

TRANSFORM

Environment ●
Economy ●
Society ●

FOR ENVIRONMENT AND SUSTAINABILITY PROFESSIONALS

September 2017
www.iema-transform.net



Mixing it up

Why politics still
matters in a more
diverse energy market

PLUS

Site selection The pros and cons of brownfield and greenfield for housing

Fighting fit Upbeat attitude from Green Party co-leader Jonathan Bartley

Toolkit for change Green infrastructure project offers long-term potential

IEMA Transforming the world
to sustainability

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TIM BALCON, CEO OF IEMA

Welcome to *Transform*

This is your new membership magazine, which has been entirely forged from member feedback. Last year, just after our visual rebrand and the launch of the new membership journey, we asked you what, collectively and individually, you need from the magazine. You said you wanted the updates to be snappier and easier to digest, and that it should cover broader sustainability themes without losing our strong heritage in environmental management and assessment. We also heard how much you want the features to be more than interesting: they need to help you to do your job, or at least inspire you. Another clear message was that you want the magazine to go beyond explaining practice or challenges – it needs to be bold, even provocative, in exploring the big issues that shape and challenge our profession. We got that, loud and clear.

We've taken a year to understand the changes that were needed – while keeping what you said was vital, such as the regulatory updates and sections that celebrate members' achievements – and to create an entirely new magazine that delivers what you need.

We kicked around a lot of names for this new member magazine, but the one we always came back to, and which got the best response from a focus group, was *Transform*. It captures the essence of change, and of taking positive, impactful, necessary action. It reflects the innovative, brave and world-changing work that members such as you do – whether or not you realise, day to day, you are doing so. Finally, it anchors the purpose and focus of your magazine back to our shared vision to transform the world to sustainability.

I hope you can see the difference, and that your new magazine will support your learning, pique your interest, spark debate in your network and help guide your daily work. Please let us know what you think of *Transform* via Facebook, Twitter, LinkedIn, or email – in any way that works for you. And be sure to get involved by submitting ideas, news, updates on your projects and information about your achievements. This is your magazine: let's make it work for you.



IEMA Transforming the world to sustainability

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

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ROUNDUP

ENVIRONMENT & SUSTAINABILITY NEWS AND VIEWS

GLOBAL WARMING

Extreme weather to result in **152,000** deaths each year by **2100**



Weather-related deaths in Europe could increase by 50 times to 152,000 each year by the end of this century if no action is taken to reduce greenhouse gas emissions.

That is the warning given in a report published in the journal *The Lancet Planetary Health*, which shows a 'business-as-usual' approach to climate change could expose around two-thirds of Europeans to weather extremes.

This is a sharp increase on the 5% exposed from 1981-2010, with global warming expected to account for more than 90% of the rise in risk to people – mainly through heatwaves.

The study, funded by the European Commission, identified heatwaves, cold spells, wildfires, droughts, floods, and windstorms, as the extreme weather patterns most likely to affect people.

Under its projections, heatwaves could cause 99% of all future weather-related deaths, with fatalities rising from 2,700 each year at the start of the century to 151,500 by 2100. Coastal floods are also expected to be responsible for significantly more deaths, but the other extreme weather patterns identified should account for fewer.

Southern Europe is expected to be the hardest hit, with weather extremes becoming the greatest environmental

risk in the region, resulting in more premature deaths than those that cause air pollution.

The researchers said population changes, migration, and urbanisation could increase the risk of death from extreme weather, which can damage infrastructure as well as the ecosystem. There should be regional investments to address the unequal burden of weather-related disasters and differences in adaptation capacities, they suggested.

However, the authors warned of inherent uncertainty in the study, because it uses observational data, and it does not consider the effects of multiple disasters striking at the same time.

PHOTOGRAPHY: GETTY

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SHORTCUTS



'Super heatwaves' set to emerge

Global temperature rises of 4°C could see new 55°C 'super

heatwaves' hit densely populated areas all over the world every year.

That is according to research by the European Commission's Joint research centre, which shows that coastal China, the US east coast, and large parts of India and South America would be hardest hit.

Projections from the University of Washington in the US show a 90% chance of global warming between 2° and 4.9°C during this century.



London to add 1,500 EV charging points

Transport for London has

allocated almost £4.5m for the installation of 1,500 electric vehicle charging points across 25 boroughs.

The move is part of plans to reduce emissions and tackle illegal levels of air pollution, which are responsible for 9,000 premature deaths in the capital every year.

Mayor of London Sadiq Khan, said: "We have a bold ambition to make London's transport system zero-emission by 2050, and more charging infrastructure is a vital part of making this a reality."



Global solar power funding up on 2016

Worldwide funding in the solar energy

market reached \$4.6bn (£3.5bn) across 97 deals in the first half of 2017, according to figures released by Mercom Capital Group.

This level is up on the \$4.5bn the industry attracted over 79 deals in the first six months of 2016, although funding fell from \$3.2bn in the first quarter of this year, to \$1.4bn in the following three months.

Prominent deals included ReNew Power Ventures, Greenko Energy Holdings, and Hero Future Energies.

INVESTMENT

Millennials driving sustainable investment

Increased interest in sustainable investment saw the market grow more than 33% between 2014 and 2016 to \$8.72trn (£6.73trn), according to a report by the US investment bank Morgan Stanley.

This growth was largely due to the younger generation, who invested in companies targeting social or environmental goals twice as often as the total investor population over the past year.

In addition, millennials purchased from a sustainable brand twice as often, and were three times more likely to work at, or apply to, a

company because of its environmental or social impact.

"Investors, particularly millennials, believe that their investment decisions can influence the issues they care about," the report says. "This generation continues to lead the charge when it comes to sustainable investing."

The research involved a survey of 1,000 active individual investors, finding that 75% describe themselves as interested in sustainable investing, compared with 86% of the millennial population.

This interest was reported despite a heightened sense of market volatility, which could explain why 71% of respondents believe companies with leading sustainability practices may be better long-term investments.

The research also found 58% of investors agree their investment decisions can influence the amount of climate change caused by human activities, rising to 75% among millennials.

"As long as the need for such impact remains, it is likely that investor interest will keep rising," the report said.

ENERGY

Brits still wary of green energy tariffs

UK energy providers are being urged to do more to promote renewable energy after a survey commissioned by energy supplier ENGIE revealed just 1% of the population is on a green tariff.

Half of the respondents said they avoided a green tariff because they thought their bills would rise, with 80% saying price was their priority.

This perception of higher costs is despite years of education and falling prices, with some green energy tariffs now offering to put every unit of electricity used back into the grid from a renewable source with no additional cost.

"With so few people choosing green energy tariffs, it is the responsibility of energy providers and the wider industry to offer solutions that appeal to and persuade consumers," said ENGIE home energy business chief executive Paul Rawson.

One-fifth of the respondents admitted to doing nothing environmentally friendly over the past year.

However, two-fifths of them said that they had cut down on their energy consumption, and almost half of the households had increased their level of recycling in the past year.



TRAINING

New associate and practitioner courses now running

Two IEMA-Approved Training Courses – one new, and one refreshed – were launched last month, presenting ideal learning, development and upgrade opportunities for members and aspiring members across the globe.

The updated Foundation Certificate in Environmental Management is a five-day course, designed to upskill anyone who has environmental responsibilities in the workplace. It's for those who may be collecting and analysing energy data, part of an environmental champions scheme or working at entry-level in a full time environmental role and feel ready to learn and do more. Successful completion results in Associate (AIEMA) membership, which is professionally recognised worldwide.

The brand new three-week Certificate in Environmental Management qualification has been specially created to instil and recognise environment and sustainability knowledge, and support learners to make an immediate impact on their organisation's environmental performance. It's for anyone who has environmental management responsibilities and needs to build their understanding of environment and sustainability. Successful delegates will achieve industry-demanded Practitioner (PIEMA) membership.

Go to iema.net/training to find out more and see where and when you can study the courses with an IEMA-Approved Provider.

ANNUAL GENERAL MEETING

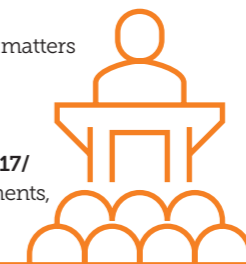
Members invited to AGM

IEMA's 17th Annual General Meeting (AGM) is coming up this month, and members are invited to attend to witness the proceedings.

This year's AGM will be held on Wednesday 20 September 2017 at the White Hart Hotel, Bailgate, Lincoln, LN1 3AR at 17.00.

All members are entitled to attend, vote and to speak on any matters arising out of the Directors' Report and accounts. However, no other business other than that given in the formal notice (detailed in full online) will be carried out at the meeting.

Go to www.iema.net/about-us/iema-governance/agm-2017/ for full details including the official notice, all supporting documents, information on voting and how to submit a proxy vote.



IEMA IN THE NEWS

Government urged to support a sustainable, zero-carbon economy

IEMA teamed up with leading businesses and investors in July to urge the government to raise ambition to tackle climate change and show leadership towards a sustainable economy.

In a letter to Prime Minister Theresa May, co-ordinated by the Prince of Wales's Corporate Leaders Group, signatories including IEMA called on the UK government to demonstrate leadership on climate change in order to drive jobs, sustainable growth, and investment, and remain competitive with other major economies.

"Enhancing environmental and sustainability skills is an essential investment to secure the full social and economic benefits from transitioning to low-carbon and climate-resilient economies," said Tim Balcon, IEMA chief executive, on the day the letter was published, "IEMA is committed to developing skills, collaborating across key sectors, and supporting the delivery and ambition of the Paris Agreement".

Full details at bit.ly/2uH6qsb

'Collaborate to make EIA more proportionate'

IEMA has launched a strategy for collaborative action to deliver more proportionate environmental impact assessment (EIA). IEMA says this drive is needed to counteract the current EIA "obesity crisis".

In recent years, EIA practice has become increasingly more complex. IEMA says that while this complexity has improved the quality of EIA practice, the outcome is not universally positive. "We're looking at an EIA obesity crisis, and it's making findings inaccessible and adds burdens for developers," said Josh Fothergill, policy lead at IEMA. "We want to stimulate collaborative actions to improve the situation to deliver more proportionate, and therefore more valuable, EIA."

Read the story and get a free download of *Delivering Proportionate EIA* at bit.ly/2w6lhZK

MARTIN BAXTER

Preparing for Brexit

September sees the start of the Parliamentary and regulatory process for leaving the EU, with scrutiny and proposed amendments being considered to the European Union (Withdrawal) Bill. The Bill will, assuming it is enacted:

- Repeal the European Communities Act 1972
- Convert European Union law into UK law as it applies in the UK at the moment of exit
- Create temporary, limited powers to make secondary legislation to enable corrections to be made to the laws that do not operate appropriately once we have left the EU, and to enable the withdrawal agreement to be implemented

The Withdrawal Bill confers powers on Ministers to 'correct' legal deficiencies that need to be addressed to ensure a functioning legal system from exit day. There is also little doubt that opposition parties will seek to restrict these powers. Wherever the balance is ultimately struck, it is vital that the Withdrawal Bill provides a process for all EU-derived environmental law to continue to apply on exit day.

Preparations are under way to ensure a transposition of environmental law to maintain an "operable status quo", and IEMA is working as part of Defra's regulatory sounding board to provide input and oversight across environmental policy areas. At present, it is anticipated that 100 new statutory instruments will be required to both convert EU law and 'correct' existing law. We are pushing for a timetable and appropriate public scrutiny, so efforts can be concentrated on key areas such as chemicals regulation.

Many thanks to all who completed our IEMA survey on core environmental principles. We received an overwhelmingly positive response, and will be publishing them in due course.

MARTIN BAXTER chief policy adviser at IEMA
@mbaxteriema



MEMBERSHIP

FIEMA: a new generation of sustainability leaders

The new-look Fellow membership was activated in July, and IEMA is almost ready to reveal the new cohort of FIEMAs.

The Fellow membership standard was revised as part of IEMA's wide-ranging Member Level Review, and was finally

launched in July. The standard underpins a new range of benefits exclusive to Fellows and a new nominations and application process.

A specially formed Fellow Appointments Panel met in July to review and agree the cohort of Fellows in line with the new standard, which has wider appeal for leaders from environment and sustainability backgrounds.

Those who were nominated have been formally applying for their FIEMA membership over the summer, and IEMA will be able to name the appointments to the new generation of ambassadors for sustainability in the coming weeks.

- Visit www.iema.net/membership/fellow-membership to learn more about Fellow membership

EVENTS

Kickstart your membership upgrade with our webinars

A series of webinars designed to help members progress their membership upgrade will take place throughout September.

The series will begin on 7 September with an overview of the growing demand for sustainability skills from IEMA's chief executive Tim Balcon, and then go on to focus on upgrading to IEMA's Professional membership grades.

The emphasis of 13 September's free webinar will be How to achieve Associate (AIEMA) status.

Upgrading to the industry-demanded Practitioner (PIEMA) grade will be profiled on 20 September, before the series climaxes on 28 September with a look at the role that Full members play in the profession – and how existing members can achieve MIEMA and CEnv status.

- Go to www.iema.net/events for more details and to book your free place on your chosen webinar. All webinars from the series will be available to view after live broadcast via the Benefits Map

IEMA GROUPS:

GESA IA IA: GCHIA FUTURES REGIONS

NETWORKS



IEMA FUTURES

Young people shout about climate change

Ever feel like a spectator at the demise of the world as we know it? You are not the only one. IEMA Futures, a group of young people fighting for what is right, want to make our feelings known to government, business and anyone else who will listen. But what will it take for them to listen?

In a world ruled by industry and finance, the change will have to come from them. Can we change behaviour and turn climate change risk into a serious financial problem? Experts have suggested that the next financial crisis will be climate-related and that the value of risk to global assets will range from \$4.2trn (£3.2trn) to \$43trn between now and 2100.

Could we be on the brink of a new trend in climate disclosure lawsuits?

The world's first claim has been lodged recently against the Commonwealth Bank in Australia. Environmental Justice Australia said the bank failed to adequately disclose its climate risk in its annual report.

In 2017, the G20's Task Force on Climate-related Financial Disclosure recommended firms should disclose climate information as part of annual financial reporting. As a result, a host of companies have committed to this framework – but will it change the way we do business?

If you are a young person wanting to drive change to a more sustainable world, then contact us: @IEMAFutures on Facebook, Twitter and LinkedIn, and at upcoming events.



WELCOME TO NETWORK NEWS

The networks are all about members. They are a place where members can show their passion and can work together to discuss, debate, and influence decisions. From regional issues to global concerns, the pages of this magazine are an opportunity to use your voice and share your views. Each month the networks will provide an update on their activities.

- For further information, visit: www.iema.net/engage/networks/

REGIONS

It's all go on the North West front

Hello, and welcome to the North West regional update. In the coming weeks, we have the following IEMA events planned in the region.

On 5 September, we have organised a site visit to Tesla Cars in Knutsford. This will provide members with an opportunity to find out more about the latest technologies being used in the sector; a chance to hear from Tesla representatives on a range of topic areas including battery technology, use of data and infrastructure, and to learn more about the challenges being faced.

On 11 October in Manchester we have organised a Corporate Sustainability Reporting seminar. The morning event will feature a series of speakers, providing informative practical case studies on the benefits of engaging with corporate reporting and how to effectively engage with relevant departments for integrated reporting. Further information, and how to book for these events, can be viewed at www.iema.net/events

In the North West regional group, we are also planning a series of further events for the autumn and winter. Further details will be published soon online. If you would like to get involved in volunteering and supporting the regional group, or would like to get in contact, please email northwest@iema.net

NEW REGULATIONS



6 JULY 2017

Hazardous substances

Decision (EU) 2017/1210 identifies DEHP, DBP, BBP and DIBP for inclusion in the candidate list as substances of very high concern due to their endocrine-disrupting properties, according to REACH.

cedr.ec/4cu



13 JULY 2017

General

The European Union (Withdrawal) Bill sets out the power to repeal the European Communities Act 1972 on the day the UK exits the EU, and to make other provisions in connection with this withdrawal.

cedr.ec/4fc



31 JULY 2017

Energy

The Renewable Heat Incentive Scheme and Domestic Renewable Heat Incentive Scheme (Amendment) Regulations 2017 makes some changes so both the non-domestic and domestic renewable heat incentive scheme can continue to operate as intended.

cedr.ec/4et



1 AUGUST 2017

Energy

Regulation (EU) 2017/1369 sets out a new framework for energy-related products placed on the market or put into service. It deals specifically with their labelling and providing standard product information.

cedr.ec/4fb



1 OCTOBER 2017

Energy

The Energy Performance of Buildings (Scotland) Amendment Regulations 2017 increase the fees for entering energy performance data into a register, for both dwellings and other types of building or building units.

cedr.ec/4f8



8 AUGUST 2017

Planning

The Wrexham Gas Fired Generating Station Order 2017 authorises Wrexham Power to construct, operate and maintain a gas-fired electricity generating station of up to 299MWe.

cedr.ec/4ex



14 SEPTEMBER 2017

Water quality

Under Directive 2008/105/EC, the Commission must propose measures to address possible environmental impacts of pharmaceutical substances to reduce discharges, emissions and losses of such substances into the aquatic environment.

cedr.ec/4f0



4 AUGUST 2017

Energy

The Electricity (Exemptions from the Requirement for a Generation Licence) Order 2017 grants exemptions, under the Electricity Act 1989, from the prohibition of generating electricity for supply without a licence, in relation to eight generating stations.

cedr.ec/4eu



Deadly spread: the pollution reached as far as Staithes Harbour

INCOURT

POLLUTION

Yorkshire Water fined £600,000 for sewage discharge

Yorkshire Water is the latest utilities company to be handed a large fine for environmental offences.

The company, which was fined £600,000, admitted one charge of causing a water discharge activity without an environmental permit.

Sewage had leaked from a storage tank at the Hinderwell Waste Water Treatment Works in July 2015, with the cause determined as poorly maintained storage tanks, with rust and holes.

Richard Bradley, prosecuting for the Environment Agency (EA), told of the impact on quality of the water in the affected area. The watercourse involved runs through a caravan park, and had a foul odour and discolouration.

Yorkshire Water initially blamed works at the nearby Potash Mine for the water discolouration, but four days after the spill it used dye testing to trace the source back to the treatment works.

The impact on wildlife was clear, with up to 100 dead fish seen. Tests showed the water

had high levels of ammonia and low oxygen levels. The polluted water also affected the sea at Staithes Harbour, which at the time of the incident was designated as bathing water.

Three months after the incident, Yorkshire Water was still cleaning sewage from the water. The EA sent requests for a clean-up plan, but no reply was received.

Claire Campbell, environmental planning specialist at the EA, said: "This case demonstrates how important it is that water companies and wider industries maintain their equipment and facilities to a high standard to protect the environment."

Yorkshire Water, in mitigation, informed the court of measures taken to prevent a similar incident happening, which included replacing the tank in question, the installation of a gully guard to contain any future spillages, and an alarm on the sludge tank.

The fine of £600,000 was in addition to legal costs of more than £28,000.

CASE LAW

Court dismisses judicial review of EA flood works access

A claim for judicial review regarding powers of entry to carry out flood works by the Environment Agency (EA) has been dismissed, in the case of *R (on the application of Sharp) v North Essex Magistrates' Court*.

Planning permission had been granted for a flood-alleviation scheme that included significant works on the appellant's land. The appellant challenged the permission, but was rejected.

After still being refused entry to the land, the EA applied for a warrant under the Water Resources Act 1991 to secure entry to carry out the intended works.

The appellant argued that when the EA was seeking to carry out flood defence works, it was not reasonable for it to rely on its general power of entry under the Act; it should instead apply for a compulsory purchase order (CPO) or compulsory works order (CWO).

The EA submitted that it should not be "mired" in the CPO or CWO process in the field of flood-risk management works, and that the Act was designed to permit it to use general powers of entry.

Lord Justice Gross approved the EA's general power of entry to carry out the works, and also found that the proposed works themselves were lawful under the general powers to carry out works under the Act.

LATEST CONSULTATIONS



10 JULY 2017

Water quality

The Department of Agriculture, Environment and Rural Affairs seeks comments on proposals to update and consolidate Water Quality Regulations relating to the public drinking water supply, in order to implement Directive (EU) 2015/1787.

cedr.ec/4fp



26 JULY 2017

Transport

The Government wants to establish low-emission light commercial vehicles as an alternative to diesel-powered vans. This consultation aims to address the issue of carbon dioxide emissions from road transport and meet the national emission reduction targets set out in the Climate Change Act 2008.

cedr.ec/4fq



1 AUGUST 2017

Water supply

The Department for Environment, Food and Rural Affairs seeks views on two proposals to revoke and issue an updated version of the Security and Emergency Measures (Water Undertakers) Direction 2006 and to publish a general Direction that would apply to all water supply licensees.

cedr.ec/4fr

CLIMATE CHANGE

Antarctic ice drama

July saw an iceberg twice the size of Luxembourg break away from the Larsen C ice shelf in Antarctica, dramatically altering the landscape, and leading many to speculate whether it was a result of climate change or simply a natural phenomenon. With a surface area of 5,800km² and a weight of 1trn tonnes, the iceberg A-68 is one of the largest ever recorded and, after breaking away in a process known as calving, is thought to have reduced the overall size of the Larsen C ice shelf by around 12%.

Dr Anna Hogg, an expert in satellite observations at Leeds University and a member of the Centre for Polar Observation, believes it is too early to say what caused the break. "At this point the ice is floating on the top, and if it melts, it will not make much difference to sea water levels", she says. However, she adds: "We would definitely start to be more concerned if more icebergs of this size started breaking off over the next decade." ❄️

PHOTOGRAPHY: GETTY

Carry on fighting

Despite the turmoil threatening environmental regulations worldwide, Green Party co-leader **Jonathan Bartley** is upbeat about the need to push for a 'renewable energy revolution', he tells Chris Seekings

Political upheaval at home and across the pond over the past year has placed a large question mark over the future of environmental standards for two of the world's biggest economies. Indeed, by the UK government's own admission, it will be difficult to retain up to one-third of EU environmental law following the country's departure from the bloc. At the same time, President Donald Trump's decision to pull the US out of the Paris Climate Agreement has left many wondering who will step up as leader in tackling the challenges of climate change.

Brexit and bold choices

Having rescheduled our interview a few times, the busy Bartley and I finally meet at a coffee shop in his local borough of Lambeth in London. Immediately, he is keen to express his disillusion with the country's decision to Brexit.

"We have lost a real chance to lead the world, and I see us slipping down the league table," he says. Quoting his Green Party colleague Caroline Lucas, he adds: "There is an 'environmental-shaped hole' in the Repeal Bill, and it's unclear how we are going to get the protections that we need."

Despite his pessimism, Bartley is determined to fight what he calls an "extreme Brexit" and believes the country's decision to leave the EU does offer some opportunities for reform. "We want to see a move away from industrial farming," he says. "This is a chance to rethink what we do with land right across the board, and about how we create resilient supply chains that produce the food we need."

Bartley knows this process will require bold political choices to be made, and is not overly optimistic the current government will make them. But he acknowledges that the outcome of June's general election

gives parties such as his more of an opportunity to hold Theresa May to account. "It does take a willingness of politicians to work together, but there are question marks about how high up Labour's agenda the environment is," he says.

Homing in on housing

I put it to Bartley that many believe Brexit could help tackle an issue that is close to his heart: the housing crisis. Here in Lambeth there are more than 23,000 people on a growing waiting list for social housing. So does greater control over immigration provide a solution to the problem?

"No, I reject that," he says. "This isn't about supply and demand, but about a broken housing market. It is about a huge increase in rich foreign investment, and in the buy-to-let market, which has made housing a speculative commodity."

He believes that removing subsidies to buy-to-let landlords would help to tackle the problem at its root, freeing up funds for a potential 500,000 council homes. "But local authorities are under extreme assault in terms of making cuts, and many are on their knees – you have a weak ability to fight to make things less centralised, so they go upwards rather than downwards."

Bartley argues that planning and resourcing decisions should be devolved to local authorities, giving them the power of rent controls, rather than caps, to address the housing issue. "They are the ones that know what is happening in the area where the demand is, and where the prices need to come down," he says. Additionally, he suggests that a network of community banks, funded through the government's share in the RBS, could

help provide resources for smaller developers and land trusts. "These local banks can fund innovative projects, opening up new avenues for property development," he adds.

I ask Bartley what he thinks about building on the green belt, for which the Campaign to Protect Rural England say there are 425,000 new homes planned. "It isn't necessary," he says. "There are plenty of brownfield sites that we can be building on, but it is about the kind of houses we are building. Continually, we see affordable housing targets missed, and local

councils not being strong enough with developers."

He refers to other initiatives such as replacing council tax with a land value tax, so that developers cannot simply sit on land, wait for the market to rise, and then pass it on to someone else. Allowing this, he says, just discourages building, as owners already have an expensive asset under their control.

Concern for old and young

I am keen to know where Bartley stands on intergenerational fairness, and what can be done to tackle the problem. While accepting that there is a problem, he says it is not the fault of older generations, but of politicians.

'This is a chance to rethink what we do with land right across the board'

Interview

"Public sector debt has burdened younger people, and it is a lie that we can't look after both our older and our younger generations," he says. "We now have a two-tier system around the minimum wage, and a two-tier system around housing benefit, where young people are being treated as second-class citizens. It's not acceptable and doesn't have to be this way."

Bartley's daughter, an aspiring primary school teacher, wants to go to university, but in doing so, would be saddled with debts close to £40,000, he says. "She's never going to have a load of money to pay that off, but by imposing tuition fees and scrapping the maintenance allowance, that is the reality," he says. In addition, he highlights the irony in governments trying to deal with the deficit, but at the same time, cutting corporation tax down to 19%. "That is a colossal amount of corporate welfare we are giving away, rather than taking, with our young people footing the bill," he says. "But it should be corporations that are paying for things such as tuition, because they are the ones benefiting from university education."

I suggest that young people are perhaps treated disproportionately badly as they do not come out in significant enough numbers to vote, an argument that Bartley doesn't accept. "I encourage young people to vote, as they will have more of an impact, but we have a broken electoral system," he says. "A few hundred thousand voters in marginal seats determine the outcome of elections, and until we get electoral reform, we are not going to get fundamental change to the system."

Unsustainable growth

I tentatively ask whether the Green Party are guilty of letting the environment slip down its agenda in an effort to appear more than a one-issue party. "No. Next question!" He laughs: "No, I still knock on doors and get asked 'what are your policies beyond trees and climate change?', but the Green Party has always had a wide range of policies, it just sees all issues through the lens of climate change."

He is passionately convincing about initiatives his party supports, such as the introduction of a four-day working week, and a basic universal income, constantly making the link to our "unsustainable" levels of consumption and growth. "We don't want people to just be economic units competing in the global marketplace, endlessly pursuing the quest for illusory growth, which we know is ravaging the planet," he says.

But then why do many people not seem to buy into this? Is there climate change scepticism in the UK that we are not recognising? "You still get the occasional person burying their head in the sand, but there is more awareness in this country," he says. "It is important to communicate a clear vision, and make the links: to austerity, to the economy, and to every area of policy, which was why a lot of people joined the party in 2015."



With Jeremy Corbyn's anti-austerity message proving popular in June's general election, I suggest that some people might now find it difficult to differentiate between Labour and the Green Party. Bartley rejects this. "What we are seeing from Labour, quite rightly, is that we need to redistribute the economic pie, but they haven't accepted that it is an old stale pie, well past its sell-by date," he says. "You can't build more roads and expand airports, and say you are going to tackle the

pollution crisis. You can't invest £110bn-£210bn in Trident nuclear weapons, instead of making an investment in the economy, and you can't sink a £30bn subsidy into Hinkley Point and have a renewable energy revolution."

This brings me neatly on to the controversial nuclear plant, which EDF recently announced could be as much as £2.2bn over budget, and 15 months behind schedule. So what is Bartley's opinion of Hinkley Point? "I think it is a 20th-century technology," he says. "Why would you want to lock yourselves into a bad deal that is already more expensive than offshore wind and makes us insecure, when the alternative is a renewable

energy transformation?" The latter, he says, will potentially create hundreds of thousands of jobs and regenerate coastal communities, while Hinkley will have to be decommissioned after a few decades, creating only 800-900 long-term jobs.

For this "renewable energy revolution" to happen, Bartley acknowledges that the government needs to provide enough certainty to businesses looking to invest in the technology. Citing plans for a tidal lagoon in Swansea, he says: "Tidal is fantastic, because you can hold the water and release it when you need it, not just when the sun is shining or the wind blowing." Six of these lagoons down the west coast could provide as much energy as Hinkley, he claims, with one of them having the potential to power the whole of Cardiff. "Business wants to invest as they know that it has such a large

On a mission: the party has a range of policies but sees all issues through the lens of climate change

life span, but they need that security and certainty," he adds.

I suggest there still might be some people in emerging economies, such as India and China, who see climate change as a 'first world problem', and are perhaps not as concerned about things such as recycling. After reminding me that India

had just planted 50 million trees in 24 hours, Bartley reiterates the need to "join the dots for people", highlighting the links to climate change, sustainable economies, jobs and energy creation: "I don't know if we are winning or losing that argument, but it needs to be won, and international co-operation is key."

Saving grace

Our conversation inevitably leads on to Trump. After musing over the president's previous claim that climate change is a hoax created by the Chinese, I ask Bartley how big a setback he thinks the US pulling out of the Paris Climate Agreement is. "What is a saving grace with Trump is that he has galvanised people around climate change", he says. "When he said he was going to withdraw, you had states, cities, and mayors from right across the US saying that, despite Trump, we know it makes sense and we are sticking with it." He says it is important that the US meets its obligations, being one of the biggest emitters of carbon dioxide globally, but adds: "I think the global climate movement is bigger, and will move on in spite of Trump."

Talking of presidents, I am interested to hear what Bartley thinks of French president Emmanuel Macron's 'make our planet great again' initiative, which aims to attract the top climate scientists to France. "I thought it was bold channelling Trump's phrase, and I think Macron has a vision, as far as the great challenges we face." But he is concerned that Macron is also starting to disappoint, adding: "Let's move on beyond the soundbites and political posturing, and make it a reality."

Amidst the doom and gloom of Brexit and Trump, Bartley admits the situation looks both bleak and dangerous. However, he says it is encouraging that the renewable energy industry is still making progress, and reiterates the need to carry on fighting. "In every time of upheaval, you have to look for the opportunities," he says. "We must have that 'whatever it takes mentality', and recognise that global warming doesn't stop at the border." 

CHRIS SEEKINGS is a reporter for *Transform*



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Finding the right mix

Energy markets are turbulent, often fuelled by politics as much as by economics, says **Colin Cooper**

When President Donald Trump withdrew US support for the historic Paris Climate Agreement – citing his responsibility for the citizens of Pittsburgh, not

Paris – it was no surprise. The surprise came when city mayors and state authorities immediately promised to follow the tenets of the agreement even if the federal government would not, thereby ensuring that renewable energy would continue to grow in the US.

Meanwhile, in the Gulf region, Qatar's neighbours have embargoed the country for allegedly supporting terrorists, although there has been speculation that the real reason its oil-trading neighbours have put the embargo in place is Qatar's plans to increase natural gas production by 30% over the next few years. Yet the move to increase production makes sense as technology evolves and competing countries develop cheaper methods to produce natural gas. Politics, technology, and economics continue to push energy markets in new directions.

Road to renewables

France has just announced that the sale of cars with internal combustion engines will no longer be allowed after 2040. China-based Volvo will stop manufacturing and selling combustion-engine autos in 2019. Together with Tesla, the company aims to replace 1.5 million petrol or diesel cars a year with electric cars. The use of electric vehicles (EVs) is getting closer to the tipping point.

This swing towards EVs is, in itself, a harbinger of bigger changes. Not only do battery-run cars reduce consumption of gasoline and diesel fuels, but they are in effect mobile energy storage units – which, in turn, enables greater use of more intermittent renewable energy to be introduced safely into the energy mix.

Generation capacity for renewables continues to grow. Again, the signs are there. Large companies, such as Google and Apple, are pushing for 100% renewable energy for their offices, and are investing heavily to achieve their goal.

Sweden now leads the way in renewable energy: half of its energy comes from renewables in its gross final consumption. Next door, Finland gets 39.3% of its energy from renewables. In Southern Europe, Portugal

managed to power the entire country for a whole 24 hours using just renewable energy sources.

Reputations are changing fast. Earlier this year, China announced plans to spend \$360bn and create more than 13 million jobs in the renewable energy sector by 2020. For the world's biggest emitter of greenhouse gases, this was a significant bid for leadership in the renewable energy industry.

Chinese companies, with their vast domestic market, are already among the world's dominant players in the field. Chinese manufacturing has caused costs in the wind and solar industries to fall to a level that is much more competitive with power generation from fossil fuels.

Just as China develops plans to lift the cloud of Beijing smog, Saudi Arabia, the world's top crude exporter, is looking to diversify away from oil and into renewable energies, as set out in its Saudi Vision 2030 roadmap. As the country prepares for the IPO of Saudi

Aramco, the state oil company, it has kicked off a \$50bn (£38.43bn) push for renewable energy. The near-term goal is to increase the country's generation capacity to 9.5GW of solar and wind energy, to dampen domestic use of oil to meet energy demands.

Shift on fossil fuels

In an interconnected global market, the actions of countries such as the US and the Saudi kingdom do not take place in isolation.

Technological advances in the past few years have made US shale oil profitable at much lower levels – causing the united OPEC-Russia front to feel the squeeze of reduced crude prices.

Profitable at \$40 to \$50 per barrel, US shale oil has created a new world for international crude producers – one in which OPEC and non-OPEC players have agreed to extend their cuts to output by nine months to March 2018.

At the same time, many countries in the Middle East recognise that exporting crude is a low value-add activity. Gas is a more cost-effective and less environmentally damaging means of generating power, and those countries with gas reserves are looking to maximise output.

Qatar, as stated above, plans to increase natural gas production by 30% over the next few years to cement its position as the leading gas producer in the world. Other countries, that lack natural gas reserves of their own, are looking at refining opportunities to optimise profits from every molecule of oil and gas. With Qatar

'Policy, technology and economics continue to push energy markets in new directions'

under embargo by its neighbours, it seems the cooperation aspect of the Gulf Cooperation Council is in short supply. How this will affect its ambitions as a gas producer are not yet clear.

The indications, big and small, are all there. The energy mix is changing. More innovative, diverse, and much more complex, it is less beholden to cartels, but still subject to economic and geopolitical pressures.

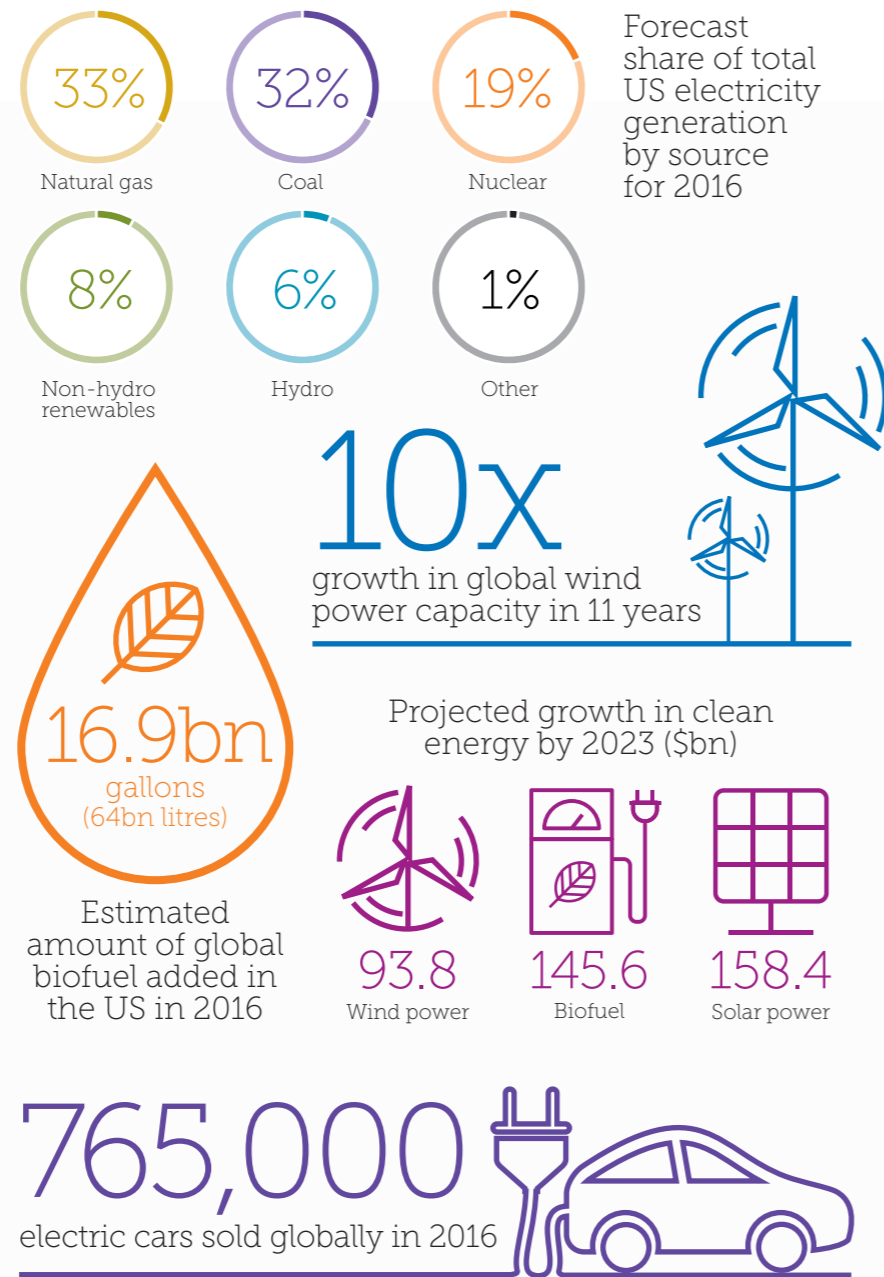
For large purchasers of energy products, staying on top of these shifting energy markets is essential to ensure they secure what they need at the best price – a price that must increasingly take environmental levies, taxes, quotas, and subsidies into account, alongside corporate social responsibility commitments and reputation management. At the other end of the deal, sellers need to navigate shifting markets to ensure they maintain their profits – not least because, as the way we produce and consume energy changes, it will require further investment.

In this environment, neither party to a transaction can afford to make buying or selling decisions without recourse to detailed evidence, in the form of advanced analysis of all potential costs, hidden risks, and likely outcomes. They require access to accurate real-time data, the ability to find the signal among the noise, and specialist commodity management tools to interpret it.

Unprepared companies that are not using specialist technology can soon find that reality bites back – with painful environmental, financial, and reputational consequences. **📌**

COLIN COOPER is vice president for Europe, the Middle East and Africa at commodity management software provider Eka

ENERGY IN NUMBERS



It's been in the news constantly over the past couple of years, so why has air pollution suddenly appeared on the national agenda? It used to be a more visible problem in the UK, with extensive domestic and industrial combustion of fossil fuels emitting large amounts of smoke and oxides of sulphur. Today, the air we breathe is visibly cleaner, thanks to legislation and the work of environmental health professionals.

However, significant but much less visible problems still persist, and it's calculated that poor outdoor air quality results in around 40,000 premature deaths annually in the UK. There is also evidence that poor air quality contributes to cancer, strokes, asthma and heart disease, and there are associations with obesity, dementia and diabetes. The cost to UK businesses and healthcare services amounts to more than £20bn a year.

We are standing on the cliff edge of a public health emergency, and yet the government has persistently failed to understand this precarious situation. Following legal battles and lacklustre strategies in response, the government recently published its latest plans to tackle air pollution. Much of the focus in government announcements and the media has concentrated on proposals to end sales of all new conventional petrol and diesel cars and vans by 2040.

While this is a positive step, the 2040 deadline is far too late. The government needs to incentivise the removal of these polluting vehicles from the road as soon as possible, given that they are the main contributor to poor air quality.

But, at the Chartered Institute of Environmental Health, what really

concerns us is that, once again, government has failed to recognise that poor air quality is a national issue and continues to unfairly offload responsibility onto local authorities to sort out the problem.

Clearly, local authorities are where the expertise lies, and our members have an important role – they are on the frontline in monitoring air quality and instigating measures to make positive changes.

One example where environmental health professionals have taken such action is York. Housing developments, in the historical town's former industrial areas, have increased levels of vehicles and pollution. In addition, with streets dating from Roman times, much of the city centre is a conservation area, with narrow streets limiting how traffic can move around and what mitigation measures can be adopted.

In 2012, York Council devised an overarching low-emission strategy looking at transport, energy and planning, as well as at procurement and the way people lived in the city. Among several other measures, the council has introduced financial incentives to encourage taxi drivers to switch their cars to low-emission vehicles, while electric buses are now used on the western route into town.

Relying on councils to take the lead will lead to positive results at the

local level, as we have seen in York. But doing so risks regional inconsistencies when the problem is considered on the national stage.

It also unfairly shifts the burden from central government. With only £250m to sort out the problem and only eight months to submit their plans, local authorities are being set up for failure before they have even started.

In our consultation response to the government's proposals, we suggested:

- Appropriate levels of government financial support to target areas where air pollution is highest and where the largest number of people are exposed
- Reduction of the number of vehicles on the road or action to remove vehicles that do not comply with EuroVI/6 or petrol Euro 3 standards as a minimum
- Removal of tax incentives on diesel and transferral of these incentives to infrastructure development for ultra-low emission vehicles and zero emission vehicles
- Better provision and incentives for sustainable travels plans incorporating public transport, cycling and walking.

Air pollution does not recognise boundaries. We need the government to take the lead and make provisions for a new Clean Air Act, incorporating a national solution that is consistent, shares responsibility and ensures better funding – before it's too late. **📌**

DEBBIE WOOD is executive director for policy and external affairs at the Chartered Institute of Environmental Health

Big picture

Local authority action is only part of the solution to air pollution, says **Debbie Wood**



Alison Smith on creating a green infrastructure toolkit to help local authorities and policy makers deliver long term

Bicester and beyond



The town of Bicester in Oxfordshire will almost double in size in the next 15 years, with 10,000 new homes bringing the population from 30,000 to over 50,000. The government's Local Plan states that this growth should be sustainable, and this goal is backed up by the designation of Bicester as both a Garden Town and a Healthy New Town. The aims are to build low-energy homes, provide opportunities for walking and cycling, and protect local biodiversity. An important part of this vision is green infrastructure, which presents both challenges and opportunities.

The local authority, Cherwell District Council, wants to make new and existing green space more multifunctional and more connected – for both wildlife and people – to make the most cost-effective use of the space available. However, in common with many other planning authorities, it lacks access to suitable tools for assessing the plans provided by developers, to check whether the green infrastructure has been optimised to meet the needs of local people and maintain or improve biodiversity.

So the council approached our group at the Environmental Change Institute (part of the University of Oxford) and, together with other project partners, we obtained funding from the NERC Green Infrastructure Innovation scheme to develop a toolkit that could be applied both in Bicester and by other local authorities.

Priority ecosystem services for Bicester were identified at an initial scoping workshop for all the project partners, including the town, district and county councils, local wildlife groups, the Environment Agency and developers. Priorities were recreation, water quality regulation, flood protection, urban food production, wildlife habitat, sense of place and aesthetic value, with air quality, local climate regulation, water supply and

pollination also being important. The challenge was to find tools that could address this wide range of services.

Numerous tools are emerging to map and assess ecosystem services, and websites such as the OPPLA hub and Natural Capital Protocol Toolkit offer useful guidance. The Ecosystems Knowledge Network has profiled 12 of the analytical tools that are most ready for application in the UK, ranging from simple spreadsheets to models that require advanced GIS software. Only a few of these are suitable for use by local authority planners with limited time, budget and resources. However, we did find some quick and simple approaches, based on land-use scoring, that seem promising for an initial assessment.

Visualisation aid

In these methods, different land-use types are assigned a score such as from 1 to 5, depending on how well they provide different ecosystem services such as flood protection or recreation. The scores, which are typically derived from a survey of local experts backed up with a literature review, can then be used to produce illustrative maps of ecosystem service supply. Although this is purely an exploratory approach, it can help planners and other stakeholders to quickly visualise which areas

are valuable for providing key services, and identify gaps where supply is lacking and new green infrastructure could be created.

In Bicester, which is surrounded by intensively farmed land, these maps revealed the key role of the remaining areas of semi-natural grassland in providing regulating services and wildlife habitat. Flood protection is in particularly short supply, with little woodland in the catchment upstream of the town. There is also little vegetation for air-quality regulation in the town centre and around the busy ring-road.

The approach can be taken a step further with tools such as the Natural Capital Planning Tool, being developed at the University of Birmingham and due to be released in spring 2018. This is simply a spreadsheet that multiplies land-use scores by the surface area of each land-cover type to produce a single score for an entire development site. By scoring the site before and after development, the user can estimate whether the site has achieved a net loss or gain for ecosystem services, building on the concept of No Net Loss for biodiversity. The Natural Capital Standard for Green Infrastructure, being developed by the Scottish Wildlife Trust, takes a similar approach, producing a Green Infrastructure score for a development site which can be compared to an 'acceptable' threshold score, or used to compare alternative development options.

These tools are intended to be used at the planning stage, to ensure sites are optimised to deliver good-quality green infrastructure. It is possible to apply weights to the different services to reflect local priorities, and to adjust the scores for certain land parcels – for example, to give a higher score to exceptionally good-quality infrastructure. However, although it is reasonably easy to compile a set of scores that reflect the ranking of different land-use types, the scores do not necessarily reflect the absolute magnitude of the service accurately. For example, forests might score 5 for flood protection and amenity grassland might score 1, but this does not necessarily mean that forests reduce run-off by five times more than grassland. The output should therefore be interpreted cautiously,

◀ Joined-up thinking: green infrastructure in Bicester (left) needs connectivity for cyclists and walkers (below) and wildlife (far left)

We are also investigating tools for estimating the value of green infrastructure. These include iTree-Eco for valuing the benefits of urban trees (working with Forest Research), and free spreadsheet tools such as the Green Infrastructure Valuation Toolkit and the BEST SuDS tool. These tools provide useful frameworks for evaluation, but are constrained by the availability of reliable data on costs and benefits.

Although it is possible to put a monetary value on some of the benefits of green infrastructure, such as the health benefits of reduced air pollution, some of the less tangible cultural benefits are best valued in different ways. We are using a variety of participatory approaches to systematically assess the value that local people attach to their green spaces, including street surveys, a drop-in consultation, an on-line app and a workshop. We focused on six cultural ecosystem services, including recreation, aesthetic value, education, local identity ('sense of place'), wildlife habitat and existence value (the benefit of just knowing that a place exists). The responses show the high value that local people place on their green spaces, and the benefits that they receive – not just from the large parks and nature reserves, but also from small local green spaces and street trees.

Need for networks

Our project is still in progress, but some initial messages are emerging. Connectivity of green infrastructure is a problem, both for people and wildlife. Habitat mapping shows that semi-natural habitats are fragmented and isolated, and the public consultation also highlighted a lack of connected routes for cyclists and walkers. These findings present an opportunity to build in better networks across and around the town as part of new developments. There are also opportunities to use strategic planting to help protect against air pollution at certain sites in the town centre, but we found a lack of guidance for local authorities on what species of trees and plants are best for air-quality improvement. We aim to provide better guidance on this as part of our project outputs.

Looking at the wider messages from our project, land-use scoring provides a quick, first-cut approach for mapping and assessing green infrastructure and ecosystem services. Public participatory approaches complement land-use scoring maps by adding local detail such as identifying sites that should be scored lower or higher, setting local priorities and providing suggestions for improvements, as well as improving the transparency and legitimacy of the process.

Finally, there is no point designing high-quality green space if the long-term governance and maintenance is not secured. Local plans need to find ways of building in strong protection for the future use, maintenance and governance of both public and private green space, so that it continues to deliver benefits into the long term. We hope to deliver a toolkit that will enable them to generate the evidence to support this. 📍

ALISON SMITH is a research scientist at the Environmental Change Institute, University of Oxford

With every part of the political spectrum agreeing on the need for a rapid increase in the construction of new homes, there is an easy – though environmentally unfriendly – way to do this.

Plenty of houses would get built if the government simply announced that builders could build on any green field they pleased, perhaps with the exceptions of national parks and areas of outstanding natural beauty.

In construction terms it is easier and cheaper to build on a green field than on, say, a contaminated former industrial site, and a view over fields is popular with house buyers even if other fields were sacrificed for their home. So the housebuilding industry's default is to seek a greenfield site unless the planning system, or restrictive environmental protection, prevents this. Only then will the more difficult, costly and often polluted previously-developed brownfield sites be considered.

This picture is not invariable, but it's a good starting point for understanding where the housebuilding industry is coming from when disputes occur over where it builds.

There are other factors that complicate the greenfield-versus-brownfield argument. Brownfield advocates say that building on green fields leads to urban sprawl, with the need for roads, shops, hospitals, schools and other amenities to be located on additional land, whereas in a town they are already there. Others argue that developing intensively in urban areas puts unacceptable pressure on infrastructure, with demand increasing for everything from schools to sewerage.

Such disputes have gone on for decades, with builders complaining that the planning system hampers the delivery of new homes, and planners saying the builders would concrete the country, given half a chance. The question of where to build has gained salience with the acceptance on all sides that the UK faces a housing crisis, with completions way below where they need to be to meet demand, and a 'generation rent' unable to buy as shrinking supply has driven up prices.

Last February's housing white paper is still government policy despite the general election, and communities secretary Sajid Javid remains in charge. Its title said it all: *Fixing Our Broken Housing Market*. Setting out the problem, it said: "For too long, we haven't built enough homes. Since the 1970s, there have been on average 160,000 new homes each year in England. The consensus is that we need from 225,000 to 275,000 or more homes per year to keep up with population growth and start to tackle years of under-supply."

The problem was not space – the white paper noted that only 11% of England has been built upon – but that not enough local authorities were planning for the homes needed in their area, and that housebuilding was too slow and too reliant on a few large companies. It suggested four remedies. The first was a series of reforms to the land-use planning system, so that local authorities have up-to-date plans with a five-year supply of land to meet housing need, with priority given to building on brownfield and surplus public land and to building at higher densities. It also contained measures to

help people into the housing market, but the main new area for action was diversifying the market.

House building is dominated by eight large firms. They build what their capacity – in terms of land, labour and finance – allows and release homes to the market as they judge profitable. To get more homes built more rapidly, more builders must be found, and the only source is the smaller firms squeezed out in the past 20 years. Smaller builders need small plots, but these are hard to come by. It's easier for planners to deal with one developer with one site of, say, 10 hectares, than with multiple builders who each want to build only 10 houses. In theory, the switch of emphasis to small firms would be more environmentally friendly, since they do not use greenfield sites and are happy with smaller, in-fill projects in towns.

Sustainability featured little in the white paper, but has long been a battleground between builders and regulators. Governments seeking to meet climate change commitments have at various times sought to impose carbon reduction measures, water recycling, solar power and less direct sustainability actions such as proximity to public transport. While housebuilders do not object to these measures as such, they do object to things that add cost when they are unconvinced customers will be willing to pay more for them. This approach turns on lobbying power and the political climate. Every time environmentalists succeed in getting some new sustainability measure into the Building Regulations, the industry will campaign against it if it does not suit its needs.

In the wake of the white paper, the industry has dropped its usual calls for more greenfield sites. The Federation of Master Builders (FMB) represents smaller firms, and its chief executive Brian Berry says: "We had been engaging with ministers and civil servants about diversifying the housing market, seeking recognition that smaller firms face three main barriers to building.

"The first is availability of land, as local plans tend to allocate large parcels of land that are not attractive to local builders who need small plots. The second is finance – ever since the 2008 financial crisis, small builders have struggled to get finance for housebuilding, and third is the complexity of the planning system."

Larger firms are gathered in the Home Builders Federation (HBF), which has shown a perhaps unexpected willingness to go along with the white paper's thinking. It has supported helping smaller firms into the market, but also urged improvements to what it called "the time-consuming and bureaucratic"

'While housebuilders don't object to carbon reduction measures as such, they do object to things that add cost'

planning system. Builders have a longstanding grievance that they must agree, as part of securing planning permission, to contribute to both site-specific infrastructure such as access roads, and to wider amenities like new schools to cater for the population increase generated by new homes: "Builders pay millions each year towards improved infrastructure, and more effective coordination would deliver considerable benefits for communities while accelerating delivery," the HBF says.

However, the Campaign to Protect Rural England (CPRE) is an enthusiast for planning restrictions. A spokesperson says: "CPRE supports a 'brownfield first' policy which prioritises brownfield sites for development over greenfield. Brownfield land offers the opportunity for redevelopment and regeneration in areas with existing infrastructure, access to local amenities and proximity to existing communities. CPRE supports building on greenfield sites in some cases – where the choice of such a development is a community-led decision, is sensitive to the landscape and meets genuine local need."

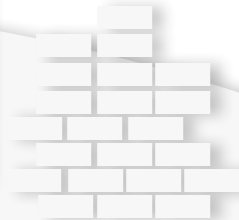
The Queen's Speech, shying away from controversy given the general election result, omitted a target to build new homes and reforms to compulsory purchase to help local authorities buy sites for homes more easily. This potential hiatus in government activity illustrates the political difficulty of tackling housing when environmentalists, builders, planners, financiers and local politicians all have different priorities.

A poll by the National Housing Federation, which represents social landlords, found in May that just 8% of respondents felt no new homes were needed in their area. That scale of support ought to make it easy to find a consensus on building, but it would still be a brave councillor who supported large-scale development in, say, some of the wealthier enclaves of Surrey. 📍

MARK SMULIAN is a freelance journalist

With the need for new homes ever-increasing in the UK, **Mark Smulian** looks at the case for green versus brownfield sites

Green VS brown



Recycling

When it comes to recycling plastics, Europe is not reaching its capacity, research

suggests. Only 50% of Europe's total usable plastics are sent to recycling plants to be used in the future, which means that the other 50% is being sent to landfill sites all across Europe and the UK. It's not just Europe that could be doing more. Across the rest of the world, just 22-43% of all plastics are sent to be recycled.

However, attitudes towards plastic waste, and how it should be recycled, are slowly starting to change.

The EU has agreed that, by 2020, member states must recycle 45% of all plastics, rising to 60% by 2025. This initiative is set to cost between 700m euros (£632.5m) and almost 1.6bn euros by 2020. However, this cost will be inevitably offset by the long-term benefits, to both the environment and to economic engagement by the public and business.

By investing in methods and technologies that help to benefit the environment by recycling plastics and other materials, businesses are recognising the importance of recycling when it comes to the environmental longevity of our planet.

Clothing sea change

Our seas and the wildlife within them are degenerating, with causes including ocean acidification, global pollution, and plastic pollution. However, some clothing companies have now started to address the plastic pollution problem.

Sports clothing brand Adidas is looking to change the trend with its collection of sportswear made from recycled plastics derived from the sea, with items ranging from swimming shorts to running shoes. By doing so, the clothing brand is aiming to minimise the amount of 'virgin plastics' that are



With EU plastics recycling deadlines fast approaching, **Andrew Mills** looks at innovation in the sector

Europe finds creative ways to recycle plastics

being distributed throughout the globe, and within their own supply chains.

This type of investment in recycling is an innovative and modern way of engaging the public in purchasing products that are derived from recycled materials.

Another clothing brand, Patagonia, is also aiming to reduce the amount of virgin plastics in its production and supply networks. Synthetic fibres, which make up many types of clothes, are typically not biodegradable, and therefore have low recycling rates.

Many are made from petrochemicals, with the sustainability challenges that are associated with these materials.

To counteract these problems, Patagonia has recycled 82 tons of its own clothing since 2005, incorporating it into its new clothes where it can.

Greener gardens

Our gardens are naturally produced spaces that make the most of the great outdoors, so why should the materials we use disrupt these natural environments?

Many gardens feature decking made from timber, but now another option is available. Composite decking is an environmentally friendly alternative to using virgin woods from forests.

Sawdust from reclaimed wood is combined with recycled plastics from various sources – plastic shopping bags, newspaper sleeves, dry-cleaning bags and food storage bags – composite materials are created.

Using this system, an average 500-square-foot composite decking structure is typically made up of 140,000 recycled plastic bags. So anyone looking to make home improvements to their garden can do so in an eco-friendly way by reusing plastic bags that would traditionally go to landfill.

If the UK were to invest in recycling plastics in accordance with EU guidelines up until 2025, alongside other initiatives to reuse and repair old materials, we'd face an overall cost of 220m euros. However, this type of investment could create 7,500 direct jobs by 2020, and 12,000 jobs by 2025.

What's clear is that, if Britain is willing to invest, then the benefits to both the environment and job security will grow as this investment increases. 🌱

ANDREW MILLS writes on behalf of www.obrienwaste.co.uk



THIS MONTH WE ASK...

Is nuclear power worth pursuing in the face of a renewable-energy revolution?



DR PAUL DORFMAN

Honorary senior research fellow, Energy Institute, University College London

"No, and it's unwise to limit renewables for political reasons"

The nuclear renaissance is going nowhere. The renewables revolution is set to take off.

In the US, two unfinished nuclear reactors have been abandoned, putting an end to a project that was plagued by delays and cost over-runs. Japanese corporation Toshiba has been bankrupted by the cost over-runs of its US nuclear arm, Westinghouse, and its failing AP1000 reactor. In Europe, EDF/ Areva's EPR reactor is three times over-cost and over-time. Hinkley Point in the UK will be no better.

Meanwhile, solar and wind power are taking off. Worldwide solar costs have plummeted by 50% in the past five years, and Germany and Denmark are signing subsidy-free offshore wind contracts. Within just three years renewables will be the cheapest form of energy, according to investment bank Morgan Stanley.

Germany uses around 20% of all EU electricity, so the country's decision to phase out nuclear power by 2022, invest in renewables, energy efficiency and grid network infrastructure and plan for trans-boundary pumped storage hydroelectricity is a game-changer.

The development of diverse, sustainable and affordable renewable energy is a growing economic sector, with huge potential for job creation. To limit this diversity through support of nuclear power seems unwise.



TOM GREATREX

Chief executive, Nuclear Industry Association

"Yes: it makes sense to have a mix of energy sources"

The answer depends on whether you believe in a low-carbon electricity mix. If you don't, then you don't necessarily need low-carbon nuclear power, but you do need polluting gas or coal to deliver always-on electricity.

Sensible commentators acknowledge the limits of each energy technology. The government's 2016 *Digest of UK Energy Statistics* proves that the idea of a 100% renewables panacea is a fallacy. The figures, published last month, show that low-carbon sources accounted for 45% of the UK's electricity generated. Nuclear produced 21% of the UK's overall electricity generation, intermittent renewables (wind, solar and established hydro) 15.1% and biomass the final 8.9%.

When you look at the load factors of each technology, it is clear the future requires both nuclear and renewables working together to keep the lights on. In 2016, nuclear produced electricity for 77% of the time. In comparison, the overall wind load factor was 29%, and the load factor for solar was 11.1%. The UK also remained a net importer of electricity, mostly through interconnection with France, which produces 75% of its power from nuclear power stations.

With the intermittent nature of renewables being a problem, nuclear must remain part of the mix. There is no single ideal solution for all our power problems, which is why it makes sense to have a mix of energy sources.



EMMA PINCHBECK

Executive director, RenewableUK

"Yes: we need choice as the system goes through change"

Renewables are in the ascendency. While capacity and generation has gone up, costs have come down dramatically. Onshore wind is now the cheapest form of new generation capacity we have, while offshore wind has reduced its own costs by over 30% in the past four years alone. On the global stage, investment in clean energy technologies has been at around the \$300bn (£231.30bn) mark each year for the past six years.

During the past 10 years, the UK has gone through an energy transition. Wind power was providing around 1% of our electricity in 2007, whereas it now provides more than 11%. Renewable energy as a whole consistently provides 25% of the UK's power year-on-year, and we need that figure to increase if we are to move to a truly low-carbon economy.

But the conversation about which forms of low carbon or renewable technology we pursue doesn't have to be an either/or choice. The renewables market is still developing, storage is just coming online, and smart and flexible infrastructure is being built. Estimates at how much of the system could be renewable range from 50% to 100%.

The UK's 5th Carbon Budget envisages a majority renewables-led system, but with new nuclear also in the mix as the cheapest route for consumers in the mid-term. A broad low-carbon energy mix gives government and consumers choice in how we manage the electricity system as it goes through significant change.

CONNECT

SOCIAL AND COMMUNITY NEWS FROM IEMA



Members can attend a new for 2017 IEMA conference next month, free of charge, to hear about the UK's "new golden age of construction".

With more than half a trillion pounds of investment in new and upgraded energy, rail, sewerage, flood risk management, aviation and road projects all being progressed the UK is witnessing a new level of infrastructure investment and innovation. These projects will shape the infrastructure upon which our future sustainable (or unsustainable) economy and society is built, but they also have a huge potential to leave a legacy that significantly advances how we integrate environment and sustainability into all future development. IEMA's conference will explore these issues and opportunities.

Skills for Sustainable Infrastructure, part of the Construction Summit during UK Construction Week, will

take place on Wednesday 11 October at the NEC, Birmingham. The full-day conference will include presentations from industry leaders who are embedding sustainability across infrastructure projects, consultancy skills, contractor operations and more. Speakers from HS2, WSP, Atkins, EDF Energy, Skanska and Crossrail will all feature on the programme.

This conference will also be the launchpad for IEMA's latest research report on the role sustainability skills play in enabling the UK's golden age of infrastructure. The report builds on the findings of IEMA's seminal 'Preparing for the Perfect Storm' research, and aims to deepen understanding of the role of environment and sustainability skills in delivering infrastructure.

➤ **Go to www.ukconstructionweek.com/IEMAconference to book your free place so you are among the first to see the research findings**



QUOTE
UNQUOTE

"Insightful presentations at Proportionate EIA launch event in Liverpool today. And a great introduction to my new @iemanet membership!"

MIKE DENNY MRICS
Head of planning and land, Gaelectric

"A really interesting initiative, and one that might be useful in NZ where EIAs are becoming too obese in my opinion. Often it's harder to prepare a succinct EIA that allows people to really understand the key issues and risks. Be interesting to see if this works well in the U.K., I hope it does."

GREG POLLOCK
Consultant/investor, Pollock Consulting

"The bulky EIA is increasingly affecting environmental decision making in Colombia. This initiative is fresh air! Thanks!"

JUAN OSPINA
Environmental consultant, Arup



WHAT'S ON THIS MONTH

events.iema.net

21 SEPT

Legal Update Webinar Series: Brexit's Impact on Environmental Law

Does a Conservative Government with a smaller majority mean a softer Brexit? And will that mean the retention of greater ties with the EU from an environmental law perspective? Join us for the next in our series of environmental legal update webinars. You'll look back at recent developments and forward to new opportunities on the horizon, with Simon Colvin, your host for the session. You'll also explore an update on the Brexit process and its likely impact on environmental law and practice.

27-28 SEPT

Contamination Expo Series 2017

Join Europe's largest event showcasing the latest innovations to further the protection of the environment and management of contaminated land, water, and air. Featuring over 150 innovative suppliers, interactive masterclasses and one-to-one advice from industry experts, you'll enjoy unparalleled networking opportunities, and much more. Specialist areas are in place dedicated to hazardous materials, land remediation and spill response, as well as clean air technology, geotechnical solutions, nuclear decommissioning, and more.

12 OCT

The Big Green Event 2017

The Big Green Event 2017 will open its doors once more on the 12th October from 9.30am to 4.30pm at the Hilton Ageas Bowl, close to the vibrant city of Southampton. The Expo caters for organisations looking for efficiencies and cost-savings in energy, recycling, waste and general environmental management. The event includes more than 100 different exhibits, a one-day conference featuring 'The Blueprint for a Better Business', free workshops and a keynote speaker platform with MC – as well as an electric vehicle arena. The Expo is free to attend and provides free and easily accessible parking for all attendees.



SITE VISIT

Tesla: technology, opportunity and challenges

In light of recent government plans pledging that sales of new petrol and diesel cars will cease in the UK by 2040 in an effort to tackle air pollution, embrace an opportunity to explore Tesla and learn about the benefits of electric vehicles. Explore its electric cars, discover the cutting-edge type of batteries, motors, suspension, and steering, as well as delve into their driving range, manufacturing process, and the all-important electrical requirements for domestic and commercial premises. You'll also have the chance to watch one of the innovative cars in action.

➤ **To register for this event, visit: bit.ly/2uFDrc9**

OPEN NIGHT

European Researchers' Night 2017 at the University of Huddersfield

The night aims to open up the world of research and demonstrate how it influences our daily lives. Here are some highlights, with full programme details to follow:

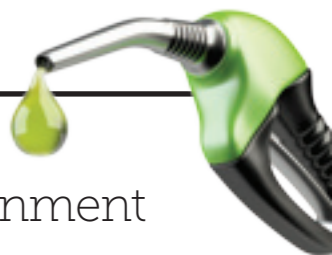
- European Corner: showcasing the latest research and our collaborations across the EU
 - Exciting activities and competitions for 5- to 18-year-olds, with prizes
 - Experience a supersonic speed sound installation, with live music inspired by vortex rings
 - A spectacular laser and fireworks finale
- **To register for this event, visit: bit.ly/2x0NQfm**

FORUM

ITS (UK) and CILT Environment and Sustainability Forum

This is a joint event between the Chartered Institute of Logistics and Transport and Intelligent Transport Systems (UK). It will be hosted by Geoff Clarke, chairman of the Environment and Sustainability Forum and honorary secretary of ITS (UK) Freight Interest Group. Speakers will discuss alternative fuels and commercial road vehicles from various points of view. In addition, there will be a chance to view several vehicles that incorporate the new technology.

➤ **To register for this event, visit: bit.ly/2fle9Dt**



'Embrace the world of sustainability, and be enthusiastic, driven and passionate about your views'

Why did you become an environment and sustainability professional? I have always been interested in the environment, from an early age. I was fortunate enough to participate in a fully funded NVQ Level IV in environmental management training course – this helped me realise my ambitions and develop my career path going forward.

What was your first job in this field? I worked as an environmental officer in a **plastic packaging** company managing the ISO 14001 Environmental Standard.

How did you get your first role? I originally worked in there as a sales and marketing supervisor but I was seconded to the organisation's quality department and began working actively in this new and exciting role.

What does your current role involve? I am director of my own environmental consultancy company, Enviro UK Consultants, which involves the delivery of a wide range of project activities including energy efficiency advice and guidance, renewable energy project management, and sustainability consultancy.

How has your role changed/ progressed over the past few years? Perhaps the biggest change has been my ability to deliver **waste management** training – I am passionate about reducing waste and work hard to raise awareness about good waste management.

What's the best part of your work? Meeting new people, starting new projects and seeing the positive outcomes from the activities and support I deliver for my clients.

What's the hardest part of your job? Having to say no to anyone – in an ideal world I'd like to be able to help everyone, but there comes a time when it's not always possible, because of capacity, timescales or work content.

What was the last development event you attended? The Future of Renewable Energy event organised by myself and two other organisations and supported by IEMA in the North East. This event focused on the future of the renewable energy and energy sector, and provided valuable updates on upcoming technologies including battery storage, electric vehicles and smart technology.

What is/are the most important skill(s) for your job? I need to be able to listen to clients, work with them to provide a solution and, most



CAREER PROFILE

Sharon Lashley

PIEMA

Director, Enviro UK Consultants

importantly, deliver a successful project outcome. Competency, flexibility, innovation and resourcefulness are key skills to ensure the success of a project, alongside professionalism.

Where do you see the profession going? In an exciting but challenging direction certainly, with the future of Brexit, the environmental laws and legislation and the changing environment. I hope we continue to work as a collective team to strengthen our position in this sector and drive forward the environmental challenges and aims we all sign up to as IEMA professionals.

Where would you like to be in five years' time? Still doing what I do and enjoying every minute of it.

What advice would you give to someone entering the profession? Embrace the world of sustainability, be enthusiastic, driven and passionate about your views, and collaborate and work with as many other professionals as you can. Together we are definitely stronger.

How do you use the IEMA Skills Map? I carry out a gap analysis from time to time to see where I am in relation to my skills needs and then plan for further development.

If you had to describe yourself in three words, what would they be? Resourceful, approachable, environmentalist.

What motivates you? Our planet and looking after it – every day is spent thinking, doing and planning ways of how we can alleviate the pressure on our precious resources.

What would be your personal motto? Definitely 'think globally, act locally' – it's my personal favourite and one I always come back to.

Greatest risk you have ever taken? Setting up my own consultancy company, as it's a scary thing to do, but I felt I just needed to do it.

If you could go back in history, who would you like to meet? As a conservation and wildlife fan, I think it would have been great to meet **Archibald Belaney (Grey Owl)** mostly for his views, his conservation work and the challenges he faced in communicating the need for humans to develop a respect for the natural world. 🦉



Visit www.iema-transform.net for the full member profile

LATEST MEMBER UPGRADES

- ASSOCIATE (AIEMA)**
Leigh Paddon, Willmott Dixon
Mark George Plata, Hamad Medical Corporation
Jeanylyn Jusayan Kentejas, Hamad Medical Corporation
Daniel Ansell, 4 Acre Ecology
Benjamin Gouldman, ERM CVS
Ross Houghton, SERVEST
Andrew Milner, Lloyds Register Quality Assurance Ltd
Amir Llyas, Lloyds Register Quality Assurance Ltd
Bryan Lane, RJ Power Rail Ltd
Rachael Burnett, Stobart Rail
Dave Hill, Walkers Snack Foods Ltd
Peter Withers, Stobart Rail
Carl Nicholson, Stobart Rail
David Bampton, Warburtons Ltd
Brent Walbridge, Heatric
Timothy Tyson, Scott Bader Co Ltd
James Wright, British Sugar Plc
Brian Millyard, GlaxoSmithKline
Cristiana Padilla, Lucy Electric (EMS) LTD
Kim Scott, Environment Agency
Gavin Melles
Charlotte Brown, Ove Arup and Partners Ltd
Marcin Brzoska, Thermo Fisher Scientific (South Wales) Ltd
Amanda Iweanya, Kingston University
Christopher Blackhall, Engineering Services Consultancy Ltd
Almas Birdi, OHES Environmental Services Ltd
Davina Miller
Will Murray-Jones
Charlotte Sims, Trelleborg Sealing Solutions UK Ltd
Sid Clark, Pilon Ltd
Beth Williams, Salix Finance
Brian McDowall, Babcock International Group plc
Craig Fraser, Akzonobel Packaging Coatings Ltd
David Brown, Derbyshire County Council
Andrew Henderson, Warburtons Ltd
Hector Hernandez, CCM Ltd
David Coppin, Briggs Equipment (UK) Ltd
Andrew Selman, McCann and Partners
Joshua Payet
Fatima Ahmed Hussain Kadhim Alkadhim, Sharjah Electricity and Water Authority
Toufik Boudjadar, Shams Power Company
Jayne Mason, Speedy Service
Simon Luck, Suez
Oleksandr Kislitsyn, Tebodin Ltd
Joseph Sennitt, Dovecote Park
Carl Welsh, Magnox Ltd
Seren Cole, Transport for London (TFL)
Chris Green, Kirby Group
Stuart Allen, British Airways Interiors Engineering
Claire, Suez R&R UK LTD
Graham Langworthy, CBRE Ltd
Kelly Masters, Magnox
Colin Redman
Timothy Dale, Lee Warren Fabrication and Design
Ivonne Ortega Nava, BRE Global
Christopher Price, Great Places Housing Group
Fiona Billings, Suez
Nicoletta Vianello, Ferrovial Agroman UK
- Pat Smyth**, C J O'Shea and Company Ltd
Lee Playford, Optimum Group Services Plc
Emmanuel Arebanmhen, Associate Member
Farid Ahamad Mohammed, Dubai Creative Clusters Authority
Suhed Miah, Tamdown Group
Graham Gunthorpe, Argent Group plc
Mike Atkinson, S&T Cover Ltd
David James, Gama Healthcare Ltd
Katy Wanford, Suez R&R UK LTD
Andy Mayhew, Prysmian Cables and Systems
Kath Rose Turner
Anthony Strudwick, CCL Ltd
Liliana Shanbhag, Associate Member
Aimee Bullock, Associate Member
Tony Harrington, Creo Retail Marketing Ltd
Natasha Allard
Paul Marsden, Suez
Andrew Warner, SITA UK Ltd
Kate Taylor, Bidvest Food Group
Shaun Smith, Robinson Contract Services
Kevin Budge, J Murphy & Sons Limited
Mark Worgan, John Sisk and Sons Ltd
Danielle Dornonvillele La Cour, Associate Member
Adele Pearson, Hovis
Richard Lewis
Steven Longhurst, Associate Member
Olly Bain, Canary Wharf Contractors Ltd
Richard Crow, Bluetree Group
Nick Hancock, Southeastern Railway
Dominika Phillips, British Safety Council (BSC)
Emily Lewis, Allied Mills
Aaron Duffield, Guardian Industries
Richard Falkner, Carlsberg UK
- PRACTITIONER (PIEMA)**
Janet Mackenzie, Fife Council
Leslie Morris-Iveson, Environmental Recovery Consultants
Maria Walentek, Royal HaskoningDHV
Nicola Forest, AA Projects Ltd
Patrick Smith, St James Group
Hannah Roberts, Dawanus Construction Ltd
Emily Edwards, Morgan Sindall (Construction & Infrastructure)
Katrina Shiells, Hurleypalmer Flatt
Christopher Seward, Costain
Emma Shearing, Siemens Energy Management
Christine Murphy, Roughan and O'Donovan
Catherine Graves, Swan Energy Ltd
Marta Ibanez, Bear Scotland Ltd
Paul Lowe, Brush Electrical Machines Ltd
Olivia Phillips, Kier Ltd
- FULL WITH CHARTERED ENVIRONMENTALIST (MIEMA CENV)**
Charles Andrew Crowther, Arup
Lynn Richards, University of Derby
Peter Bragg, Jacobs
Jennifer Stein, Sellafield Ltd
Dipvandana Mehta, Mehta Training and Consultancy
Adam White, Ford Consulting Group
Eugene Day, HS2 - High Speed Two Ltd
Lucy Millard, University of Manchester (The)
Mark Gallagher, Wrigley Company (The)
John Linehan, GlaxoSmithKline
Craig Bloomer, Woodgroup North Sea Ltd