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April 2019

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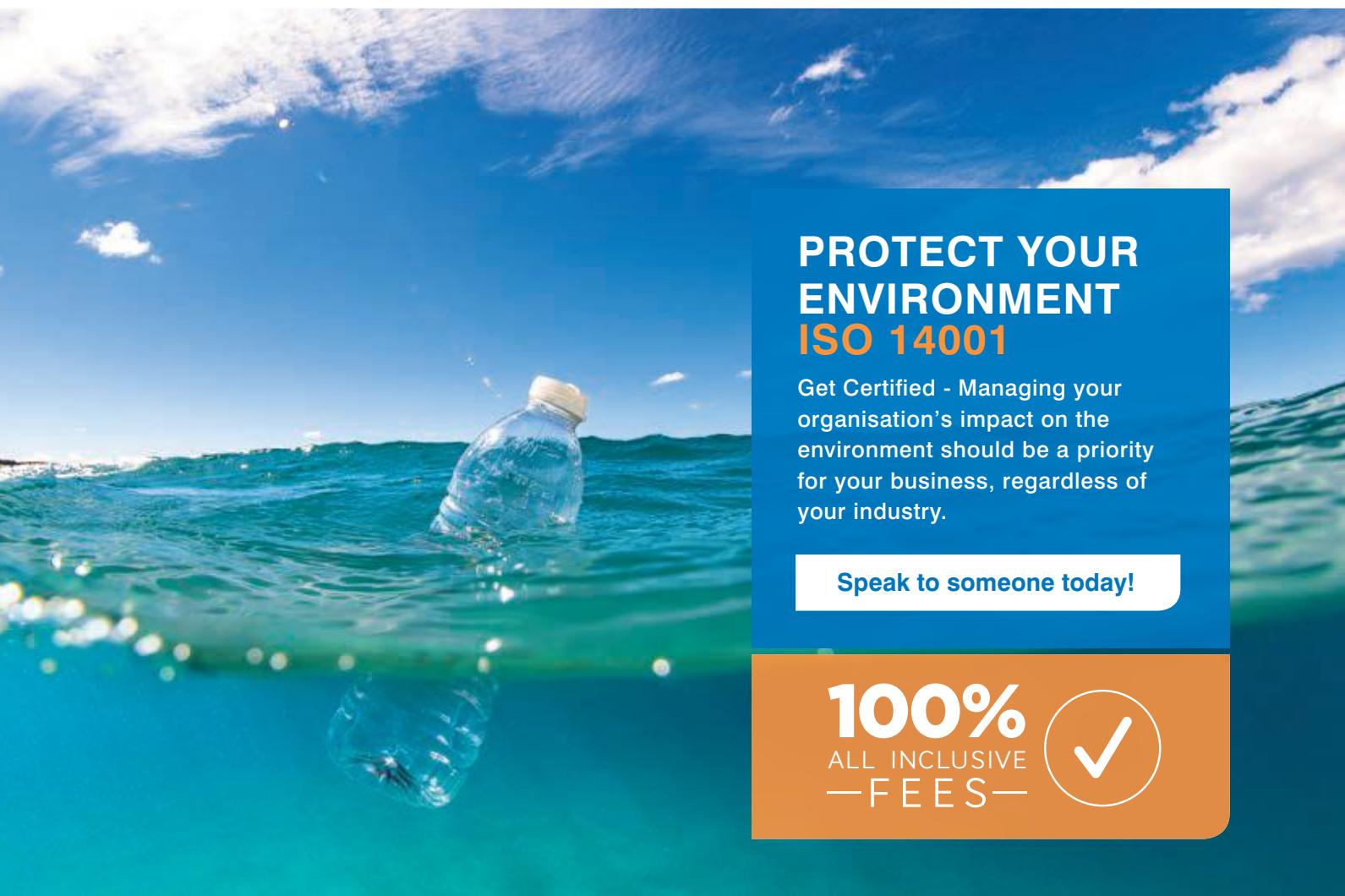
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TIM BALCON, CEO OF IEMA

The activist generation

There's a noisy, disruptive force gathering pace across the globe that cannot be ignored, led by Swedish teenager, Greta Thunberg, who has effectively mobilised young people to rise and speak out. No longer voiceless, they are demanding immediate action – not just on climate change, but on the pervasive inequalities in society that threaten their futures. Is it any wonder they are angry?

And who are we to argue? For too long, my generation has been the problem generation that created a world our young people simply don't fit into.

The rooted acceptance that each generation should have a better standard of living than the one that came before it is no longer valid. Our complacency and inaction have put paid to that; the legacy we are leaving behind is not one I take any great pride in.

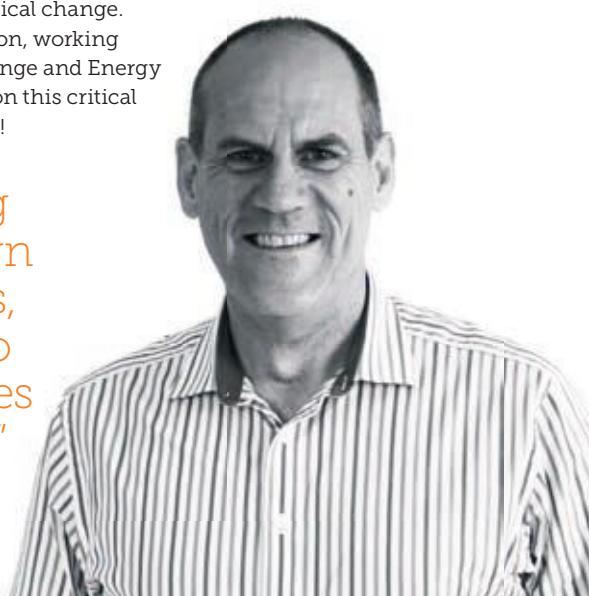
It is time to move to one side and let the younger generation participate in discussions that will determine their future. Together we must work faster and harder to address the many challenges we face – our current pace is just not good enough. We must look again at how we can facilitate change, and by what methods.

Closer to home, we are working hard with our own young members, IEMA Futures, to ensure their voices are better heard. We are also collaborating with other institutes on leading edge developments, such as our webinar on Climate-related Financial Disclosures later this month.

When we spoke to a group of students for this issue, one young activist claimed civil society and campaigners had "exhausted the avenues where they can create change" (p28). In another feature, we ask: can private businesses act as 'corporate citizens' to help shape the future of society, using their power and influence to address the inequalities and challenges we face (p18)?

So what about us? Professional urgency is a justified objective and, I would add, a warranted response. We must directly face up to the fact that incremental change is not good enough and embrace radical change. IEMA will make its own contribution, working with our member-led Climate Change and Energy Network and the next generation on this critical challenge. We are going to be busy!

"We are working hard with our own young members, IEMA Futures, to ensure their voices are better heard"



IEMA is the professional body for everyone working in environment and sustainability. We provide resources and tools, research and knowledge sharing along with high quality formal training and qualifications to meet the real-world needs of our members. We believe that together we're positively changing attitudes to sustainability as a progressive force for good. Together we're transforming the world to sustainability.

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ROUNDUP

ENVIRONMENT &
SUSTAINABILITY
NEWS AND VIEWS

CLIMATE CHANGE

Climate strike students gain widespread support

The student climate strike movement has reached new heights after spreading to more than 125 countries, and some of the world's most influential businesses, investors and politicians are now giving their support.

Inspired by 16-year-old Swedish activist Greta Thunberg, around 1.4 million students, from Sweden to Australia, skipped school last month to protest government inaction on climate change.

And corporate giants Coca-Cola and Unilever have thrown their weight behind the #FridaysForFuture movement, joining a unique coalition of organisations calling on EU governments to step up their response to global warming.

In a letter to heads of state, the Coalition for Higher Ambition said that the "unprecedented citizen mobilisations" show that ramping up climate action is now an "urgent necessity."

Adding his support, UN secretary general António Guterres demanded that world leaders bring forward "concrete, realistic plans" to increase their national contributions at the Climate Action Summit in New York later this year.

"These schoolchildren have grasped something that seems to elude many of their elders: we are in a race for our lives, and we are losing," he said. "The climate summit must be the starting point to build the future we need."

The strikes are expected to continue during the course of the year, with organisers said to be planning a mass global protest similar to last month's on 15 April.

Although attracting criticism from the prime ministers of Australia and the UK, political heavyweights Emmanuel Macron, Angela Merkel and Bernie Sanders have all expressed their support.

In a heartfelt message to protesters, the Union of Concerned Scientists said their actions were "creating cracks in the status quo through which real light and possibility can flow".

Director of strategy and policy Alden Meyer said: "Thanks to the growing wave of youth action, the bitter mix of grief, fatigue, frustration, and anger that so many of us too often feel will be overlaid with something fresh and inspiring.

"Adults like me will stay in the fight, working side-by-side with these young new leaders to confront the powerful fossil fuel lobby and others who are standing in the way of bold climate action, and to prod our political leaders to start acting as grown-ups."

Teenage activist Greta Thunberg addresses a school climate strike





BUSINESSWATCH



Business giants join global commitment to tackle waste

Coca-Cola, Nestlé and Unilever are among

a group of leading businesses that have agreed to disclose their annual packaging volumes after joining the Ellen MacArthur Foundation's New Global Commitment.

They have also pledged to increase recycled content in their packaging to 25% by 2025, compared with the global average of just 2%, while 40 companies are piloting or expanding reuse and refill schemes.

bit.ly/2uiUjD5



John Lewis Partnership targets net zero emissions by 2050

The John Lewis Partnership has said it will reduce its operational greenhouse gas emissions to net zero by 2050 at the latest, without purchasing carbon offsets.

It has also pledged to remove a third of CO₂ from its operations by 2028 through significant investments in new refrigeration technology, biomethane-powered trucks, electric vans and renewable electricity.

bit.ly/2HJi2nN



Aldi removes plastic packaging from vegetables lines

Supermarket chain Aldi has started selling vegetables without plastic packaging across all of its Glasgow stores in a bid to explore customer attitudes to loose produce.

The six-week trial focuses on five vegetable lines, which include savoy cabbage, red cabbage, white cabbage, pointed cabbage and cauliflower, potentially saving half a tonne of plastic.

If successful, Aldi hopes to roll out the initiative across the whole of the UK, which it estimates would remove more than 110 tonnes of plastic wrapping each year from its fresh produce lines.

bit.ly/2U0vHNQ

LEGISLATION

Northern Ireland asks for inclusion in new Environment Bill

Northern Ireland has warned that it will not be able to fill gaps in environmental governance post-Brexit because it has no government, and has asked to be covered by England's new regulations. However, this may lead to complications around regulating air and water quality across Britain's only land border with the EU, and could require a soft Brexit, according to the Environmental Audit Committee.

The cross-party group of MPs said including Northern Ireland in the Environment Bill might require the whole of the UK to align with the EU in order to regulate border-defying pollutants.

Chair Mary Creagh said: "It raises questions about whether the application of Northern Ireland will necessitate the rest of the UK maintaining regulatory alignment with the EU under the Irish backstop, effectively requiring the whole

of the UK to stay within a customs union and single market."

Environmental law is currently devolved to the governments of Scotland, Wales and Northern Ireland. Regardless of what happens on the Irish border, there are concerns that protections in Scotland and Wales will diverge if England presses ahead with the Environment Bill.

Michael Gove has signalled his agreement to Northern Ireland being included in the draft Environment Bill, while Scotland and Wales are consulting on how to protect environmental governance after Brexit.

"It highlights the importance of our recommendations that the Office for Environmental Protection be co-designed and co-owned by all of the UK in order to be more resilient, independent and effective," Creagh added.

MITIGATION

US and Saudi Arabia block geoengineering proposals

The US and Saudi Arabia have reportedly blocked proposals for an international geoengineering governance framework, fearing it could damage their fossil fuel industries. It was hoped the framework would mitigate the risks involved in climate-manipulation methods, such as removing carbon from the air and placing reflective mirrors in space.

Some fear that countries could use geoengineering as an excuse to carry on

polluting, with the fossil fuel sector often backing the methods as a way of tackling climate change.

However, Switzerland was forced to withdraw its proposal for a new system of governance at a recent UN Environment Assembly (UNEA) after several attempts at compromise, according to the International Institute for Sustainable Development.

Indonesia's Agus Justianto, one of the facilitators of the talks in Kenya, was said to have "expressed regret that several delegations had been unable to accept the final compromise proposal".



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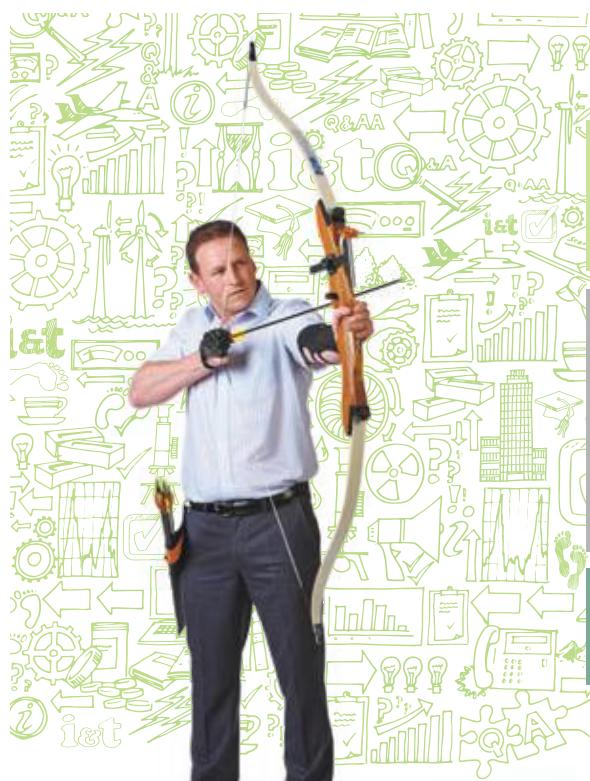
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Tony Summers,
Lucideon Auditor

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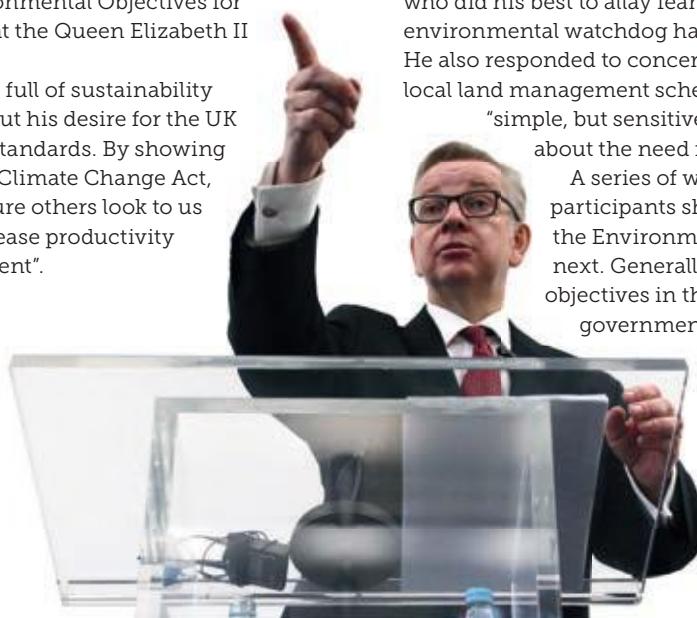
LEGISLATION

Shaping the future: Setting the Environmental Objectives for the Environment Bill

IEMA is working as part of the Broadway Initiative to develop environmental governance proposals for when the UK leaves the EU. Environment secretary Michael Gove was the keynote speaker at our recent Broadway Initiative 'Shaping the future: Setting the Environmental Objectives for the Environment Bill' event at the Queen Elizabeth II Centre in London.

Addressing a packed room full of sustainability professionals, Gove spelled out his desire for the UK to better EU environmental standards. By showing leadership, as it did with the Climate Change Act, Gove said the UK could "ensure others look to us for the innovations that increase productivity and safeguard the environment".

"Gove spelled out his desire for the UK to better EU standards"



He also touched on the importance of performance metrics, moving agriculture up the value chain, and investing in new technological advances in battery storage and transport.

Those present were invited to put questions to the MP, who did his best to allay fears around a post-Brexit environmental watchdog having sufficient legal powers. He also responded to concerns about the bureaucracy of local land management schemes, saying they must be "simple, but sensitive to specific needs", and talked about the need for cross-party support.

A series of workshops then took place, with participants sharing what they expect to see in the Environment Bill and what should happen next. Generally, there was support for high-level objectives in the Bill, and agreement that the government of the day must be responsible for any specific targets set.

Feedback from the event will be sent to key members of the Cabinet, and IEMA will continue to engage with government departments to muster support for the recommendations it puts forward.

TRAINING

Sustainability courses for the wider workforce

In achieving IEMA's goals for transforming the world to sustainability, we rely on our environment and sustainability professionals in business. One team in a wider business operation will, however, only achieve so much positive change. It is not until the rest of the business is aligned to your goals that you can really leverage your impact.

With this in mind, IEMA is offering two courses on environmental sustainability skills for employees who are not sustainability specialists – one

aimed at managers (Environmental Sustainability Skills for Managers), the other aimed at the general workforce (Environmental Sustainability Skills for the Workforce). The training is designed to offer a benchmark for your managers and workforce, boosting their understanding of your areas of focus.

Think how powerful it would be if colleagues understood: environmental and economic risks and opportunities; compliance obligations and business drivers for change; potential impacts

on environment and sustainability; sustainability across the value chain; resource efficiency; how to improve environmental performance; how to evaluate drivers for change and barriers; how to use baseline data to monitor and improve performance; and how to improve environmental performance.

Find out more about the course for managers at bit.ly/2u7noBe and for the workforce at bit.ly/2O2WwLF, or contact Ed Brown, training and development manager at e.brown@iema.net



STANDARDS

ISO revises Annex SL requirements

The International Organisation for Standardisation's (ISO)

Joint Technical Co-ordination Group (JTCG) has recently commenced the revision of Annex SL of the ISO directives. Annex SL sets ISO's requirements for management system standards; these include a high-level structure, identical core text and common terms with core definitions, designed to benefit users implementing multiple ISO management system standards. IEMA's chief policy advisor, Martin Baxter, sits on the JTCG in his role as ISO committee chair for environmental management systems.

The Annex SL structure forms the basic framework for all management system standards, including environment (ISO 14001), energy (ISO 50001), quality (ISO 9001), asset management (ISO 55001), health and safety (ISO 45001) and is relevant to millions of organisations around the world. The aim of the revision is to improve guidance and clarify the requirements of the core text. Considerations in the revision include leadership and governance, as well as the management of change.

A key consideration will be risk, including: the facets of risk and opportunities; risk-based thinking/approach; risk management; levels of risk; definition of opportunities; definition of risk; actions and controls; and the relationship of objectives to risk.

The timescale for development, consultation and approval of the revised text is expected to conclude with approval by ISO's Technical Management Board in February 2021, for use in all subsequent new and revised management systems standards. IEMA will ensure that members are able to engage at relevant consultation stages and are kept informed as the revision progresses.

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Turn to page 34 for details



MARTIN BAXTER

IEMA chief policy advisor

A bill with ambition

IEMA's work on the forthcoming Environment Bill is gathering pace, with only a relatively short period of time left before the Bill is due to be put before parliament.

There are two key elements to our work. First, putting forward suggested improvements to the draft Environment (Principles and Governance) Bill in order to address key weaknesses, including:

- Closing the loopholes on environmental principles (particularly the derogations for defence, taxation and public spending) and reducing the powers for the Secretary of State to disapply the principles through regulations
- Strengthening how key environmental principles will be applied by ministers
- Enhancing the independence of the proposed Office for Environmental Protection (OEP) by giving parliament a role in key appointments and resource allocation.

Second, as part of the Broadway Initiative, we're working on the more ambitious parts of the Bill – in particular the establishment of a process for setting legally binding long-term targets and milestones for the environment, together with national environmental improvement plans and local delivery mechanisms to achieve them. This has involved participating in roundtables with the Defra minister and key officials, as well as hosting a large-scale collaboration with 200 stakeholders from trade bodies, professional bodies, policy officials from across government, regulatory agencies, NGOs and businesses. A report with policy recommendations will shortly be published and sent to the prime minister and key cabinet ministers, seeking their support.

The Scottish government has published its Consultation on Environmental Principles and Governance in Scotland, which IEMA will respond to. In addition, the Northern Ireland Department of Agriculture, Environment and Rural Affairs (DAERA) has also set out its plans in relation to environmental principles and governance. We will be exploring where there will be a need to develop common approaches and arrangements for managing shared environmental resources, dealing with cross-UK home nation borders, and arrangements for ensuring and demonstrating UK-wide compliance with international environmental agreements. Interesting times!

NEW REGULATIONS

THE LATEST

■ LEGISLATION ■ GUIDANCE ■ CONSULTATION



12 FEBRUARY 2019

Carbon emissions

The Finance Act 2019 has limited environmental relevance but does contain some provisions relating to climate change levy exemptions, landfill tax rates and most significantly, the introduction of a new carbon emissions tax.

cedr.ec/5tv



1 MARCH 2019

Merchant shipping

The Merchant Shipping (Prevention of Oil Pollution) Regulations 2019 implement Annex 1 (on the prevention of pollution by oil) of the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1998 ('MARPOL').

cedr.ec/5u5



11 MARCH 2019

Water pollution

The Environmental Protection (Microbeads) Regulations (Northern Ireland) 2019 prohibit the use of microbeads as an ingredient in the manufacture of rinse-off personal care products and the sale of any such products containing microbeads.

cedr.ec/5u6



1 APRIL 2019

Landfill tax

The Finance Act 2019, Landfill Disposals Tax (Tax Rates) (Wales) (Amendment) Regulations 2018 and the Scottish Landfill Tax (Standard Rate and Lower Rate) Order 2019 set the landfill tax rates for 2019. The standard rate is £91.35 per tonne, with the lower rate at £2.90. Wales also has an additional unauthorised disposals rate of £137.

cedr.ec/5u9
cedr.ec/5u7
cedr.ec/5u8



1 FEBRUARY 2019

Pollution prevention

New Guidance for Pollution Prevention (GPP) has been published, to help anyone who is responsible for storing and handling drums and Intermediate Bulk Containers (IBCs).

cedr.ec/5tw



31 JANUARY 2019

Energy

The Department for Business, Energy and Industrial Strategy's Environmental Reporting Guidelines have been updated to include streamlined energy and carbon reporting, which requires all UK quoted companies to report on their global energy use in addition to greenhouse gas emissions.

cedr.ec/5tx



14 FEBRUARY 2019

Air pollution

The Department for Environment, Food and Rural Affairs seeks views on the draft UK National Air Pollution Control Programme (NAPCP). This will set out how the UK will meet legally binding emission reduction commitments.

cedr.ec/5u2



18 FEBRUARY 2019

Waste management

The government has developed a set of four new Consultations to improve the UK's waste management, reduce plastic pollution and move UK business towards a circular economy.

cedr.ec/5u3

IN COURT

FRAUD

WEEE fraudster ordered to pay back £1.3 million

A convicted waste criminal from Leeds has been ordered to pay £1,373,060 for defrauding government-backed schemes worth millions, following a proceeds of crime hearing at Leeds Crown Court.

Terry Soloman Dugbo, who is currently serving seven years and six months in prison, was ordered to repay the money he made from his fraudulence or face an extra eight years in prison.

In 2016, Dugbo was found guilty of falsifying paperwork for his waste operations in Leeds in order to claim money through government-backed producer compliance schemes for collecting and recycling nearly 20,000 tonnes of household electrical waste in 2011. His company never handled the amounts of waste described and he was not entitled to the funds he claimed.

After an in-depth investigation by the Environment Agency and HMRC it was discovered that he had gained around £1,373,060.09 from his



crimes, the money deposited in bank accounts in Nigeria, Senegal and Spain.

He has also contested the proceeds of crime actions since his conviction. He tried to reduce the previous benefit of over £96,000 for convictions of VAT fraud in 2014 and exporting hazardous waste to Nigeria in 2011. During current proceedings, it was heard that Mr Dugbo had misled courts by claiming his assets had already been used to satisfy the earlier court orders, which they had not.

The crimes allowed Mr Dugbo to live a lavish lifestyle. Dugbo claimed that he gambled away much of the assets he acquired during the fraud, which the court rejected as not true.

The Environment Agency's waste team leader, Dr Paul Salter said: "Waste crime undermines legitimate business and can have significant detrimental impacts on communities and the environment. This hearing demonstrates how seriously we take waste crime and we'll continue to take action against those operating outside of the law."



CASE LAW

"Sludge means sludge"

An application for judicial review against the Environment Agency was refused in February. Cleansing Service Group Ltd applied for judicial review on policy guidance by the Agency, which set out its interpretation of an exemption in the Environmental Permitting (England and Wales) Regulations 2016, relating to the storage of sludge.

The company's business included the removal of sludge from customers' septic tanks, which were transported to farms and transferred into storage tanks before being used as agricultural fertiliser. The tanks were fitted with grids, allowing debris in the sludge to be separated out.

Agricultural use of sludge is governed by Directive 86/278/EEC and the Sludge (Use in Agriculture) Regulations 1989. Under the 2016 Permitting Regulations, storage of residual sludge is exempt from the requirement to hold an environmental permit. However, the Agency issued guidance that screening sludge to remove debris is 'treatment', requiring a permit.

The company applied for judicial review of that guidance, but permission was refused; the judge decided it was not arguable that the screening of debris from sludge

↳ Cleansing Service Group Ltd applied for a judicial review of EU guidance on sludge treatment

prior to storage fell within the exemption. It was concluded

that it amounted to treatment, which needed to take place before the operation that fell within the exemption, and that there was no basis on which the screening could be excluded from the requirements. The company appealed and was granted permission to apply for judicial review.

The judge confirmed that "sludge" means "sludge" and "storage" means "storage", and does not include any form of treatment. It was concluded that the screening process to remove debris was a form of treatment.

OTHER NEWS

Ringing endorsement for Agency flooding plans



The Environment Agency has announced that church bells will be the back-up warning for flooding in Starcross, Devon.

Working with the Starcross Flood Group, St Paul's Church and flood wardens, a unique plan has been created for the village if the traditional electronic flood warning service fails.

The idea to use the 18th and 19th century bells in St Paul's Church was put forward by Megan Debenham, the flood group co-ordinator for Starcross. Community fundraisers and funding from the Environment Agency has helped restore the bells and surrounding masonry to their former glory, and the bells returned to their tower on Tuesday 19 February 2019.

Jane Fletcher-Peters of the Environment Agency said: "As well as building flood defences, we also work with communities to create a flood plan – a set of actions for people to follow in the event of flooding."

"These plans always have a contingency for warning residents. While flood wardens knocking on doors is the most obvious solution, if flooding is at night, then residents could be asleep or wary of answering the door. So, we work together to find practical solutions such as shining car headlights into houses and making people aware if that is accompanied by knocking, it could be a flood warden at the door."

There are currently 5.2m homes and businesses in England at risk of flooding, and the Environment Agency monitors flood risk and issues alerts and warnings accordingly. To check your flood risk and find out what to do if flooding is expected in your area, visit bit.ly/1nPt8tS

Nigel Haigh has spent the past 40 years observing the EU closely. He tells **Huw Morris** what Brexit means for businesses and environmental policy – and why the UK and EU will both lose out

“It's dreadful, a disaster,” says Nigel Haigh, honorary fellow and former director of the Institute for European Environmental Policy, before running out of negatives to describe Brexit's implications for the environment and business. “It's certainly not the walk in the park some Brexiteers wanted people to believe. It is extraordinarily difficult.”

An international authority on European environmental policy, Haigh has closely observed the subject since its inception. One of his specialities is how the field has developed during the 40 years he has worked in it – and what it may look like in the next 40.

He recalls an insight offered by Jean Monnet, one of the EU's founding fathers and an architect of the 1950 Schumann Plan, which led to the

Road to OBELVION?

European Coal and Steel Community in 1953. That, in turn, led to the Common Market six years later, and ultimately to the EU. Monnet foresaw that the German and French steel industries would be so entwined in the community that both countries would find it impossible to go to war again after three bloody conflicts in 80 years.

Similarly, the Common Market – or Single Market, as it's called today – "was always more than an economic project," says Haigh. Now car components crisscross national borders just in time for the next production step, while operators in the Republic of Ireland take recycling or waste to Northern Ireland for treatment every day. Such a Gordian knot has profound implications for businesses as much as the environment.

Thorny issues

"The dilemma facing the UK government is that it wants frictionless trade and an open Irish border on the one hand, yet wants to take back control of its laws and diverge from EU legislation on the other," he observes. "The question becomes: which EU laws must the UK stay aligned with to achieve trade with less friction?"

So far, there is little evidence that this question is being posed, never mind answered. Departing from EU environmental legislation could even distort competition, Haigh argues. He cites standards for traded products, a mind-boggling list that covers everything from cars, light bulbs, chemicals and pesticides to domestic boilers, hazardous waste and recyclable materials. And that's before considering food.

Other thorny issues include operational standards for industry emissions, management of waste sites, procedures for assessing development projects, and access to environmental information. Water and air quality standards will also need sorting out.

"The EU's great fear is that the UK will undercut the Single Market by becoming a deregulated, low-tax, low-standard economy – the very thing some hard Brexiteers hanker for," says Haigh. "Hence the EU's insistence on 'non regression' in

the negotiations. Astonishingly, at this late stage, we are still waiting for clarity on these points.

"Another possibility is that a post-Brexit deregulatory UK government, eager to strike trade deals with third countries, will have a chilling effect on the EU, which will not want to be undercut by an economically important offshore neighbour. That could mean the EU trimming back its environmental ambitions."

This is not as unlikely a scenario as first seems. India wants weaker standards for chemicals in any trade deal with the UK. Brexiters aplenty welcome US imports of cheap chlorine-washed chicken and hormone-treated beef, Haigh argues. "We

disruptive – force. Of the major players, only the EU has such an environmentally engaged and sophisticated public, he says. "Only the EU has an institutional culture in which environmental policy is so central. The UK's departure diminishes that."

Achievements ignored

Brexit will also influence the EU's internal environmental policy. "The UK has often been seen by other member states as excessively cautious, to the extent of being a drag on high standards – so much so that some think the EU will be more ambitious without the UK. There may be some truth in that, but ask anybody in the EU and the other side of

"The EU's great fear is that the UK will undercut the Single Market by becoming a deregulated, low-tax, low-standard economy"

can look forward to storms ahead both within the UK and in the dialogue with the EU."

Both the UK and EU will lose out, whatever the divorce agreement. Here, Haigh looks back over his career for pointers to the future. Brexit will weaken the EU's ability to act internationally, he argues. Not only is the UK one of the most populous and economically powerful member states, the second largest net contributor to the EU budget after Germany, but it also has a greater global reach than other member states.

"Only France has a comparable diplomatic service," he says. "Both France and the UK, acting with EU officials, played a major role in getting so many countries to agree to the Paris Agreement on climate change."

Outside the EU, he predicts the UK will become a bit part player on a world stage dominated by the future big actors of China, India, Russia and Brazil, as well as the EU. The US, an environmental leader in the 1970s, is now a reluctant – if not

that coin is the British have always been pragmatic and insisted EU legislation should be workable.

"Other member states have often shielded behind UK objections. If future EU policy is to be well grounded, other states may have to take on Britain's mantle. The EU has brought weaker member states closer to the standards of the stronger – but there is much more to it than that."

Haigh reels off a series of overlooked, even ignored, achievements. The EU has promoted economies of scale, with states learning from each other's policies. It created EU-wide institutions such as the Chemicals Agency in Helsinki, the IPPC Bureau in Seville, which provides guidance on best industrial practice, and the European Environment Agency in Copenhagen.

Some EU legislation was the first of its kind, confronting such challenges as acid rain, the ozone layer, climate change and chemicals, which demand international alliances.



"Only the EU has an institutional culture in which environmental policy is so central"

The 'precautionary principle' was developed in Germany and is now a mainstay of EU treaties to spur action in advance of proof. 'Burden sharing' was promoted by the Netherlands for acid rain policy, with appropriate targets for different countries. This is now part of the vocabulary of global climate change agreements. Many concepts, such as the 'waste hierarchy' and 'proximity principle' for waste, were developed at EU level.

Interdependent world

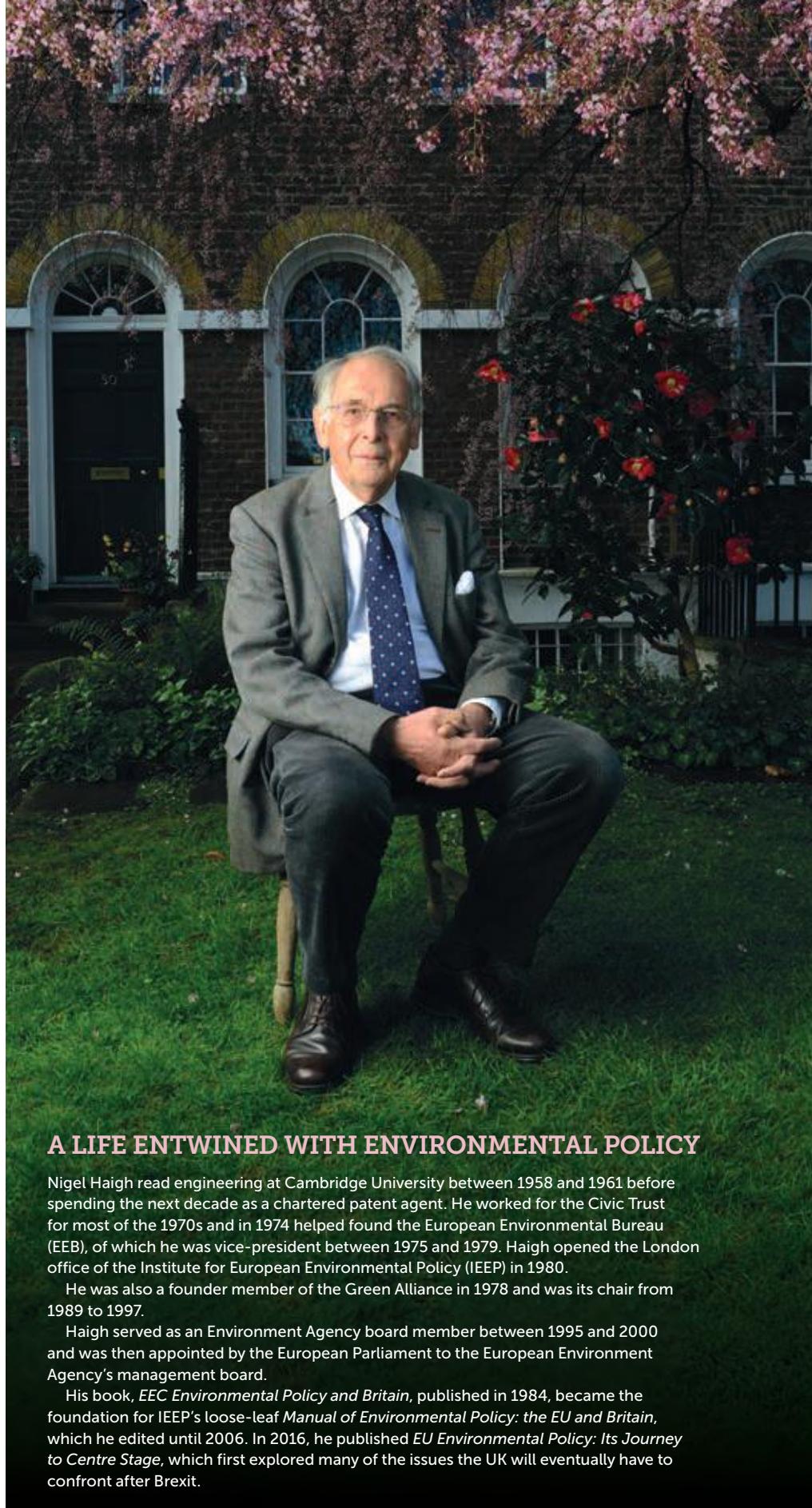
What can we look forward to in the next 40 years? In the 1970s, Haigh says, "we were largely focused on local or regional problems", while in 40 years' time, "the one thing that can be said with certainty is that environmental problems will increasingly be long range and long term". UN Sustainable Development Goals show every nation is interdependent, he continues.

Sustainable development is only achievable at a global level.

"Climate change will not go away, and demand for food, water and natural resources will increase. Reversing biodiversity loss will only get more difficult as a growing world population aspires to the standards of consumption that the middle classes in the developed world take for granted. Just look at China.

"Pollution of the seas will rise on the agenda. Air pollution kills millions worldwide. Environmental policy can only grow more important internationally." ^T

HUW MORRIS is a freelance journalist



A LIFE ENTWINED WITH ENVIRONMENTAL POLICY

Nigel Haigh read engineering at Cambridge University between 1958 and 1961 before spending the next decade as a chartered patent agent. He worked for the Civic Trust for most of the 1970s and in 1974 helped found the European Environmental Bureau (EEB), of which he was vice-president between 1975 and 1979. Haigh opened the London office of the Institute for European Environmental Policy (IEEP) in 1980.

He was also a founder member of the Green Alliance in 1978 and was its chair from 1989 to 1997.

Haigh served as an Environment Agency board member between 1995 and 2000 and was then appointed by the European Parliament to the European Environment Agency's management board.

His book, *EEC Environmental Policy and Britain*, published in 1984, became the foundation for IEEP's loose-leaf *Manual of Environmental Policy: the EU and Britain*, which he edited until 2006. In 2016, he published *EU Environmental Policy: Its Journey to Centre Stage*, which first explored many of the issues the UK will eventually have to confront after Brexit.

Reaping rewards

I'm consistently surprised at how many people believe sustainability is a cost to their organisation – and in times of heightened uncertainty, it can get pushed even further down the agenda. Other issues are perceived as more urgent; short-termism is an established – and often incentivised – problem.

At the same time, consumers' interest in environmental issues is growing. They are insisting that businesses take responsibility for almost every stage of their products' lifecycles. This is somewhat disingenuous – those same consumers continue to buy single-use plastic containers and inefficient cars. They demand convenience and low prices. Most peoples' pensions are invested in stocks and shares that must provide immediate returns. Consumers create the demand for the things they frown upon.

Many businesses can take reasonably small steps and still stand apart from their competitors – but not enough to address the problems facing the planet. We must encourage them to think differently and recognise the need for change. As companies make bigger changes, their competitors will be forced to take bigger steps to find a new advantage. This alone will quickly accelerate change.

We need to think harder about environmental destruction and climate change. And we need to think about it over a longer horizon – adapting year by year is simply burying our heads in the sand.

The business case

The business case for behaving sustainably has three elements. First, behaving sustainably is, by definition, about the long-term resilience of the organisation. For the past 147 years my company has operated from Southwold, one of the driest parts of the UK. Given that water is one of only four ingredients in beer, it is critical we manage and reduce our consumption. If we do not, our ability to produce beer and spirits would be compromised.

Second, behaving sustainably helps to reduce costs. Energy is one example – prices are rising and businesses can be very wasteful. A simple response is replacing traditional lighting with LEDs – this typically has a payback of less than three years through reduced energy bills alone. Unlike older lighting, LEDs do not emit heat, keeping warehouse temperatures lower and our beer better. The bulbs last longer, too, reducing maintenance costs. This adds up to a pronounced effect on our bottom line, which enables us to keep beer prices lower.

Last, there is the revenue benefit that comes from a boosted reputation. Consumers are increasingly interested in sustainability;

Richard Carter makes the business case for sustainability

notwithstanding the risks of marketing one's sustainability attributes, businesses can develop a loyal customer base.

Many of these areas overlap, and that is where the business case is richest. For example, it is well understood that considering inputs, processes and outputs to improve environmental efficiencies drives innovation. This leads to a more resilient business with a lower cost base that enjoys revenue growth above its competitors.

Delivering the goods

There are fundamental principles that every organisation should adopt. First, a strategy or framework is critical. We look holistically at carbon, water, waste and biodiversity. Beneath that, we have a series of tools to help us take action. These include lifecycle analyses, circularity, environmental gearing and our extensive collaboration programmes. Lastly, there are reporting frameworks, but one has

to be careful that these don't stifle innovation or ignore the balances that sustainability managers make every day.

And the results?

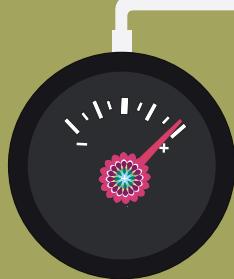
Every environmental project we've implemented has had a very strong financial business case. I'm proud of that, partly because it enables me to afford more and better projects every year, but mostly because it encourages other businesses to act. If they're not realising just how serious a situation we are in, perhaps they will at least be motivated to become more sustainable to please their shareholders. ☺

RICHARD CARTER, FIEMA is head of finance and sustainability at Adnams Brewery, and a non-executive director of IEMA

Further reading

Find the longer version of this article online at
bit.ly/reap_rewards

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KEYNOTE: IEMA's Martin BAXTER

Into the fold

When it comes to disability in the workplace, warm words and token gestures are not enough, says **Kye Gbangbola**

Society is changing, and it is important for disabled people to be embedded in decision-making processes. There are massive gaps in the representation of disabled people in the workplace. Even in the sustainability sector, where equality is often discussed, disabled involvement has a long way to go.

Fig leaf legislation

In 1995, the UK passed the Disability Discrimination Act. It was considered visionary for its potential to enhance self-sufficiency and participation, and eliminate discrimination, for

disabled people. Sadly, it never lived up to expectations; the soft disability protection it provides has been little more than a fig leaf for companies and governments to pretend they are taking action on disability.

Many would-be entrepreneurs with disabilities are stunted in their efforts to pursue business, and disabled university graduates have trouble finding work. The marketplace is limiting growth by failing to include these people. We need corporate communities that are fully dedicated to increasing opportunities for the disabled.

Organisations can play a vital role in supporting those with disabilities. Before I was paralysed, my work involved ensuring homes and estates functioned to enable disabled independence. I sought knowledge in an effort to help those in need to remain independent. Now I am in a wheelchair myself, I see how difficult it is to find support. The regulations are worth nothing when business leaders turn a blind eye; at that point, they oppress those they have a duty to protect.

From the top

Behaviours need to be consistent and government backed, and must enjoy the support of boards and executives. A good starting point would be to measure and drive change at senior and executive level.

Measurement, disclosure, accountability, transparency, leadership and reporting are habits that my sustainability consultancy seeks to embed within the organisations it works with. The Global Reporting Initiative (GRI) is the gold standard of 'report or explain' corporate sustainability

PHOTOGRAPHY: SHUTTERSTOCK



DISABILITY AT WORK

Why attitudes must be challenged



of the UK's working-age population has a disability



of the British public say they do not know a disabled person



report feeling awkward around disability



The average extra expense per month for a disabled person

reporting, and it has created the Disability in Sustainability Reporting guide to help companies disclose the percentage of their employees that have disabilities.

In the US, the Disability Equality Index (DEI) measures different organisations' culture and leadership on disability issues, examining elements such as access, employment practices, support in recruitment and training, engagement, and support services. The increasing number of companies using DEI indicates a willingness to confront the issue – to take opportunities that boost the involvement of people with disabilities.

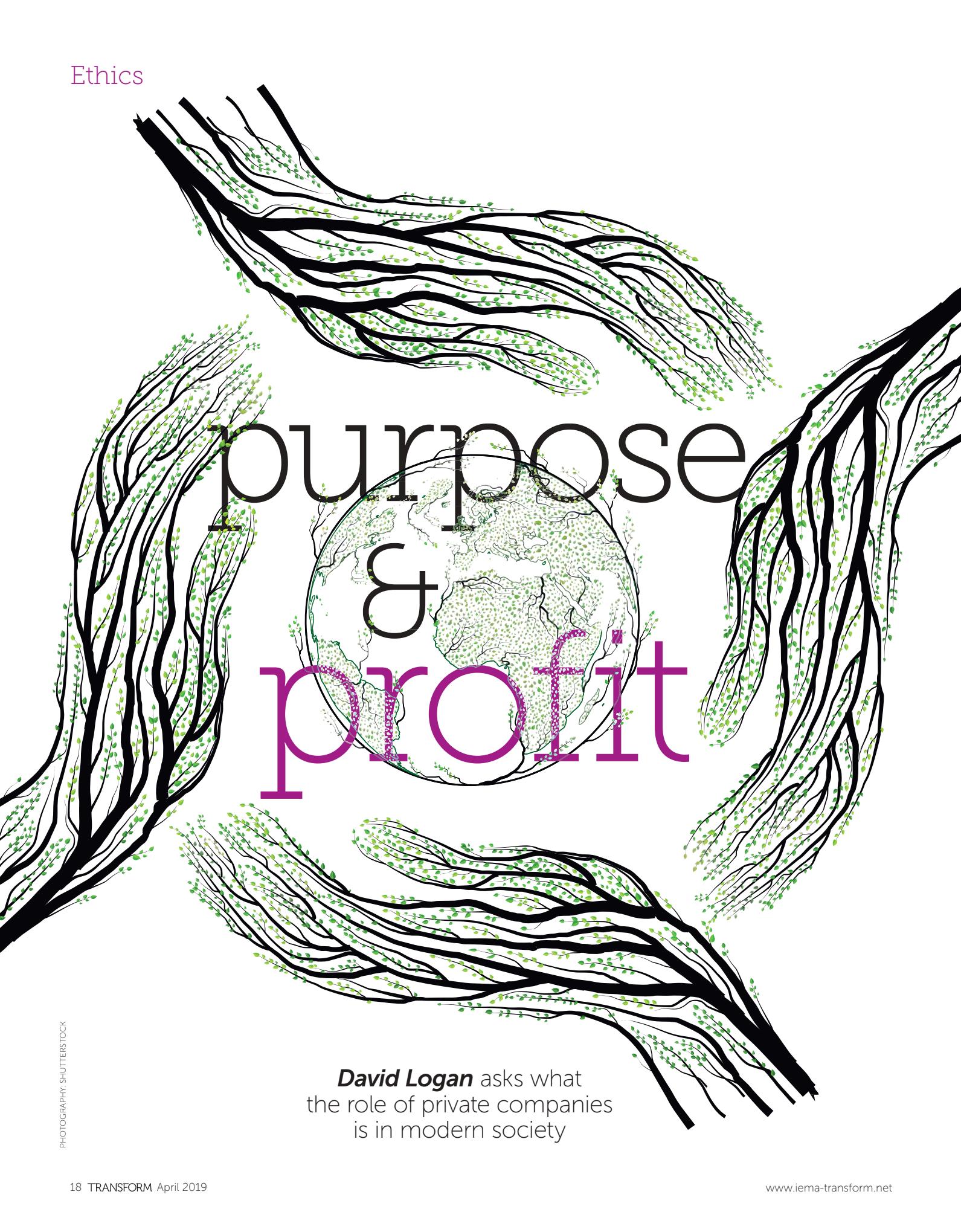
Disability-aware business leaders are able to better leverage the differences, talents and perspectives of employees, investors, customers and suppliers with disabilities. Transparent companies that disclose their efforts to integrate disabled people create a culture of belonging and acceptance – contributing to long-term sustainability. ^①

KYE GBANGBOLA, FIEMA is founder of consultancy Total Eco Management

Further reading

- Find the longer version of this article online at bit.ly/disability_inequality
- Read the Disability in Sustainability Reporting guide at bit.ly/2NnG7kZ

Ethics



purpose & profit

David Logan asks what
the role of private companies
is in modern society

Private companies and multinationals have been around since the beginning of recorded history, but it wasn't until the founding of the charter companies, such as the Dutch, French and British East India companies, in the early 17th century that our modern understanding of multinational business came about.

People forget that it was not the British state that conquered India, but the British East India Company, a business that came to operate as a state and even had its own army and navy. It has been accused of all kinds of bribery, corruption and human rights abuses, and was only relieved of its power in India in the 1860s.

Around the world, the activities of multinationals were intimately connected with colonialism and exploitation. In the West, the appalling conditions in the factories of businesses that grew up with the industrial revolution were enough for Karl Marx and his collaborators to condemn the capitalist system as inherently unjust and exploitative. Marx argued that capitalism must be overthrown by force where necessary and replaced by a social system without any form of private enterprise. This was an idea that triumphed in the Russian Revolution of 1917 and subsequently held great sway over the world. The period following the Second World War was predicated on growing the power of the state and eliminating or reducing the presence of private firms. China, for example, turned communist in 1949, and countries as diverse as India and Sweden became staunchly socialist and very controlling of private enterprise and international trade. This lasted until the collapse of the Berlin Wall in 1989.

During the past 30 years we have lived through a remarkable transformation of human society. The communist ideal that society can be organised with no or minimal private enterprise has all but died, only surviving in places such as North Korea and Cuba. Private for-profit firms are back in huge numbers around the world, and multinationals again have an open global economy in which to operate.

Three-sector society

With the collapse of communism and the retreat of socialist ideology, a new and increasingly common social system has begun to emerge around the world, based on three formal sectors: government; for-profit; and non-profit. These all operate within the context of an informal sector. This development has been led by a revitalised for-profit sector, which is the major player in many societies today (as *Figure 1*, overleaf, shows). The state or public sector remains important, but the private for-profit sector and a rapidly growing non-profit sector have emerged to complement it in post-communist countries and other societies.

Figure 1 does not show the number of people working in the non-profit and informal sectors because it is very difficult to obtain data on a comparable basis across all four sectors, but generally

employment in the non-profit sector is small – only about 8% of employment in developed countries such as the US, and 2%-4% in countries where the model is less developed. In China, private companies now have established status, but the non-profit sector is yet to be legally recognised; non-profit institutions such as Buddhist Global Relief exist in China because they provide services that people need.

The informal sector is especially significant in the least developed countries. In Africa, for example, it is estimated that about 80% of the population is working and subsisting in the informal sector – but its role is not measured on a consistent basis with the formal sectors.

The decline of state power in the economy started in the late 1970s, when Deng Xiaoping became leader of the Chinese Communist Party and introduced what he called 'capitalism with Chinese characteristics'. At that time, 100% of the people of China worked for the state; today it is about 22% of the population, as *Figure 1* shows. The large majority of Chinese employees now work for various types of private companies.

This model of society was not unknown in the West, and was normal in the US throughout its development as a country.

However, it was revitalised in the early 1980s by prime minister Margaret Thatcher in the UK; she cut taxes and moved many industries and companies, including British Airways, British Steel and British Gas, out of the government sector and into the for-profit sector. Likewise, in the US, president Ronald Reagan confronted trade union power and cut taxes. These changes were controversial, and debate about the

relative size and roles of the three formal sectors continues across the globe – but a modern civilised society needs all three of the formal sectors, and needs them to work together.

Rights and responsibilities

It is clear that private business is back as a major player in society and international relations. Consequently, the question must be asked: "What is the role of these private firms in shaping the future of society as a whole?" There is plenty of evidence for their contribution to society as commercial enterprises, providing goods and services in the marketplace – but what about their role in helping society face the big issues of our day, particularly when so many of their commercial activities are themselves controversial?

It is in this context that the debate about good corporate citizenship has a special and urgent meaning. Private companies are the agents of the market. They have agency and freedom to make commercial decisions that have significant economic, social and environmental consequences – who to hire, who to fire, where to locate production facilities, where to source all sorts of inputs, and how much to pay employees, executives, shareholders and owners. These decisions and many more have profound



Ethics

"Customers, consumers, employees and society at large want to know where companies stand on the big issues of our day"

consequences for society. Private companies (and state-owned ones) are not just economic entities. They are corporate citizens of our global world, with immense power and influence – not just in terms of their own activities, but also as part of the social whole. What is their responsibility for the wider challenges that humanity faces?

Like ordinary individual citizens, who have the right to vote but the responsibility to pay their taxes, companies have rights, responsibilities and aspirations. They have the right to advertise, but need to do so responsibly; they have the right to close plants and move production from the West to China, but what responsibility do they have to help workers and communities left behind? The future is uncertain and fraught with economic, social and environmental difficulties, and we cannot continue with 'capitalism as usual'. Capitalism has shown it can be more socially inclusive than the Marxists thought, but it clearly cannot pay the environmental price of its success.

Private firms of all sizes need to develop a proactive view of their role as citizens. It is no good just offering commercial excellence in the marketplace. Customers, consumers, employees and society at large want to know where companies stand on the big issues of our day. Some big British firms, such as Diageo, Unilever, Vodafone and GSK, have seen the future and started to respond with initiatives and programmes – often in conjunction with non-profits and governments, both at home and abroad. They want to play an active part in addressing important issues such as water scarcity, sustainable fish and palm oil, access to communications, and pharmaceuticals.

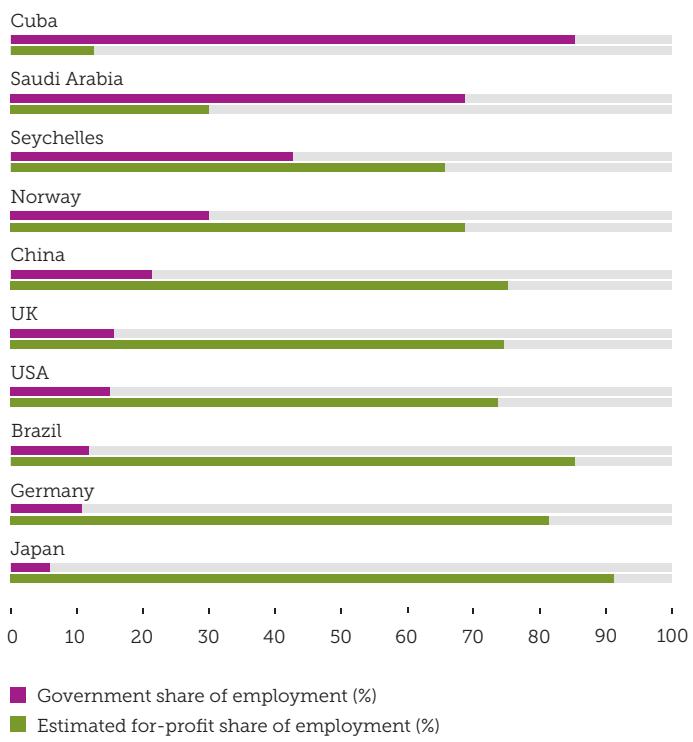
They are helped in this emerging understanding of the importance of modern corporate citizenship by the fact that the world has begun, through the UN and other means, to articulate some global ethical standards to guide behaviour – for example in the Universal Declaration of Human Rights, and more recently the Sustainability Development Goals.

Around the globe, humanity has called private firms back to do what they do well; providing cheap goods and services through the marketplace. But we also want these private firms to step up as good citizens and partners in helping the world face the many challenges of the future. 

DAVID LOGAN has vast experience on the frontline of CSR work. He is author of *Corporate Citizenship* (Panoma Press).

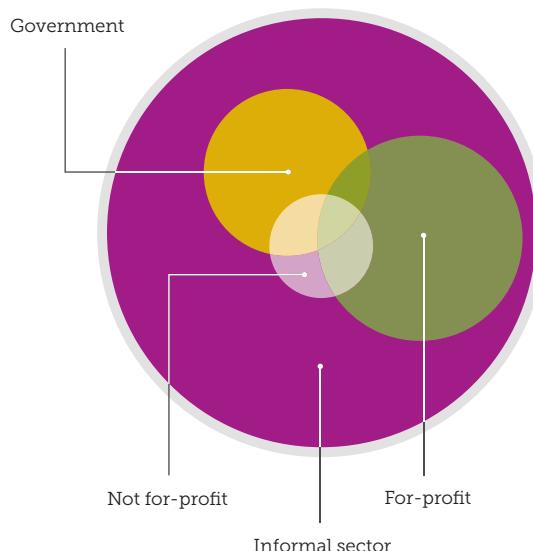
Figure 1 – Shares of formal sector employment

Employment in the governmental and for-profit sectors, by country



Sources: Government employment – ILO Stat 2016;
For-profit employment – various

Figure 2 – The developing global pattern of social organisations



Current affairs

Paul Reeve looks at how Defra's recently updated WEEE Regulations will affect producers and distributors of electrical waste

It's widely held that moving towards a more circular economy should deliver substantial social, environmental and economic benefits. It will certainly help to recover more of the UK's growing mountain of domestic and commercial waste electrical and electronic equipment (WEEE), boosting whole-life value and reducing harmful impacts.

EEE refers to electrical and electronic products that 'depend on electric currents or electromagnetic fields for their basic function' – whether battery powered, solar powered or connected to the electrical supply. It applies to products, rather than spare parts or components. When EEE becomes waste, it is WEEE.

The EU was ahead of the curve when it legislated to improve WEEE recovery across Europe a decade ago. In the UK, implementation of the WEEE Directive has diverted products such as fluorescent tubes away from landfill via WEEE collection schemes.

Increase in scope

In January, Defra expanded the scope of the UK WEEE regulations to cover virtually all electrical and electronic products (EEE), including accessories such as plugs, sockets and switches. With nearly all EEE in scope, what does it mean – and who is affected?

The WEEE Regulations are based on the 'producer responsibility' principle, which aims to ensure businesses that manufacture, import and sell products are responsible for 'end of life' environmental impacts. This is often achieved through regulatory duties to: reduce material use, and enhance reusability and recyclability when designing the product; minimise waste and promote re-use and recovery; ensure waste products are properly treated; and meet UK recovery targets for waste materials.

Consequently, the main duties of the new WEEE Regulations fall

on EEE 'producers' and 'distributors'. Under WEEE 2019, EEE producers, importers and distributors have legal duties that include providing (or paying towards) the free take-back of WEEE. Larger UK producers or importers of in-scope EEE must join a producer compliance scheme and report the weight of the EEE they sell (minus any batteries). Producers supplying less than five tonnes a year in the UK may register with the Environment Agency.

It's also possible to pick up duties if, for example, you commercially import EEE from abroad (including via the internet). Among the duties are the requirement for producers, importers and distributors to meet national recovery targets by financing their share of WEEE compliance schemes, or providing free domestic and commercial WEEE take-back facilities.

If the aim of this is to boost WEEE recovery, it might seem a perverse to find that there is no direct legal duty on businesses or consumers in possession of WEEE to ensure it is recovered (though other waste law still applies). However, the intention is for wider-scope 'free take-back' and compliance schemes to reduce the barriers involved when customers send waste electronic and electrical equipment for recovery.

As consumer and supply chain awareness grows, the wider-scope regulations will mean extra costs for EEE producers – but they may also present organisations with commercial opportunities. In addition to promising environmental benefits, they may also help to bring the circular economy a step closer. 

PAUL REEVE, FIEMA
CENV is director of business at ECA, a leading electrotechnical services trade association

Further reading

- ➲ Find further information on retailer and distributor responsibilities around WEEE at: bit.ly/WasteEEEgov



Rapid growth in energy demand is a major obstacle to the decarbonisation of the global economy, with the International Energy Agency predicting that demand will increase by about 30% during the next 20 years. Another obstacle is the historical perception that fossil fuels are more efficient and economical sources of energy than renewable sources. However, the latest developments in a field known as net energy analysis are challenging this view. Indeed, a metric known as the 'energy return on investment' (EROI) is not only showing that renewable energy is increasingly as efficient as fossil-fuelled sources, but also that we are rapidly heading for a conflict in supply and demand, known as the 'energy cliff'.

Fishing for answers

In the 1970s, Charles Hall, now an ecologist and emeritus professor at the State University of New York, was doing his PhD research on migrating fish. He determined that even though the fish expended energy when migrating to a new food source, they gained five joules of energy for each joule they expended. It was not long before, in the early 1980s, Hall and his PhD student Cutler Cleveland turned their attention to society's energy needs and the EROI of fossil fuels.

In simple terms, an EROI is the ratio of the energy available in a unit of oil, coal and gas, divided by the energy required to extract the fossil fuel. Hall and Cleveland's results found their way onto the front page of the *Wall Street Journal*. So what did they find?

"The EROIs have been falling for decades," explains Hall. "They were originally very high, but as fossil fuels become harder to find, we need more and more energy to extract them." Indeed, published EROIs for oil in the earlier part of the 20th century were in the order of 80 to 100, whereas estimates at present average nearer 20. Eventually, there will come a point where the energy required for extraction nears the energy value of

The 'energy return on investment' metric is proving that renewable energy can be as efficient as fossil fuels, says **Rick Gould** – what exactly is it?

Turning the energy tide

the fossil fuel itself – an EROI so low that it is uneconomic and unviable to continue extraction.

Researchers soon took an interest in Hall and Cleveland's work, with papers on EROIs popping up in academic journals worldwide. Early work focused on fossil fuels, but during the past two decades researchers have turned their attention to renewable energy and biofuels.

This has inevitably led to comparisons between the EROIs of fossil fuels and renewables. However, many researchers have found different results for the same energy source. Why is this, and how can researchers and analysts determine truly comparable EROIs?

Apples with apples

Dave Murphy, a former PhD student of Hall's and now an associate professor of environmental studies at St Lawrence University in New York, favours an approach to calculating EROIs based on life-cycle assessment (LCA). "The problem with a lot of the comparisons between fossil fuels and renewable energy is that

researchers published EROIs for fossil fuels at point of extraction, whereas those for renewables were all at point of use," he explains. The EROI at point of use considers all steps necessary to convert the energy source into useful energy, such as electricity at a plug socket.

A lot of published literature on EROIs typically favoured coal and oil over renewables, with especially low EROIs assigned to solar photovoltaic (PV) systems. "These were not comparing apples with apples," emphasises Murphy. He and his co-workers developed a protocol that applied the LCA methods prescribed in ISO 14040 and ISO 14044, and found strikingly different results. "When we looked at the energy costs, for example generating electricity from refined oil, the EROIs fell significantly," he says – so much so that renewables looked a lot more favourable.

Murphy and his associates proposed two types of EROI – a standard metric, $EROI_{st}$, for the raw extracted energy source, and a metric for the source at the point of use, $EROI_{pou}$. "Estimating the $EROI_{pou}$, when combined with LCA methodology, provides more meaningful comparisons," says Murphy. "At the same time, it is important to define the boundaries and inputs for the calculations, as the same energy sources can have different EROIs depending on where they originate and how they are processed."

EROIs for solar PV, for example, will increase as the technology improves, but will always be higher in regions where the sun shines for longer and at a higher intensity. "Intermittency of renewable energy also complicates the situation," says Hall. "We could compensate by building more capacity and using batteries, but this would reduce the EROI."

Have researchers found a minimum EROI for sustainable energy generation? "This is a challenging area because of all the variables, but we should ideally aim for EROIs that are upwards of seven," says Murphy. Notably, several researchers have found that the gains in net energy do not rise much when an EROI is above 10, but drop rapidly below (Figure 2). There also

"As fossil fuels become harder to find, we need more and more energy to extract them"

appears to be a break-even point, where EROIs of two to three would sustain infrastructure but not provide for any economic growth.

"We started calling this 'the energy cliff,'" adds Murphy, referring to the point at which EROIs show unsustainable energy use, even before looking at air quality, resource availability and climate change. Many researchers have found this with biofuels, with numerous scientific papers producing EROIs of less than 20. In other words, the research shows that we are using fossil fuels to subsidise biofuels.

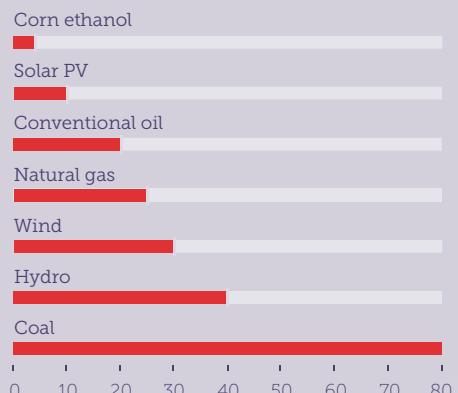
Informed decisions

When applied consistently and systematically, EROIs can inform decisions in energy investments for individual sources of energy. In the UK, Paul Brockway at Leeds University works within a team of energy researchers that is taking this further by developing a methodology to calculate fossil fuel EROIs at a national and global level.

Brockway, an engineer by background, was drawn to EROIs for similar reasons to Murphy and Hall. "It is part of looking at future energy constraints to economic growth. If we are approaching a 'net energy cliff', then it's better to know sooner rather than later," he explains. "At the same time, I saw that the EROI field was controversial for those working in it and unknown for the greater majority. I wanted to work in the field to help the process of comparing EROI apples to apples."

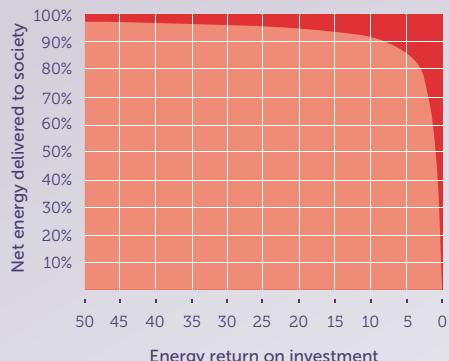
Brockway sees the value in using LCA approaches to calculate EROIs at the point of use, having seen the earlier erroneous comparisons between fossil fuels and renewables. That said, the Leeds team is using input-output models to determine EROIs at a national level. This is analogous

Figure 1 – Average EROI values



Source: Murphy DJ et al. Comparing Apples to Apples: Why the Net Energy Analysis Community Needs to Adopt the Life-Cycle Analysis Framework. *Energies*. 2016; 9: 917.

Figure 2 – EROI and the 'energy cliff'



Source: Murphy DJ. The implications of the declining energy return on investment of oil production. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*. 2014; 372: 20130126.

to LCA, but a more appropriate approach at a macro-scale. "There are different methods for different purposes," he says. "LCA is suitable for individual products or site-based calculations, whereas input-output methods are better for larger, economy-wide scales. Also, improving national-level data on renewables will help economy-wide comparisons, while EROIs will help provide information about net energy for the renewables transition." [T](#)

RICK GOULD, MIEMA CENV is a technical advisor at the Environment Agency. He is writing in a personal capacity

From guaranteeing every US citizen a job, to achieving net zero greenhouse gas emissions by 2030, congresswoman Alexandria Ocasio-Cortez's 'Green New Deal' proposal has been described as a "watershed moment" for politics in the country.

But with a reported eye-watering price tag of \$94trn, and a timeframe of just 10 years to achieve its goals, others have labelled the proposal everything from "unrealistic" and "difficult" to "dangerous" and "immoral".

And it is the deal's climate policies that have generated most publicity, such as meeting 100% of power demand through renewables, and, along with the net zero emission goal, performing energy efficiency upgrades to every building in the country.

So are these specific energy ambitions feasible, or is president Trump correct in his assessment that the deal "sounds like a high school term paper that got a low mark"?

Trapped in the dark

University of Massachusetts economics professor Robert Pollin has been designing what you might call green new deals for years, and has also been advising presidential candidate Bernie Sanders on healthcare and environmental policy.

Having put together green programmes for Spain, Puerto Rico, India and several US states, he tells me that it is implausible to expect a zero-greenhouse gas emission economy within a decade. "Just at a contractual level, if you have a power plant that burns coal with 10 years left on its contract, it



A Green new dawn?



PHOTOGRAPH: SHUTTERSTOCK/GETTY

A 'Green New Deal' proposal has caused political waves across the US, with many questioning the feasibility and scope of its climate policies.

Chris Seekings
reports

Democrat congresswoman Alexandria Ocasio-Cortez and senator Ed Markey speak at a press conference announcing the Green New Deal



takes a lot of time, money and legal mumbo jumbo to get out of that."

Pollin has just finished a study on a green deal for Pueblo, Colorado, which has committed to 100% renewable energy by 2035. "But they have a contract with their utility and they can't afford to get out of it," he explains. "That is just one example of a small city that is totally sympathetic to the cause, so imagine multiplying that 1,000 times in much less sympathetic settings for the whole country. You would have to break thousands of contracts and lay off millions of people – it is extremely difficult."

The federal government does have authority to set restrictions on emissions, but Pollin says it should follow recommendations from the Intergovernmental Panel on Climate Change and aim for a 50% emissions cut by 2030 and 100% by 2050. "That is realistic, but is very challenging in itself, so why aim above that goal?"

Vague and expensive

Shortly after the Green New Deal was proposed, the centre-right advocacy group American Action Forum published a financial breakdown estimating how much the objectives would cost. Although it has since distanced itself from the \$94tn price tag that others calculated using their figures, the group's director of energy, Philip Rossetti, tells me that his estimate of \$5.36tn for a low-carbon energy grid is generous. "We generate a lot of electricity from clean sources pretty cheaply, but we have difficulty ensuring we generate at the right time," he says. "My estimate assumes a lot of new storage

"The language is sufficiently vague that it only implies a mobilisation within 10 years, not zero emissions"

assets coming online to complement renewable assets, and the costs for that can be wildly disparate. Some say we would need multiple days of storage, but I only calculated for about four hours' worth."

It is also unclear how the deal's energy policies would actually be implemented and enforced. The US has different methods for managing electricity markets in different states. Some are part of interconnected regional transmission organisations with a shared market, while others have a top-down system where a monopoly company has a regulatory compact with the state. "So it is really not clear from the proposal what policy mechanism would deal with that," Rossetti says. "They simply said they would achieve net zero greenhouse gas emissions, which leaves it open to the imagination as to whether it would be a mandate, subsidies, or something else."

And he believes that this approach was intentional. "I have heard people say that the language is sufficiently vague that it only implies a mobilisation within 10 years, and not actually achieving zero emissions, and I think that is by design."

Rhetoric or reality?

Pollin highlights how this use of language could be dangerous for the credibility of the climate change movement. He received an email from the office of senator Ed Markey,

Policy

who co-sponsored the deal, asking for advice shortly after the objectives were proposed. "Well they might have done that a little sooner!" Pollin says. "They rushed it, and although I support the aims, I don't think it is ever a good idea to draw out things that are outlandish."

Others disagree. Stanford University's professor of civil and environmental engineering, Mark Jacobson, explains that 90–95% of the technology is already available to transform the country's energy infrastructure. "If you look at California – most populous state in the US and fifth largest economy in the world – its electric power sector is already close to 50% renewables, so the next 50% should not take more than 11 years."

Jacobson, who co-founded The Solutions Project with Hollywood actor Mark Ruffalo, tells me that nine states already have laws or have proposed laws to get to 100% renewables in the electric power sector. And he has even built a home for himself that runs completely on wind, water and solar. "I will never pay another energy bill in my life, so what they say about renewables being too expensive makes no practical sense." But after insisting the deal is "technically and economically possible", he admits it is unlikely that energy for transportation, buildings, heating and cooling will be 100% renewable by 2030.

"We are not quite ready yet with things like long-distance aircrafts and ships. For those reasons I think it might take until 2035 or 2040 for transportation. With electricity, we can certainly do it by 2035, but different sectors will go at different speeds." He also points out that utility-scale solar and onshore wind are already the cheapest forms of new electricity in the US.

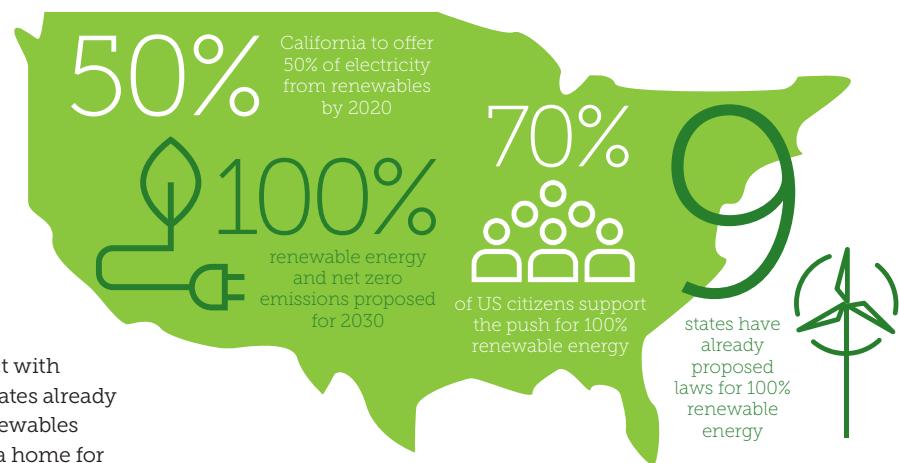
And as for the deal's price tag, Jacobson highlights the hundreds of billions of dollars in health costs incurred by air pollution and fossil fuels every year, along with an estimated seven million annual deaths globally. "I look at this as a health, climate and energy security deal, so we can't afford to delay by even one year."

Political willpower

One thing that everyone agrees on is that the Green New Deal is never going to happen under the current leadership. The government continues to heavily subsidise fossil fuels, and Trump has shown no sign of backing down on his promise to pull out of the Paris Agreement. "The problem is we have someone in charge of the federal government who is an anti-climate person that wants to mislead the American people," Jacobson says. "But policy is based on economics, and it is straightforward for policymakers to take away subsidies from the fossil fuel industry, which has been leeching off society for 100 years, causing illnesses and wasting taxpayers' money."

CLEAN TRANSITION

The fight for a greener future in the US has already begun



There are many who believe that climate change is so serious it requires economic mobilisation similar to that seen during World War II, although Pollin tells me it is not as simple as that. "I recently met Bernie Sanders in Washington and told him the deal was unrealistic, and he said 'what about WWII? We changed the production capabilities of our economy overnight'. I told him that back then we had 20% idle capacity and a lot of scope to expand things – plus we are not in a war now, and we need to get the working class and unions on board."

A recent poll found that 70% of US citizens support the push for 100% renewable energy, but that doesn't stop sections of the media blasting the Green New Deal as some sort of job-killing socialist plot. "Investing in green infrastructure generates more jobs than

maintaining the fossil fuel infrastructure, energy costs will go down because we are investing in efficiency, and renewables are at cost parity anyway," Pollin says. "I don't know what works in terms of rhetoric and persuading people, but a just transition has to be incorporated into any green new deal, so it addresses pension protections, guaranteed re-employment, retraining and relocation support as needed – I think it's fair to say environmentalists have not given enough attention to this."

Although it may be technologically possible, the overriding feeling is that a 2030 target for net zero emissions and 100% renewable energy is not yet politically and socially realistic. "But that doesn't mean we shouldn't shoot for it," Jacobson says. "It is better to set a goal that is too ambitious than one that is not ambitious enough – the more renewables we can install the better, and we will transform our infrastructure. It is happening as we speak."¹⁰

**"A just transition
has to be
incorporated
into any green
new deal"**



Do you think a US-UK trade deal would lower standards?
To publish your views, contact features@iema_transform.com

The big question

Would a US-UK trade deal damage food and environmental standards in the UK?



JAMES ANGEL

Policy and campaigns manager,
Global Justice Now

"US agriculture has long been frustrated by EU food standards"

The politicians who will soon start negotiating a US-UK trade agreement primarily see food and environmental standards as a 'barrier' to free trade. The release of the US's objectives for the deal offers a glimpse of what this might mean.

US agricultural firms have long been frustrated by EU food standards, which restrict high-intensity, high-chemical and low animal welfare US exports. That's why US negotiators are setting out to 'eliminate practices that unfairly decrease US market access'. The US sees a post-Brexit trade deal as an opportunity for 'regulatory cooperation' – the relaxation of UK environmental and food regulations to match US standards. Public health and environment risks would be far-reaching, from the failure of chlorine washing to kill listeria and salmonella to the compounding of antibiotic resistance through their use on livestock.

What's more, a US-UK deal would likely include a secretive system of private arbitration known as 'investor state dispute settlement' (ISDS). This allows multinationals to sue governments in international tribunals to challenge measures that curb their profits. ISDS proceedings in previous trade deals have been used by firms to challenge policies designed to preserve food and environmental standards.



ROB PERCIVAL

Head of policy (food and health),
Soil Association

"US antibiotics use in livestock is five times higher than in the EU"

The UK government has made commitments to high environmental and animal welfare standards, but these may be undermined by a US trade deal, which could lead to a 'race to the bottom' if British farmers are forced to compete on price. Cheap food imports could undermine farmer profitability, leading to lower food quality, environmental protection and animal welfare standards.

Chlorine-washed chicken and hormone-treated beef in the US are emblematic of lower animal welfare and hygiene standards. The percentage of people who fall ill with food poisoning in the US is 10 times higher than it is in the UK. In the EU, genetically modified (GM) products are widely rejected, while pesticides are held to high environmental standards and antibiotic use in livestock is closely regulated. Meanwhile, 88% of US corn is GM, US lobbyists consistently push for lower environmental health standards, and antibiotics use is five times higher than in the EU. The US also considers nutrition labelling a barrier to trade.

British citizens don't want chlorine-washed chicken, ractopamine-fed pork or hormone-treated beef. The Soil Association is calling on the government to offer reassurance that our standards will be protected post-Brexit, and not undercut by a trade deal with the US.



VICTORIA HEWSON

Senior counsel, Institute of Economic Affairs

"There is a lot of misinformation about US food"

A UK-US trade deal could: establish strong environment obligations; establish rules to ensure the UK does not fail to enforce environmental laws; promote sustainable fisheries management and conservation of marine species; and protect and conserve flora, fauna and ecosystems. Each party can set for itself the protection it believes appropriate to protect food safety and plant and animal health.

These are some of US's objectives for its potential free trade agreement (FTA) with the UK. In fact, there is much more on the environment, labour rights, anti-corruption and protection of preference programmes for small businesses and women and minority-owned businesses, much of which will be more welcome to readers of *TRANSFORM* than it is to free trade supporters at the IEA.

There is a lot of misinformation about US food. Chlorine-washed chicken is safe, and US rates of salmonella and campylobacter are in line with European levels. Shielding agriculture from scientific advances that increase efficient land use is at odds with sustainability.

In an FTA, a country can maintain regulations to suit its policy priorities. Allowing our farmers to compete alongside their US counterparts would be good for them, good for the environment and good for consumers.

A perfect

February 28 marked the first time in two years that climate change had been debated in the main chamber of the House of Commons. Think about that for a minute, because two years is a very long time – especially in a country where most of the population absolutely loves talking about the weather, and the ruling party's manifesto includes a commitment to 'leave the natural environment in a better state than we found it'. Still, for all the chatter, some have lost patience with the political patter.

"I feel let down. I feel betrayed by the government, past governments and present. I feel they haven't recognised the severity of the crisis enough and I think a lot of young people my age are starting to get angry about that." That was Anna Taylor, speaking live on CNN, in mid-February. For days, the 17-year-old A-level student had been jumping from one studio to the next – BBC's *Newsnight* and BBC Radio 2's *Jeremy Vine* show included – to explain why she was leading a mass 'school strike' in the UK on Friday February 15. "We feel this is the only way to make our voices heard."

It was the youth strike that encouraged Liberal Democrat MP Layla Moran and Green MP Caroline Lucas to (finally) force through a debate on climate change in the House. Unfortunately, only a handful of MPs turned up. Brexit – as has been the case

Derided as 'snowflakes', young people are forming a blizzard of opposition to climate change, as **David Burrows** reports

STORM

since June 2016 – is taking precedent over anything else (or at least is providing a handy excuse for any perceived lack of engagement). At the time of writing there are 28 days to deliver a deal. An impossible task? Maybe. But consider this: we probably have until 2030 to bring global carbon emissions under control, or we risk shooting through the carbon budget and the 1.5°C warming scenario. That is still "within the laws of chemistry and physics" according to the IPCC, but would require "unprecedented changes".

Headlines suggesting there are 12 years left to save the world from climate catastrophe are on the dramatic side. (The neat cut-off comes from the IPCC's special report on global warming published in October, which warned that global net human-caused emissions of carbon dioxide would need to fall by about





School students gathered in Parliament Square, London, to protest political inaction

Anna Taylor (centre) was one of the main coordinators of the UK climate strike

"I feel betrayed by the government, past governments and present. They haven't recognised the severity of the crisis"

45% from 2010 levels by 2030, reaching 'net zero' around 2050). Still, as Lucas noted in the debate, time is running out. "We face a climate emergency... it calls for unprecedented boldness of vision and a new way of thinking."

Mobilising young people

This is where Taylor, and thousands like her the world over, come in. Speaking to her on the phone as the UK experienced its hottest winter day ever, she details how the group she spearheads – the UK Student Climate Network (UKSCN) – was born in a café in south London just a couple of months ago. "It was December, and I was talking to someone about the students on strike in Australia [one of the first countries in which thousands of students mobilised into strikes and protests to demand action on climate change]. Other countries were involved too. And I thought: why aren't we doing it?"

Two months later, she had helped coordinate 16,000 students (organisers are still trying to finalise the figures, but this is their latest estimate) to skip school and join protests all around the UK. There are too many stories from that day of unprecedented action to retell, but one stuck with me. It came from Bristol, where the

14-year-old organising the local strike arrived expecting around 30 or 40 to turn up, but was swamped with somewhere between 1,000 and 2,000. This is happening all over the world – and at speed. "It throws the generational challenge of global warming into its sharpest relief," noted Bill McKibben, environmentalist, founder of 350.org and author of *The End of Nature* (written 30 years ago and recognised as one of the first books on climate change for a general audience).

How far can this all go? What can these young people – so often branded 'snowflakes' (a term that apparently emerged on American campuses to criticise hypersensitivity among the younger generation) or 'apathetic' (in the wake of low turnout among younger voters in general elections) – succeed where experienced (and well-funded) campaigners have arguably failed? "I've been in campaigning for a while, and this is definitely extremely different to anything I've seen before," explains Jake Woodier from the UK Youth Climate Coalition (UKYCC), which has worked closely with UKSCN on the Youth Strike for Climate campaign. "Young people are not by nature lazy and apathetic; they are in tune with politics and the world around them, but there hasn't been that outlet for them to speak up."

Climate change

Protesting in Parliament Square

Curriculum reform

Woodier is 26, and as such represents the elder end of the youth activist spectrum. Like Taylor, he has an excellent understanding of the subject area and speaks with a striking balance of intelligence, passion and optimism. Bubbling underneath there is also a touch of frustration and anger, mostly towards politicians – and the promises they have made. Claire Perry, minister for energy and clean growth, tweeted how “incredibly proud” she was of “young people who feel strongly that we need to take action” on climate change. And yet she won’t meet UKYCC to discuss fracking. It’s hardly surprising: this is a politician who, in the space of 24 hours last September, visited Newcastle to hail the success of offshore wind power (“we are witnessing an unprecedented global transformation to a low-carbon economy”), and then gave Cuadrilla the green light to start fracking in Lancashire.

The prime minister seemed less keen on the idea of children skipping school. Theresa May’s official spokesperson said: “It is important to emphasise that disruption increases teacher’s workloads and wastes lesson time that teachers have carefully prepared for. That time is crucial for young people precisely so that they can develop into the top scientists, engineers and advocates that we need to help tackle this problem.” And yet climate change is conspicuous by its absence on the national curriculum. A week after the kids protested, teachers lobbied outside the Department for Education, claiming that the education system was failing to offer students the chance to discuss and debate complex issues such as climate change and biodiversity loss. Taylor is doing A-level geography and there has been “barely anything” on climate change; it was the same during her GCSEs.

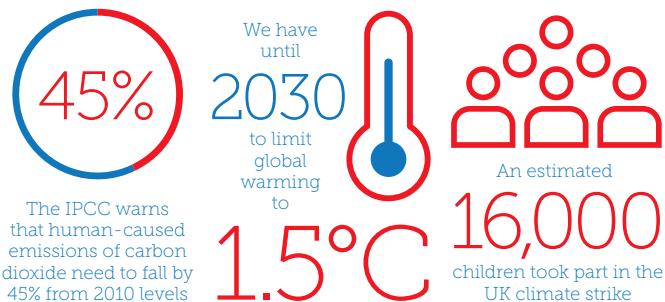
Reform of the national curriculum is one of the UKSCN’s four demands. The group also wants the government to: declare a “climate emergency … taking active steps to achieve climate justice”; better communicate to the general public the severity of the ecological crisis and the importance of acting now; and recognise that young people have the biggest stake in our future, by incorporating youth views into policymaking and bringing the voting age down to 16.

“Young people are not by nature lazy and apathetic; they are in tune with politics and the world around them”



STRIKING FOR CHANGE

Faced with climate catastrophe, youth are rising



New routes to change

Big asks, which means there will be more action to come. “We will keep striking, and the strikes will keep growing until our demands are met,” says Taylor. Naturally, she can’t say much about what’s planned, but she does promise that they will “up the intensity, frequency and variation”. Is she feeling the weight of expectation from the 16,000 others following her lead in the UK? If so, she doesn’t show it in interviews. “I do feel pressure,” she tells me, admitting there has also been “quite a bit of hate” on social media. “But no matter how much hate I get, I know I am doing something really important – standing up for thousands of children.”

And it won’t be long before it’s millions. This movement, which was inspired by Greta Thunberg – the Swedish teenager who has been skipping school every Friday for more than half a year to protest outside her own parliament – has become a global phenomenon. One thing is clear: their collective voice will be increasingly hard for governments (and businesses) to ignore. “Civil society and campaigners have exhausted the avenues where they can create change and contextualise this issue in the public and media arena,” says Woodier. “This movement has smashed open the door of what’s possible.” T



DAVID BURROWS is a freelance journalist

Why did you become an environment/sustainability professional? Growing up on the edge of North London, minutes from countryside, I watched urban sprawl in action during my formative years. Country walks gradually urbanised and I noticed the change in wildlife. After a few years in accountancy I realised I wanted to do work that contributed to the environment, and so I started my degree in my mid-30s and moved into the profession.

What was your first job in this field? I created a project alongside my accountancy job and rapidly made a huge impact on the company's energy consumption. At first it was additional to my day job but it led to the creation of a new role.

How did you get your first role? It was all about creating an opportunity. I did a lot of research and gleaned what I could from all sorts of sources, internet searches and attending events. I gathered internal data and analysed it and put together a proposal for the board. I was given the green light and we achieved certification just a few months later. I'd justified the benefits to the business and a role was created for me.

What does your current role involve? My business helps organisations to think strategically about the crossover between sustainability and technology, delving into their business model, spotting opportunities and developing the value proposition.

How has your role changed/progressed over the past few years? I have found my niche is in the crossroads between the digital transition and the transition to sustainability. I'm conscious of the ethical issues and worry that people will be left behind. My business is dedicated to supporting people and businesses to build a future that prioritises the wellbeing of our planet and all life on it while embracing technology.

What's the best part of your work? That beautiful moment when a client's eyes light up with the spark of inspiration.



CAREER PROFILE

Sandra Norval FIEMA CENV

Director, Bluedotaug

What's the hardest part of your job? When your integrity is challenged and you're asked to act against your values or skills. I turn to our Professional Code of Conduct for guidance.

What was the last development event you attended? The Sustainability Leaders Forum on Disruptive Technologies and Sustainability, in December.

What did you bring back to your job? As I was on the panel I did additional research, and the debate and the discussions in the room honed my thinking around some key concepts I've been working on.

What is/are the most important skill(s) for your job? Embracing being a beginner. We're in a state of flux and change is happening constantly and rapidly; we need to develop resilience. This isn't a time to dig your heels in and refuse to move. We have to be part of the change so we can influence it!

Where do you see the profession going? To preserve our natural environment, we must engage with developing the protocols



Visit www.iema-transform.net for more member profiles



that shape the way AI, robotics and other technologies emerge. I see a subsection of our profession developing. We'll see increasing specialisms with a solid backdrop of core sustainability expertise.

Where would you like to be in five years' time? I feel an increasing passion for the ethics and application of technology. As a Fellow, I want to make sure that I am contributing to this.

What advice would you give to someone entering the profession?

Know your skills, look for opportunities to address the gaps you want to fill, and if you don't find an opportunity, see if you can create one.

How do you use the IEMA Skills Map? The Skills Map has informed my personal development plans throughout my career, and now it helps me to inform clients who want to build their knowledge and skills, too.

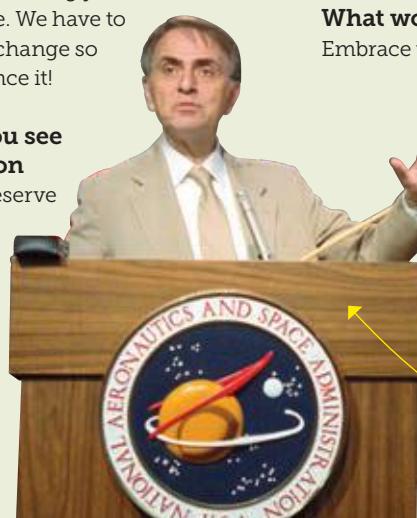
If you had to describe yourself in three words, what would they be? Tenacious, curious, innovative.

What motivates you? Seeing my clients succeed.

What would be your personal motto? Embrace the inner beginner.

Greatest risk you have ever taken? Leaving a secure job to start a business.

If you could go back in history, who would you like to meet? Carl Sagan; his 'pale blue dot' speech inspires me every day. ↗



CONNECT

SOCIAL AND COMMUNITY NEWS FROM IEMA

EVENT

Futurebuild: Enhancing the environment post-Brexit

The recent Futurebuild event saw IEMA's Martin Baxter involved in a panel conversation on the Environment Act

IEMA's chief policy advisor Martin Baxter described the upcoming Environment Act as the start of the UK's "environmental constitution" in 'The Environment Challenge: How can we enhance the environment in a post-Brexit world?' talk at the Futurebuild 2019 event in London.

He said the country could go above and beyond EU standards, highlighting how regulation has lost its focus and become "flabby" thanks to 28 member states each throwing in their own ideas – but warned that political parties must not be able to rip up targets from previous governments as they see fit and treat the environment like a "political football".

Baxter also stressed the need for overarching objectives, and said that the proposed framework for environmental principles has so many holes it "looks

more like a colander" than a comprehensive way to improve the environment.

"What we need is a durable system of environmental governance that is predictable for private and public sector investment, so we don't end up heading off in a different direction with a change of government or minister," he said.

Baxter went on to say that any framework must have "legal teeth", set a clear direction for future governments and contain "galvanising statements" – something the current draft of the

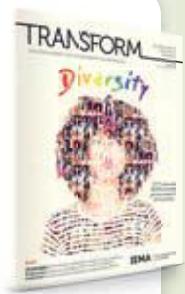
Environment Bill is lacking. Moreover, he highlighted the need for environmental improvement plans to be seen from a local level, and not just from a national perspective as the government's 25-Year Environment Plan does.

"Understanding how we relate local priorities is crucial for a bottom-up approach, democratising the environment far more so communities contribute to the achievement of national targets," he added.



QUOTE
UNQUOTE

Excellent to see @IEMA_Transform tackling the #diversity in this month's magazine. Such an important issue for professional institutions to focus on because they can have such a big impact on their membership and the wider community.
@CONSTRCRAINBOW



Great #inclusive edition this month from @IEMA_Transform with some #diverse articles from #rolemodel #sustainability professionals!
@CHARNELLDRY

Replies to @kemp_turnbull @IEMA_Transform @iemanet Just got my copy, it looks fantastic, great job from the team and all the contributors
@SANDRAKNORVAL



Transform arrived still #plasticfree safe and sound in the post today. Particularly inspired to read the article about Designing for #Dementia with @NCLAgeing. Thanks @iemanet @IEMA_Transform for another great magazine.
@SHARONENV1



Honored to be made a Fellow of @iemanet & looking forward to helping promote our profession, raise standards & improve planetary health
@MRDANHG



Remarkably insightful meeting at the #IEMA Fellows' WG on 'Disruptive Technology & Digital Economy'. Looks like in future, it's going to be all about the data!
@ECAPAUREEVE



WHAT'S ON THIS MONTH

iema.net/events

CONFERENCE

Sustainability Business Conference 2019

⌚ 12 April 2019

This one-day conference looks at how to futureproof your organisation. We will look at how a sustainability strategy can enable you to capitalise on opportunities, demonstrate purpose, build brand reputation, and understand why customers reward more sustainable companies.

👉 To register: bit.ly/2GsEYbc

WEBINAR

Review of the report of the independent review of the UK Modern Slavery Act

⌚ 16 April 2019

Are you involved in procurement, your organisation's Modern Slavery Statement or maintaining your organisation's management system? In this webinar, we'll be joined by Baroness Young of Hornsey and Paul Gerrard (FIEMA) as we discuss the key recommendations set out in the final report.

👉 To register: bit.ly/2TA3lFh

WEBINAR

Task force on climate related financial disclosures: Introduction and perspectives for our professions

⌚ 25 April 2019

In this joint webinar between IEMA and the Institute and Faculty of Actuaries, you will hear from Steve Waygood, an industry leader and member of the TCFD, as well as Paul Pritchard and Louise Pryor – two leading practitioners from the environmental sustainability and actuarial professions.

👉 To register: bit.ly/2Hh2E2u

ONLINE EXCLUSIVE

Millennials call for environmental leadership post-Brexit

IEMA Futures chair Hannah Lesbirel reports on the key takeaways from the group's recent 'Brexit: What does it mean for the environment?' event, which was chaired by IEMA chief policy advisor Martin Baxter.

👉 Read it at bit.ly/futures_brexit

CONFERENCE

Rewilding – a solution for climate change?

This conference, hosted by Climate Action North East, will examine how rewilding could help in the fight against habitat degradation and climate change

Celebrate World Environment Day on 5 June 2019 at this event hosted by Climate Action North East and sponsored by Resilient Business Systems.

We explore how rewilding can help restore ecosystems and tackle climate change. Speakers include *Blue Planet* cameraman and award-winning photographer Doug Allan, and Rewilding Britain specialist advisor Professor Alastair Driver.

Climate North East Action managing director Sharon Lashley said: "There's growing interest in rewilding in Britain, and it's important that we work to find understanding and take action to create ways of living that not only restores the natural world but also our prospects for a sustainable, safe and prosperous world."

Doug Allan said: "I'll be covering successes and setbacks

in my presentation through my own personal experiences exploring the challenges of climate change. I've learned to balance climate reality with climate optimism and, most importantly, to realise that everyone has to be working together to inspire a change of direction."

The conference also welcomes speakers: Isabella Tree, co-owner of the Knepp Estate and author of *Wilding*; David Hetherington, author of *The Lynx and Us*; Sacha Dench, conservationist, adventurer and motivational speaker; and Professor Chris Stokes, glacier specialist and researcher. It will be chaired by Mike Pratt, the CEO of the Northumberland Wildlife Trust.

The conference will be held at the Newcastle Gateshead Marriott Hotel. Tickets cost £55 plus booking fee. To register, visit bit.ly/2VUXMn1



Climate Action North East's rewilding conference will feature *Blue Planet* cameraman and award-winning photographer Doug Allen as one of its speakers

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- 7** • Consultancy and Collaboration
- 8** • Innovation in Impact Assessment
- 9** • Circular Economy
- 10** • Biodiversity and Environment Net Gain
- 11** • Energy and Carbon Transition
- 12** • Climate Resilience and Adaptation
- 13** • Supply Chain Management
- 14** • Sustainable Finance
- 15** • Best Corporate Strategy
- 16** • Community or Social Value

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- 18** • Sustainability Leader
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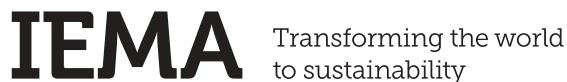
- 3** Prepare your business case(s) and supporting information to help you compile your entry/ies



- 4** Upload your entry form, supporting document PDF and photographs



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