 44 organisations for their ongoing support.

To find out more or to sign up your organisation as a supporter, visit iema.net/get-involved-0.

Impact assessment network update

Impact assessment has a long history in IEMA, going back to one of the original founding institutions, the Institute of Environmental Assessment (IEA). EIA within IEMA has come a long way since, with the widely adopted EIA Quality Mark (QMark) for organisations and the EIA Practitioner Register for individuals forming a strong community of practice.

Impact assessment (IA) practice is constantly changing and practitioners and organisations need to continually update their knowledge and practice to stay informed. New and amended regulations and legislation, case law, good practice, changing baselines, new research, social attitudes, species migration and international practice, to name but a few of the variables of which practitioners need to be aware of.

The QMark and Practitioner Register provide a benchmark for quality and are valuable tools for recognition of standards and expertise; however, they are not the pinnacle of practice. True innovation comes from individuals, teams and projects. To keep pace with the rate of change, and to better harness the wealth of experience in IEMA's membership, this year the institute renewed its impact assessment steering group to stimulate and lead the IA network, which is open to all members working in the field in industry, government, academia and QMark consultancies.

The steering group has several initiatives under way, looking at guidance and good practice for heritage, transport, health and scoping. Future plans include an improved webinar

series for 2016, with discrete beginner, intermediate and expert webinars, along with a focus on proportionate assessment as well as preparing for climate change, resilience, health and alternatives under the new EIA Directive.

As chair of the group, I am passionate about tapping into the vast pool of talent and experience within the IA network, particularly the community of practice around the QMark and Practitioner Register, to deliver member-led initiatives to improve the application of impact assessment; share knowledge; and influence the development of policy and practice.



Rufus Howard LLM, MIEMA, CEnv, MIOd, is chair of the IEMA impact assessment steering group. To join the IA network, e-mail ia@iema.net

More successful IEMA members

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

Associate

Fahad A Al Ghamdi,
Sabtank –Yanbu
Mishari S Al-Homoud
Hadeed, Saudi Iron
and Steel Company

Fahad H Almutairi, Saudi
Petrochemical Co Sadaf
Saud A Al-Asswad,
Jubail United
Petrochemical Company
Nicola Ashton
James Boulton,
SCS Building Solutions
Alexander Byrom,
The Coal Authority
Hamish Critchell-Ward,
Carillion

Jamie Dukes, Johnson
Controls Automotive UK
Malcolm Dunne,
Nuffield Health
Lucy Frazer
Kerry Haigh
Jay Mistry, Barclays Bank
Jessica Millard
Jamie Murphy,
Groundwork Suffolk
Nicholas Worricker,
Prudential

Full with Chartered environmentalist

Jessica Kennedy,
Ove Arup and Partners
Alireza Moghaddam,
Worley Parsons
Paolo Pizzolla,
Royal HaskoningDVH
James Taylor,
Atkins
Samantha Timbrell,
Mott MacDonald

IEMA events

Date	Region/time (BST)	Topic
9 Dec	Wales	Christmas social (Cardiff)
9 Dec	East of England	Christmas networking (Cambridge)
28 Jan	Scotland West	Scottish waste management
3 Feb	South West	Altering perceptions of place and space: sustainability interventions
Webinars		
10 Dec	12:30–13:30	The benefits and challenges of applying IAP2 principles in UK EIA practice
11 Dec	12:30–13:30	Network Rail's net positive for biodiversity
16 Dec	12:30–13:30	Crash course through IEMA's membership levels
20 Jan	12:30–13:30	Specialist register application support
11 Feb	12:30–13:30	Views on internal EMS audits from a third-party perspective

Please note that, from January 2016, IEMA can no longer accept cheques as payment for joining or renewal fees. Visit newmembers.iema.net/direct-debit-signup to find out about direct debit – the quickest, easiest and cheapest way to maintain your IEMA membership.

Neil Howe

Senior legal author and consultant, Cedrec



Why did you become an environment/sustainability professional? It was a natural progression. From studying geography at A-level I started to develop an interest in the human side of the course, rather than the physical. This led me to environmental studies at Sunderland University, where I could focus more on areas like green politics and philosophies, and in particular sustainable development. Andrew Dobson's *Green reader* became my bible!

What was your first environment/sustainability job? Cedrec was and is my first environment job.

How did you get your first role? I spent around nine months job hunting after graduating from university. A few horror interviews in London later, and trying to explain to the Jobcentre that being a park ranger wasn't quite the environmental career I was thinking of, I noticed the Cedrec job advertised through the university careers department. It was initially a six-month contract, and I thought it would be good for experience. Six months became a year and a year became 15.

How did you progress your environment/sustainability career? Through a combination of being good at what I do, a willingness to learn and being prepared to take on more responsibility when it was offered. Cedrec is a small company, but was a lot smaller when I first started so you have to push yourself to help growth. The IEMA Associate member exam helped focus my knowledge and give me professional credibility. And the advanced EMS auditor course meant Cedrec could use me and start to develop its consultancy work.

What does your current role involve? Cedrec provides online plain English interpretation of environmental legislation. I'm the editor and lead the writing team. I make sure that everything we write is accurate and easy to understand. I'm also one of Cedrec's

consultants, so I compile registers of legislation for clients and keep them updated as well as help determine their aspects and impacts.

How has your role changed over the past few years? I've gone from being the only writer when I started to being in charge of a team. I've also assumed responsibility for all the content of our website, summaries of legislation, marketing material and literature. It's been challenging moving away from writing everything myself to training and helping others to do it.

What's the best part of your work? As I've moved more into the management side of things, being in a position to employ my own team, give them the opportunity to start their own environmental careers and watch them develop has been very rewarding.

What's the hardest part of your job? Negativity around core environmental issues, particularly from the government is frustrating. Also, the government's "red tape challenge", which is designed to get rid of surplus and onerous guidance and legislation, has served only to confuse companies by providing them with watered-down information on an overly simplistic centralised website. It's becoming harder to understand your legal responsibilities.

What was the last development/training course/event you attended and what did you bring back to your job? NVQ Level 5 – diploma in management and leadership. As I'm relatively new to management, it helped me to focus on how I want to treat my team and motivate them so they enjoy their job and I can get the best out of them. Specifically it helped me realise the type of manager I don't want to become!

What are the most important skill(s) for your role and why? An excellent grasp of English, good writing skills and the ability to understand complex legal documents.

Career file

Qualifications:

BSc, AIEMA, advanced EMS auditor, NVQ level 5 (Diploma in management and leadership) NEBOSH, IOSH (Affiliate)

Career history:

2000 to now Editor and legal author, and legislation desk researcher, Cedrec Information Systems
2005 to now legal compliance auditor, Cedrec Information Systems

Where do you see the environment/sustainability profession going? I have serious concerns, particularly around the potential fallout for environmental policy, if the referendum on EU membership supports the UK leaving.

Where would you like to be in five years' time? Hopefully still being an important part of Cedrec as the company continues to progress, and watching a member of my team fill out one of these career interviews!

What advice would you give to someone entering the profession? Don't let yourself stagnate in your role. Keep reading, keep taking courses and keep learning. Knowledge helps to keep you motivated.

How do you use IEMA's environmental skills map? It's a very useful tool. As an organisation, employee membership of IEMA is essential, and the skills map helps to give new starters in particular a clear idea of what knowledge is expected of them for their role. It also helps support their training and development. We've integrated it all quite nicely with our own staff appraisal system.



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SAM KNOWS ABOUT BIODIVERSITY. SO HE JOINED A HEDGE FUND



**People
like Sam
say:**

My degree is in Environmental Science and I think most of my mates thought I'd be applying for a job as a Land Manager. But I'm joining the suits.

I'll be working as an Energy and Environment officer in a financial services organisation.

Using my IEMA membership and having it on my CV definitely helped to give me some credibility when I was making applications.

I'm passionate about my new role. I've got the opportunity to set the environmental agenda in a big business and this will put me in a position to make a real difference.

Make the most of your membership at www.iema.net/mystory

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