

CLIMATE PERSPECTIVES™

for changemakers

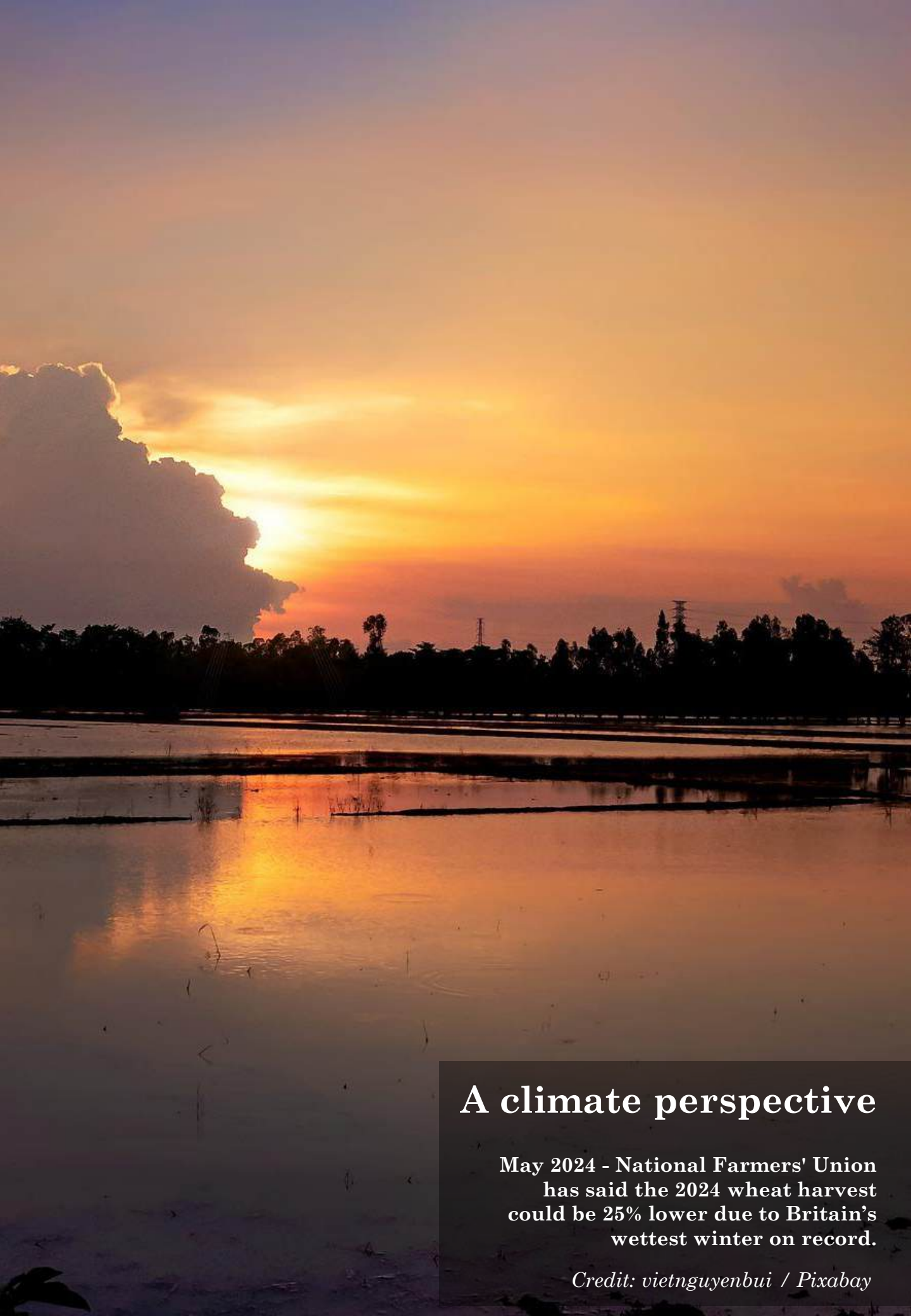
Image: Adrian Waddelove, Energy and Utilities Alliance.



**“none of the
manifestos
released this
month really
provide any
solutions”**

Adrian Waddelove





A climate perspective

**May 2024 - National Farmers' Union
has said the 2024 wheat harvest
could be 25% lower due to Britain's
wettest winter on record.**

Credit: vietnguyenbui / Pixabay

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Head of Policy, ESG and Sustainability at FIDIC, the International Federation of Consulting Engineers.



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NetZeroWeek™

6 – 12 July 2024

Our citizens have spoken. The Green Party achieved their best-ever result in the recent local elections.

Polls suggest Labour will win the general election. Whoever wins must restore the UK's position as the global leader in net zero and seize the once-in-a-century economic, social, and environmental benefits.

Good luck to all.

**The UK's Official National Awareness Week
and the Biggest Net Zero Conference for a
Brighter Tomorrow.**

A +++

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SCOPE™
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SCOPE SUPPLEMENT
A few highlights of the upcoming Net Zero Week 2024, 6 – 12 July.

Power Struggle

**By Adrian Waddelove,
Senior Parliamentary and Public Affairs
Officer, Energy and Utilities Alliance.**



The manifestos are in. There are but a handful of days until polling day on July 4. But will energy policy be any different after the British public have had their say in the ballot box?

There was widespread belief that energy – both security of and net zero – would rank highly amongst the ‘issues’ in this election campaign. Many in industry have been left disappointed and it is easy to see why.

In February 2022, Russia invaded Ukraine. It sparked, amongst many other things, an energy crisis which saw billions of taxpayers money pumped at consumers to freeze bills at an average of £2,500 per year.

lever which survived from the Liz Truss (remember her?) premiership.

And then we saw Rishi Sunak deliver his ‘Net Zero Reset’ in September last year. Most notably we saw the ban on the sale of new petrol and diesel cars moved from 2030 to 2035 (something Labour would reverse if elected), as well as the off-grid boiler ban being shifted from 2026 to 2035 in line with the existing policy to phase out new natural gas boilers.

Fortunately, energy is not being used as a wedge issue in the ‘culture wars’ but neither does there seem to be recognition that less than 18 months ago, the UK was going through a severe energy crisis.

In truth, policymakers have been





Change


The Conservative and Unionist Party
Manifesto 2024

CLEAR PLAN

BOLD ACTION

SECURE FUTURE

 Conservatives



lucky. The last two winters have been relatively mild, meaning gas reserves have not been stretched. Demand flexibility which saw decent uptake by consumers initially has not needed to be deployed consistently to smooth out peaks in demand.

Yes, we've heard a little from Labour about their plans for GB Energy and it is one of their six missions. But the policy seems short on detail and setting up a publicly owned clean power company will take money and crucially, time. Will it be ready to insulate ourselves against a possible energy crisis this winter for example?

The Conservatives and Liberal Democrats (when in coalition) failed to press on with new nuclear power stations. This has arguably damaged our security of supply given it is one of the few clean sources of power which continues to function whatever the weather conditions, reducing our reliance on oil and gas.

I think many in industry are stunned by the lack of progress on energy efficiency which has been, and is, seemingly ignored by multiple parties of all colours. Energy efficiency is the quickest way to reduce energy consumption and cut consumer bills, both short and long-term. The current government would argue

they have a good record on this, but as a country we are simply not moving fast enough and none of the manifestos released this month really provide any solutions to tackle it.


We need ambitious policies but they must also be deliverable. The Green Party want to push towards net zero "more than a decade ahead of 2050" but would this be at the cost of consumer buy-in for the transition? And who is paying for it?

I do think industry and policymakers are very good about talking in generality about the net zero transition. But we are less inclined to get to grips with the nitty gritty – the specific policy levers required to push us along on our journey to net zero.

We know too, that there is widespread support for net zero amongst the public. But where this falls down is always around costs to individual pockets.

So we need to engage with consumers now. The clock is ticking towards 2050. We need to be honest about some of the costs and better articulate what a net zero society looks like in practice.

We need to give consumers choice about how to heat their homes, for example. But we also need to talk





positively about the low-carbon technologies already developed and those in the pipeline which will help us to unlock net zero. And the possible financial opportunities which lie ahead for us.

Failure to engage in this discussion with the British public will result in us, I suspect, sleepwalking towards something which could result in a consumer backlash against net zero. That's why I believe we need more chatter and engagement from our political parties during this election campaign.

So far, heat pump uptake remains persistently sluggish. The hydrogen village trials were cancelled due to a lack of public support. Change is not being welcomed with open arms yet.

Everyone in the energy world says 2050 isn't far away. We have 26 years left and the size of change does feel enormous in such a small timeframe.

This next Parliament (which will likely take us to 2029) feels like a vitally important one but I don't think this has been reflected by any of the parties in their manifestos.

Let us hope we avoid another energy crisis (which I don't think we're prepared to cope with) and that we can focus on implementing sensible and consistent policy now that will deliver net zero in the long term.

Circular economy: the future of batteries

By Mike Nugent, Chief Revenue Officer,
Hitachi ZeroCarbon.



Batteries are central to the energy transition. Electric vehicles, powered by batteries, are necessary to decarbonise transport, while battery storage solves intermittency challenges as we shift to a renewable powered grid. We are reliant on this technology to reach net zero.

However, the first-life application of EV batteries is currently estimated to be around 12-15 years, and estimates point to 150,000 tonnes of battery packs that will require processing by 2035. To avoid the risk of further damage to the planet, we need to develop a circular economy for batteries.

A circular economy moves beyond the linear model of 'take, make, dispose' to create a closed-loop system where

materials are continually reused, refurbished and recycled. For EV batteries in particular, this means extending their life, ensuring they are repurposed in secondary applications, and eventually recycled and reused for similar applications.

Why is this necessary?

Batteries are critical for us to achieve net zero. Electric cars emit over three times less CO₂ than equivalent petrol cars, they improve energy efficiency, reduce dependence on fossil fuels and dramatically increase air quality. However, their ecological impact should not be ignored.

One ton of lithium requires 500,000 litres of water, and producing a battery weighing 500kg can emit 70%





Join Mike for a live fireside chat on Monday 8th July for Net Zero Week. Learn more and get free tickets [here](#).

Mike Nugent



more CO2 than producing a conventional car. Moreover, many lithium and cobalt reserves are found in countries with weak labour standards, often resulting in rampant human rights violations. So, whilst the overall positives outweigh the negatives, it is imperative to minimise the extraction of raw materials and maximise the value from each battery pack. A circular economy approach unlocks the true potential of batteries for our planet and people.

What does a circular battery market look like?

There are several aspects to managing and ensuring the delivery of a circular battery market:

- Maximising First life application:
 - Extending battery life in its first life application - in a car, van, truck or bus
 - Incentivising asset owners and operators to manage batteries correctly
- Developing new second life battery-use applications
- Battery recycling

We cover each of these in more detail below:

Battery life optimisation.

Prolonging the lifespan of batteries is essential for a circular model. By designing batteries for durability and managing their use through advanced analytics, we can keep batteries in use for longer. For EV batteries, this involves using software systems which deploy charging protocols that prevent premature degradation and protect battery performance. This reduces the need for frequent replacements, minimises operating costs, and preserves the value of batteries for re-sale and use in secondary applications.

Provide commercial incentives to protect the battery in its first-life application.

Leasing batteries through a financed lease or Battery as a Service model enables businesses to reduce the upfront cost barriers to electrification and meet their decarbonisation goals faster. In this approach, battery providers also have a vested interest in maintaining their batteries to ensure they perform optimally over a longer period. The resultant focus on proper maintenance and





management can extend the useful life of batteries and prevent replacements – further supporting circularity in the industry.

Second life applications.

Used EV batteries often retain up to two thirds of their original storage capacity. Repurposing them in secondary applications such as energy storage and emergency power backup for the grid maximises their utility and strengthens energy security. With recent findings that EV batteries alone, largely at their end-of-vehicle life, could provide short-term grid storage demand by 2030, repurposing them must be an industry priority. This also provides businesses with large vehicle fleets a financial incentive to electrify, as they can sell used batteries to unlock additional revenue.

Battery recycling.

Currently, only 5% of batteries are recycled. Advancing recycling technology to recover valuable materials like lithium, cobalt and nickel from used batteries would reduce reliance on mining and minimise a potential battery waste crisis. Recycling could meet an estimated 10% of EV battery critical mineral requirements by 2035, and

countries including China and Germany have already begun growing their battery recycling capabilities. With EU regulations mandating a minimum level of recycled content in batteries sold within its borders by 2031, battery recycling is becoming a non-negotiable.


While challenges such as limited recycling scalability and a lack of battery standardisation persist today, we cannot afford to overlook the benefits tied to a circular battery market.

A circular economy approach challenges us to rethink how we design, use and dispose of batteries to maximise their environmental and economic value. As we move towards net zero, and our dependence on battery technology grows, embracing circularity will be crucial to achieve a truly sustainable future.

Hitachi ZeroCarbon supports a circular economy for batteries by protecting battery performance, extending battery life and enhancing residual value through advanced data analytics and smart charging services for electric fleets.

In climate conversation with...

Basma Eissa



Andy Walker, Interviewer,
Climate Perspectives



Basma Eissa is the new head of policy, ESG and sustainability at FIDIC, the International Federation of Consulting Engineers. She spoke to Andy Walker for Climate Perspectives about her role and why she thinks the industry needs to improve its rate of progress towards net zero.

“Achieving net zero is not just important, it is imperative for the global infrastructure sector,” says Basma Eissa. That’s why it’s a key part of FIDIC’s work, especially given that the sector plays a critical role in exacerbating climate change. “The infrastructure industry is responsible for a significant portion of global

emissions and at FIDIC we view the pursuit of net zero as a crucial driver of innovation and sustainability.


Achieving net zero is not only about mitigating the risks and complying with evolving regulations, it’s also about seizing opportunities and opening pathways for technological advancements, new business models and financial strategies that can drive economic growth in a sustainable manner,” says Eissa.

She cites the growing market for green bonds and sustainable investment as evidence of this and also the increased appetite for tech solutions like digital twins, which she says reflects a strong appetite from





Basma Eissa



investors for ventures that support environmental goals “The shift towards net zero is also reshaping skill sets in the infrastructure sector, with a growing demand for professionals who are also adept at sustainability practices and policies. So, this evolution is creating exciting possibilities and continuous learning opportunities,” she says. I ask Eissa whether companies are embracing these areas and delivering on their sustainability promises.

“Commitment to ESG and sustainability has dramatically shifted from being a niche interest to being a core business strategy for many companies across all sectors. There is a noticeable increase in both the adoption of ESG principles and a genuine effort by companies to meet their sustainability commitments,” she says. “The increase in regulatory requirements and growing expectations from investors, consumers and different stakeholders has all pushed companies to not just embrace ESG and sustainability but to integrate them into their operations and while there is still room for improvement, the momentum is positive,” says Eissa.

I ask her about the dangers of greenwashing as companies and organisations look to leverage their environmental credentials in the race

to appear greener and more progressive. “Combatting greenwashing is absolutely crucial. Sustainability and ESG must be deeply embedded within the operational fabric of any company, so at the heart of this strategy is enhanced transparency. Companies need to go beyond setting ambitious goals and must clearly report their actions and outcomes. We have lots of established frameworks like the GRI (Global Reporting Initiative) and the Sustainability Accounting Standards Board and also independent third-part verification, which reinforces trust by confirming that a company’s sustainability claims are grounded in real achievements. Strong regulatory enforcement is also essential, which must include imposing penalties for deceptive claims,” says Eissa. We turn to climate justice and the need to ensure that communities around the world are not disadvantaged from the dash to net zero. “We tend to forget the ‘s’ in ESG and the social aspect. Climate justice is fundamental to achieving net zero because it means that no community, especially the most vulnerable, is left behind. We need to champion policies that are rooted in fairness and advocate for regulations that not only aim to lower emissions, but also address socio-economic disparities.





We also need to promote access to green technologies and sustainable infrastructure and help to ensure that the benefits of a green economy are widely distributed. Inclusive engagement here is crucial, as this inclusivity ensures that diverse perspectives are heard and acted upon, so strategic partnerships between organisations like the UN and the multinational development banks are really crucial in this regard,” Eissa says.

Navigating a path around those key stakeholders is a key challenge for Eissa and FIDIC, especially negotiating the complex and time-consuming policy environments of different countries.

“Developing and implementing policies can be a lengthy process involving multiple stages of negotiations and approvals and this often extends the time it takes to kickstart projects and make critical decisions. The extensive coordination required across different governmental and organisational layers adds another level of complexity and aligning multiple stakeholders with varying interests and goals requires a lot of patience and persistence, so you need a deep understanding of the political and cultural nuances at play,” Eissa tells me. Despite those challenges, Basma says the opportunity to work with a diverse range of cultures and experts is profoundly rewarding.





She is also clear that the world needs to move faster on its decarbonisation journey. “Globally, we are not advancing quickly enough. We need more global cooperation, as climate change knows no borders and international partnerships can help streamline efforts and share innovations and resources more effectively. Innovation must be accelerated, so we need more investment in research and the rapid deployment of technologies like renewable energy, digital solutions and carbon capture. Financial mechanisms need to align with these goals and we need increased collaboration between different stakeholders, governments, investors and industry practitioners,” she says.

Despite these challenges, Eissa has hope for the future. “I remain realistically optimistic about the future because the challenges we face also present us with unique opportunities. It’s important to retain a positive outlook while driving forward with determination but it is also crucial for everyone, regardless of their role or industry, to recognise the impact they can have.

Sustainability isn’t just for those directly working in ESG or sustainability roles – you can implement and incorporate sustainability in every role and every aspect of a business. Even small actions can have a big collective impact. My message is to stay motivated because every small step contributes to a giant leap towards the net zero future that we all want to see,” says Eissa.

You can listen to the full interview with Basma Eissa and other changemakers we have interviewed on our Climate Perspectives Spotify channel [here](#).



A climate perspective

June 2024 - Over 1,300 pilgrims have died due to heat exhaustion during the Hajj, and thousands more were treated as temperatures reached 51.8°C in Mecca.

Credit: GLady / Pixabay

Carbon Capture delivering low-carbon jobs in the net zero transition.

**By Ruth Herbert, Chief Executive,
Carbon Capture and Storage Association.**



Carbon capture and storage technology is poised to play a major role in driving the decarbonisation of British industry and in meeting net zero targets.

The technology offers a cost-efficient pathway to decarbonise various industrial processes including cement, lime, energy from waste, chemicals, hydrogen production and power generation, as well as enabling carbon removals for hard to abate sectors.

By capturing CO₂ at the emission source or directly from the air to store it underground or utilise it in a way that permanently keeps it out of the atmosphere, carbon capture utilisation and storage (CCUS) technologies can enable vital British industries to decarbonise.


Industry plays a critical part in a strong and successful economy. For businesses to continue to be competitive they need to produce low-carbon products in the net zero economy, and decarbonisation through CCUS allows them to do so. This is particularly important in the context of the cost that businesses have to pay for emitting carbon, which will rise towards the end of the decade. Businesses face the possibility of closure without CCUS as the emissions charges will be unaffordable to them and as other markets for low-carbon products become more competitive.

The CCUS industry is on the cusp of deploying projects at scale across the country, transforming industries





Ruth Herbert



and communities as it does so. The technology has benefitted from political support across Westminster and the devolved administrations and has attracted significant interest from global private investors due to its broad range of applications.

Over the coming months, it is critical that progress on the Cluster Sequencing Programme, the government's project delivery mechanism, is sustained. Without a rapid roll-out of the first CCUS projects (including both emitters and transport and storage providers) by 2030, the UK will not be able to achieve its net zero target by 2050.

The many thousands of people who work in energy intensive industries also need to be at the heart of the net zero transition. Many skilled workers can be retained in CCUS, and the industry is focused on maximising the local benefits right across the supply chain.

As an industry, we understand the important role that we can play in retaining and providing opportunities for employment and skills.

Investment in CCUS is expected to generate 70,000 new jobs and protect 77,000 existing jobs, particularly in industries like cement where fuel switching only takes away one third of emissions because the majority of

carbon dioxide emitted is released from heating the limestone.

Once CO₂ has been captured on industrial sites, it needs to be transported and stored in geological formations under the seabed, which has strong synergies with the skills used in the offshore energy sector. There are almost 100,000 jobs in the oil and gas industry in Scotland, many of which could transition to opportunities in delivering the Scottish Cluster, which will use the Acorn store offshore at Peterhead. Meanwhile HyNet, located in the UK's North West manufacturing epicentre, has the potential to use CCUS to protect more than 340,000 manufacturing jobs that would otherwise be at risk from site closures or businesses moving overseas if CO₂ infrastructure is not provided.

The UK has an opportunity to create world leading CCUS clusters. Following the Energy Act 2024, many of the regulations needed for CCUS in the UK are now in place. What is needed next is an injection of pace into the UK CCUS cluster programme within the first few weeks of a new government if we are to deploy these exciting projects before 2030 to meet the UK's carbon budgets.





By investing further in CCUS deployment now, the UK can lead the green industrial revolution and be at the forefront of the deployment of this essential technology, rather than import low-carbon products made elsewhere. There is a global race to capitalize on this opportunity, so it is paramount we attract and secure investment now to establish low-carbon industries of the future here in the UK.

As we look forward to the next five years, it is critical to build on the important steps that have been taken by industry and government. First, Final Investment Decisions should be taken on the first two clusters no later than this summer. Second, the government must publish the next steps for the second two clusters. To ensure continued investment in projects around the UK, a clear deployment plan, backed up by an annual revenue support envelope is needed. This will enable the industry to be self-supporting by the mid-2030s.

The time to unleash a net zero future, with CCUS at its heart, is now. If we do not maintain current progress, we will lose the competitive advantage, miss net zero targets and fail to deliver much needed low-carbon jobs across industrial heartlands.

Join Ruth for a live webinar 'Shaping the Future of Carbon Capture: UK and Europe's Path to Industrial Decarbonisation' during Net Zero Week on Tuesday 9th July. Learn more and get free tickets [here](#).

Hardware Vs Software: When Social and Policy Change Collide

By Jonny Prest, Creative Strategist, Seed.



What climate camp are you in? Getting to net zero is down to the government: changing laws, new policies, building infrastructure, taxation pressure on big business? Or, it's up to the people, lobbying, community cohesion, self-regulation, uprising and creating a movement? Let's explore.

So, are we out of luck when it comes to fixing a potential climate disaster? To get to net zero we need a united front. It's going to take teamwork and no matter what camp you're in, the only way we can fix this is by working together. For example, let's look at COVID-19. We can always fall back on the argument of what happened in the pandemic. Policy met social behaviour change on a

global scale. With a set of guidelines—direct, easy-to-understand and simple to adopt—we got the public on side and continued our lives from our homes. We did the unthinkable. Complete global systemic change. Well, for a short while anyway.

I believe in the pursuit of sustainability; the intersection of tangible infrastructure and intangible human factors plays a crucial role to zero carbon. A comment from an old business mentor always comes to mind. Breaking down cultural and social movements and their adoption into two core aspects: hardware and software. This insightful analogy



IF THE CLIMATE
WAS A BANK



YOU WOULD HAVE
SAVED IT ALREADY



helps us understand the dynamics at play in driving change.

The Dichotomy: Hardware and Software

Hardware: The tangible foundations

Hardware encompasses the physical and structural elements of our world. It includes buildings, spaces, streets, homes—essentially, the real stuff that we can see and touch. This 'bricks-and-mortar' aspect is what we build and create, setting the stage for work and life. The conversation with my mentor was contextualising imagining, creating and building a music and arts venue. When envisioning a venue, hardware refers to the space itself, the equipment and technology within it, and the branding that gives it an identity.

Software: The invisible forces

Software, on the other hand, represents the intangible, yet equally crucial, elements. This includes people, culture, creativity, relationships, movements and feelings. It's the vibe, the energy, the spirit that brings life to the hardware. When you create a venue, it's not just the physical space that matters; it needs traffic, passion, ideas, friendships and a touch of

alchemy. The software is what breathes life into the hardware, making it human, in-touch, dynamic and functional.

The Magic of Convergence: When Hardware Meets Software

When hardware and software converge, that's when transformation happens. Iconic examples of cultural and musical venues like The Hacienda, Studio 54 and Wigan Casino illustrate this phenomenon. These venues weren't just successful because of their physical structures; they thrived because of the vibrant cultures, passionate communities and innovative ideas that animated them. They also played the best music ever written (in my opinion, anyway).

This synergy is what sustainability desperately needs. The hardware—our systems, businesses, homes, laws, schools, transportation, food and clothing—must integrate seamlessly with the software—people's spirit, knowledge, passion and ideas—to achieve meaningful change.

The Hardware of Sustainability

Policy change and regulatory support

For sustainability, the hardware side requires robust policy changes and regulatory support. We need stricter





I WANT
A HOT
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PLANET



why

WITH CARE
LAY UP
LING ONLY

33 88
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THIS
WAY
UP



laws for polluting companies, incentives for clean energy companies and support for farmers adopting regenerative practices. Policies that enforce low-carbon transportation and sustainable building practices are crucial. These measures create the structural framework necessary for sustainable living.

Infrastructure development

Developing infrastructure that supports sustainable living is another critical aspect. This includes investing in renewable energy sources, creating efficient public transportation systems and building green spaces within urban areas. The focus should be on reducing carbon footprints through sustainable urban planning and development.

The software of sustainability

Individual accountability and education

On the software side, individual accountability and education are paramount. Measuring our carbon footprints and being accountable for our personal and family impacts provide a starting point for change. Educating ourselves about the consequences of inaction and the benefits of sustainable practices fosters a culture of responsibility and

informed decision making.

Community engagement and collaboration

Community engagement and collaboration are vital for driving sustainability. Leaning into our communities, sharing knowledge and supporting each other can create a collective momentum towards sustainable practices. Movements grow from grassroots efforts and change often stems from local initiatives and community-driven actions.

The Road Ahead: Bridging Hardware and Software

For sustainable change, both hardware and software need to evolve and interact synergistically. Policymakers must create the structural framework that supports sustainable practices, while individuals and communities must drive the cultural and behavioural changes necessary for these practices to take root.

Actionable steps for individuals:

- **Educate yourself:** stay informed about sustainability issues and solutions. Knowledge empowers action. Some great reading:
 - Manifesto: The Battle for Green Britain by Dale Vince



-The Children of the Anthropocene by Bella Lack

-From What is to What If by Rob Hopkins

-The Climate Book by Greta Thunberg

-Climate Capitalism by Akshat Rathi

-Not the End of the World by Hannah Ritchie

- **Your narrative is in the numbers.** Understand your impact by measuring your carbon footprint. This helps identify areas where you can make the most significant changes. Use an app such as Klima or the WWF Footprint Calculator.
- **Engage with your community:** volunteer some time and participate in local sustainability initiatives and support community efforts.
- **Invest in nature, care, and repair:** focus on protecting the environment, supporting each other and reducing waste through repair and reuse.

Actionable steps for policymakers:

- **Implement stricter regulations:** enforce laws that hold polluting companies accountable and promote clean energy solutions.

- **Support sustainable practices:** provide incentives and support for farmers, businesses, and individuals adopting sustainable practices.
- **Develop sustainable infrastructure:** invest in renewable energy, efficient public transportation, and green urban development.
- **Foster collaborative efforts:** encourage public-private partnerships and community-led initiatives for sustainability.

The alchemy of sustainable change

Sustainability is an intricate dance between hardware and software. Supply and demand. The tangible infrastructure creates the vessel, but it's the intangible human elements—the culture, creativity and community spirit—that bring it to life. By aligning policy changes and regulatory frameworks with grassroots movements and individual actions, we can drive meaningful and lasting sustainability. It's in this convergence that the magic happens, where hardware meets software, and real change begins.

Butterflies as indicators of our impacts on nature

By Willow Neal, Postgraduate Researcher and Associate Lecturer, School of Earth, Environmental and Ecosystem Sciences, The Open University.




Butterflies are beloved by many across the globe. They are often striking, with a variation in size, shape and, most famously, a beautiful array of colours. They accentuate a bright, sunny day with a splash of colour. Association with our many flower species make them a joy to be seen. As a nation, we have loved observing and collecting butterflies for generations, resulting in important collections and works. Prominent British scientists have spent a lot of time looking at butterflies the world over. Some of the historic collections of butterflies are now held in our museums. One example I encountered is held by The Natural History Museum and dates to the late 1800's. It was collected by

Henry Bates, a pioneering naturalist-explorer, during a trip to Colombia, South America which he wrote about in *The Naturalist on the River Amazons*, published in 1863. "The Butterflies of the British Isles" published in 1906 by eminent lepidopterist Richard South also shows the long fascination with British butterflies. This book is an important milestone in our understanding of the ecology of butterflies, but he was just one among many of his time to collect, describe, and document this group of insects. Records taken then about what species we have and where they were found have developed our understanding of butterflies and how they respond to changes brought





The Red Admiral (*Vanessa atalanta*) is a recognisable butterfly for its striking colours and affinity for Buddleja. © Willow Neal.



upon them by human activity.

Butterflies are more than pretty; they are what's known as a bio-indicator species. As caterpillars, they have a close reliance on often very specific plants, or as adults, a requirement for nectar sources on very small scales, so their numbers can give us a good indication of trends in other species that are not so well-documented or easy to record, such as other pollinators or plant-eating insects that benefit from the flowers of the plants that sustain them. They also can give us a good indication of the impacts of climate change, where range shifting due to climatic preferences shows many species moving northward. This benefits a few butterflies who can easily move, for example if their larval food plants are widespread or the landscape is easy to move through, but there are also many butterflies that find themselves restricted due to their limited dispersal capability - some butterflies never leave their own woodland! Climate change compounded with land conversion to arable land or urbanisation has driven our butterflies into dramatic decline, with a downward trend of 80% since the 1970's. As these species are a barometer for ecosystem function, there is a stark warning here that a decline of this magnitude

describes a concerning future for nature as a whole, including us human beings.

[Urban woodlands, are an important refuge](#) for over 30 species of butterfly such as the Large White, Common Blue and the Peacock. Trees are also important in sequestering carbon and providing us with clean air and are critical to help us adapt to climate change so a focus on urban woodland butterflies allows the study of a host of important topics at once. As urban areas are set to grow, and as they creep into the countryside to fragment semi-natural habitats and entirely flatten others, we need to understand how to help nature to help us adapt to the changing climate. Urban woodlands also deliver important health and well-being benefits by improving our mental health and reducing anxiety.

Urban woodlands can be improved for butterflies, even when they cannot be made larger due to the surrounding urbanisation. Habitat management techniques can introduce a complex canopy structure, that is, a woodland with lots of open sunny areas as well as a mixture of shaded and dense woodland. This management technique can provide habitat for the most species possible




including butterflies (more here: <https://doi.org/10.1007/s10841-024-00594-z>). Leaving urban woodlands alone to ‘do their thing’ is not the best approach, and active and informed habitat management for complexity is key. In addition, habitat connectivity is critical to ensure urban woodlands and other habitat patches are interconnected. The next stage of my research, underway in Milton Keynes, is developing a system which can understand the city’s habitat connectivity from the butterfly’s perspective. If we can understand more about what makes a route viable for a butterfly to get to

the next habitat patch, we shall be able to understand what we can do to change the landscape to better connect one woodland to another. The vision is to create a conservation management tool that can identify breaks in a network to then repair them through conservation interventions. One such project to increase pollinator corridors is an OU citizen science project, [X-Polli:nation](#) which encourages the planting of 1m² pollinator patches. Connectivity such as this may allow less mobile species to move across the landscape and help them adapt to climate change.



Both of these butterflies are Common Blue (*Polyommatus icarus*). The female is a darker brown, and the male is a metallic blue. The raised abdomen of the female indicates that she is rejecting his advances.



Ultimately, urban planning, land use decisions and land management must deliver more of the right species of trees in the right places, with the right habitat management interventions. Such actions will protect our natural environment for the next generation. More broadly, we must start preventing the consequences of our increasing carbon emissions, insensitive land-use changes and traditional land management approaches. This means redesigning our estate and land management policies including drastically reducing pesticide use and mowing schedules as well as implementing proven habitat management techniques to support biodiversity. Inspired by the BBC / OU co-production Wild Isles, the RSPB, WWF and the National Trust commissioned a film and a website with specific actions for businesses: Saving our Wild Isles. Narrated by Sir David Attenborough, the film calls for all types of businesses to put in place nature positive plans. Proposed actions relate to a range of business products, processes and services, as well as management responsibilities. It is critical to upskill and reskill land managers to focus on regenerative practices. These include the removal and prevention of sources of pollution, the

creation of sustainable urban drainage and habitat management plans informed by science with a focus on conservation to preserve wildlife.

Butterflies have been loved for many hundreds of years, and as a species so beloved, varied, and beautiful we must ensure their survival so that future generations know the joy of seeing their vibrant colours flutter by or of watching them gracefully feed on a flower in the garden on a warm day. Their extinction would signal the loss of many unseen species as well and does not bode well for us human beings, part of the same web of life. As we navigate the complexities of nature conservation and climate change, give some thought of their importance the next time you see a butterfly. A world without them is one we must never know.

SCOPE

A FEW HIGHLIGHTS FOR THE WEEK AHEAD

NetZeroWeekTM

6 – 12 July 2024

“the agenda for
the fourth annual
Net Zero Week is
now available.”

Shawn Coles

**Biggest net zero conference.
All free, live and online.**

▶ Mon 8 July 10:15 – 10:45 BST

Fireside chat with Mike Nugent,
Chief Revenue Officer,
Hitachi ZeroCarbon



[Info + Tickets](#)

▶ Mon 8 July 11:00 – 11:30 BST

Fireside chat with Sam Hall,
Director, Conservative
Environment Network



[Info + Tickets](#)

▶ Tue 9 July 11:00 – 11:30 BST

Fireside chat with Dr Emma Wilcox,
Chief Executive, Society for the
Environment, and Damien Lee,
Director of Engineering and Green,
ManpowerGroup



[Info + Tickets](#)

▶ Wed 10 July 11:00 – 11:30 BST

Fireside chat with Johan Pretorius,
Founder, Toco currency.



[Info + Tickets](#)

Secure Your Spot for Net Zero Week 2024, Online Conference.

**By Shawn Coles,
Founder and Organiser,
Net Zero Week**



I am thrilled to announce that the agenda for the fourth annual Net Zero Week is now available. As the premier event endorsed by HM Government and industry organisations, the conference continues to be the cornerstone of the UK's official national awareness week elevating conversation around the transition to net zero.

Join us for an engaging three-day online conference from 8th to July 10th, where you can gain valuable insights from experts across various sectors:

Thematic agenda, all online, all free-to-attend:

- Monday, 8th July: Business and Industry

- Tuesday, 9th July: Energy Economy
- Wednesday, 10th July: Places

Get free access to over twenty sessions including live fireside chats with experts and a series of dynamic panel sessions featuring leading voices in the net zero movement.

Last year, Net Zero Week hosted over 3,000 delegates. We hope to see you among this year's participants, driving forward our collective mission towards a greener future.

Reserve your spot today and be part of this transformative event.

[See the full agenda and book your free tickets here.](#)

Featured speaker

NetZeroWeek™

6 – 12 July 2024



I am speaking in this live webinar

**Decarbonising your business and beyond:
How to excel in meeting supplier
Sustainability expectations.**

Liz Wood

**Sustainability Manager and Principal Consultant
Beyondly**

**Mon 8 July
11:30-12:30 BST**

BEYONDLY

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Net Zero Week**

Featured speaker

NetZeroWeek™

6 – 12 July 2024



I am speaking in this live keynote webinar
Shaping the Future of Carbon Capture:
UK and Europe's Path to Industrial Decarbonisation.

Peter Lazell
Senior Business Development Manager
Mitsubishi Heavy Industries

Tue 9 July
09:00-09:50 BST



Sponsor,
Net Zero Week

Featured speaker

NetZeroWeek™

6 - 12 July 2024



I am speaking in this live keynote webinar

Advancing Offshore Wind Energy.

Raya Peterson

Head of Offshore Wind Advisory

Ramboll

Tue 9 July

10:00-10:50 BST

RAMBOLL

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Featured speaker

NetZeroWeek™

6 – 12 July 2024



I am speaking in this live keynote webinar

Fireside chat with Dr Emma Wilcox and Damien Lee.

Damien Lee

Director of Engineering and Green

Manpower

Tue 9 July

11:00-11:30 BST



Manpower®

**Sponsor,
Net Zero Week**

Featured speaker

NetZeroWeek™

6 - 12 July 2024



I am speaking in this live webinar

Energy storage is not whiskey – blends are best!

Dr. Nerea Martinez Hipolito

Hydrogen Intelligence Service Research Manager

LCP Delta

Tue 9 July

15:00-16:30 BST

Featured speaker

NetZeroWeek™

6 – 12 July 2024



I am speaking in this live keynote webinar

**Driving Towards Net Zero: Innovations in
Climate Action and Retrofitting Initiatives.**

Jocelyne Fleming

Policy & Public Affairs Officer – Scotland

Chartered Institute of Buildings

Wed 10 July

09:00-09:50 BST

CLIMATE PERSPECTIVES™



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Exclusive interviews from changemakers

from Binary Carbon the organiser of

NetZeroWeek™

**Decarbonising™
Transport Week**