

SUMMER 22 ISSUE 23

# mineral

products today

Elizabeth line  
← Eastbound platform A  
Abbey Wood

Elizabeth line  
Westbound platform B →  
+ Heathrow  
M Maidenhead  
Reading

## Government as client

Delivering for the public sector



**Decarbonising cement**  
Time for a joined-up approach

**Working landscapes**  
Extraction in designated areas

**Silica sand scarcity**  
A line in the sand?

# WELCOME



**Our essential industry thrives when business and consumer confidence is high, fuelling investment and economic growth which boosts demand across the**

**economy and, in turn, construction and industrial activity.**

A positive outlook enables us to invest in people, skills, plant and machinery as well as innovation and decarbonisation. That's what we saw in 2021 and the first quarter of 2022.

But escalating inflation and rising interest rates, coupled with slower growth prospects for the UK economy and increasing international uncertainty, is an unwelcome combination that risks interrupting the steady recovery that looked likely for 2023 and beyond.

Forecasting demand and forward quoting are now proving difficult and, as supply chains try to mitigate risk, developers may be thinking twice about project initiation. This can contribute to downward pressure on demand.

It is probably too soon to tell quite what the lasting impacts of Brexit and Covid will be, coupled with the knock-on effects of the invasion of Ukraine, but planning our budgets for 2023 is likely to prove far harder than for this year.

On the plus side, the infrastructure pipeline for the medium and long term is robust, particularly if we are to realise any plan to move towards the testing milestones required for 2030 as part of the route map to Net Zero by 2050.

The need to accelerate the building of new nuclear power stations, and transitioning to hydrogen and more renewables to replace hydrocarbons, will require significant new production capacity and re-engineering, with all the attendant potential funding, planning, permitting, licensing and contractual issues. And that's before we start to address the 'under build' of new homes, private and public, over the last 15 years.

Cumulatively this represents a Herculean challenge which has never been achieved previously, let alone in the timescales required. Although central to the Government's manifesto ambitions, the situation is worsening and the proposed reforms in the new Levelling Up and Regeneration Bill are unlikely to make the path to planning permissions quicker, simpler or easier in the short term.

The potential for new and necessary infrastructure and housing investment is clearly great, but the constraints are equally so. We need a healthy and thriving private sector to fund public services – in itself a circular process with the public sector procuring both new infrastructure and social housing.

Procurement by the public sector of supplies from MPA members is critical and needs to be efficient, effective and fair whilst also being rooted in the principles of sustainable development. I hope that when I next write in the autumn, we will be able to look to 2023 with the same optimism as we did earlier in the year although currently there are legitimate causes for concern.

*Simon Willis, Chairman, MPA*

## New safety good practice guide launched

**A new collection of health and safety innovations and good practices has been published by the MPA.**

Available online and in print, the new document 'Sharing Good Practice 2021/22' brings together the best entries into last year's MPA Health & Safety Awards – winners, finalists and highly commended – across eight categories.

Most of the featured examples can be applied or adapted elsewhere to help save lives and prevent injuries. Many of the entries link to videos featuring those directly involved, explaining what was

done, the benefits delivered, and how the concept might be transferred to other sites.

Like the Awards themselves, the publication is designed to help teams in different MPA member companies to learn from each other and take action to make changes in their own businesses – 'Safer by Sharing . . . Safer by Action'.

MPA Chief Executive Nigel Jackson said: "I urge everyone to review the entries in this guide and share them with colleagues. I am confident that people will identify innovations or systems that could eliminate or mitigate similar hazards in

their own organisations. We are all safer when we learn from each other."

The new guide is available at [www.safequarry.com](http://www.safequarry.com).



### Mineral Products Association

Gillingham House, 38-44 Gillingham Street  
London SW1V 1HU

Tel: 020 7963 8000 Fax: 020 7963 8001

Email: [info@mineralproducts.org](mailto:info@mineralproducts.org)

Web: [www.mineralproducts.org](http://www.mineralproducts.org)

Chairman: Simon Willis

Chief Executive: Nigel Jackson

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### Mineral Products Today

Managing Editor: Elizabeth Clements,  
Director – Communications

Email: [elizabeth.clements@mineralproducts.org](mailto:elizabeth.clements@mineralproducts.org)

Editor: Andi Hodgson

Communications Consultant

Tel: 07972 533728

Email: [andi.hodgson@mineralproducts.org](mailto:andi.hodgson@mineralproducts.org)

Design: [www.generateuk.co.uk](http://www.generateuk.co.uk)

Printed on FSC paper



Cover: London's new Elizabeth Line, opened by Her Majesty The Queen on 17 May, was built with 250,000 precast concrete tunnel segments plus millions of tonnes of aggregates, ready-mixed concrete and other mineral products.

Cover: Joshua Ng, [www.unsplash.com](http://www.unsplash.com)

# MPA APPOINTS NEW CHIEF EXECUTIVE

MPA has announced the appointment of Jon Prichard as its next Chief Executive following Nigel Jackson's decision to step down after 13 years at the helm.

Jon, a Chartered Civil Engineer, is currently Chief Executive at the Institution of Chemical Engineers and was previously at the Engineering Council, consulting engineers Rendel, and the Institution of Civil Engineers after completing 19 years in the British Army's Royal Engineers.

Simon Willis, MPA Chairman said: "I am delighted to announce Jon as MPA's new Chief Executive.

"He brings a wealth of senior leadership experience managing membership

organisations as well as working with wider stakeholders. He will be ideally placed to lead the Association over the coming years, as the voice of the mineral and mineral products sector.

"Jon will build on the tremendous work Nigel has undertaken during his tenure, building, growing and unifying the MPA into the respected sectoral trade association it has become."

He will take up his new role with MPA on 1 October 2022.



## MPs' support for low carbon concrete welcomed

**A new report from Parliament's Environmental Audit Committee on reducing carbon in construction has been welcomed by UK Concrete, the MPA's public and political advocacy vehicle for the concrete industry.**

The Commons Select Committee report 'Building to net zero: costing carbon in construction' echoes several UK Concrete policy recommendations, recognising the importance of whole life carbon assessments and the power of public procurement to grow demand for low carbon cements and concretes.

The sustainable qualities of concrete are noted in the report which also recognises its durability and longevity, its resistance to fire, rot and flood, and its low maintenance needs.

The report also highlights the UK construction industry's reliance on a high percentage of timber imports – currently around 80% – whilst over 95% of UK concrete is produced domestically.

On climate change, the report acknowledges the 'UK Concrete and Cement Industry Roadmap to Beyond Net Zero' and the current use of substitutes for

clinker (the raw ingredient of cement) – all part UK Concrete's drive to decarbonise (see feature on page 8).

Claire Ackerman, Executive Director, Concrete, MPA, said: "We welcome the balanced approach the Committee has taken, and strongly back recommendations to support whole life carbon assessments and to drive demand for low carbon cements and concretes, through public procurement and more widely across the construction sector."



## Recycling 'to the max'

**Aggregates recycling in Britain is approaching its maximum with the vast majority of materials going back into construction.**

A recent MPA study says the recovery of construction waste to produce recycled aggregates – and processing industrial by-products into secondary aggregates – is close to its upper limit and puts Britain among the leading recyclers in Europe. MPA estimates that 28% of aggregates – some 62 million tonnes – came from recycled and secondary sources in 2020. But that means over 70% of the demand for aggregates must still come from newly-quarried sources.

## Precast concrete career

**A new apprenticeship dedicated to concrete masonry and precast production will accept its first intake this October.**

Participants will gain a Level 5 Apprenticeship in Masonry & Precast Concrete Technology plus a University of Derby diploma and NVQ Level 4 in Safety, Health & Environment, and the opportunity to progress to a BSc in Minerals Management.

Students will 'earn as they learn' during the two-year course which is delivered via a mixture of distance learning, class-based teaching and on-site training with one of the 60 MPA Precast and MPA Masonry member companies.

# The 'big picture' and complacent capitalism

**Why does it take a crisis to focus thinking? Surely when things 'seem ok' is the best time to ponder the risk of disruption and work out how best to avoid it or how to respond?**



VIEWPOINT by MPA Chief Executive  
Nigel Jackson

**Call me naïve but isn't that what Governments with the limitless access to the brightest and best minds are there to do? To contemplate population growth, consumption per capita, what can be produced indigenously to supply demand and what must be imported, whilst at the same time considering the economic, environmental and social impacts?**

Such deliberations might conceivably convert into a political manifesto which compiles key strategies for ensuring that what society needs and wants can be provided safely, securely, and sustainably. That manifesto might identify how certain supplies which are 'strategic' should attract greater attention and appreciation along with strong policies and adequate resources to ensure delivery for the long term.

Amongst those strategies would be those for food, water, energy and non-energy mineral resources. All sourced from land with consequent environmental impacts, all in need

of reasonable and proportionate of regulation and consistent and fair taxation. And yet...?

Apolitically speaking, I am not sure any UK political party has yet set out a manifesto which starts with such a 'big picture'. Normally it is just the usual downstream 'no brainer' policies and an auction of promises relating to health, education, housing, and social provision. These are the policy areas which we are 'conditioned' to focus on, they are in our news management DNA. But what about the primary resources and foundation industries without which those aims and aspirations all become academic? What about the fundamental factors which enable us to have a quality of life – comfortable, convenient and civilised.

## *Virtually everything we do involves the use of land*

Virtually everything we do involves the use of land. Virtually all use of non-agricultural land is governed by the planning system. So where is the 'big picture' debate about land and what best to do with it? Right now, we don't seem to really know what we are trying to do with land. Is it to produce food, energy or generate carbon offsets? Is it to build on or to preserve? The debate about planning is predominantly about housing and a failed 75-year mission to make the system faster, simpler and cheaper whilst creating more process and involving more voices.

The legislation and regulation of land is fragmented within and across Government in four different national administrations and increasingly

expected to be delivered locally. Regional strategies and inter-regional dimensions in England are cold-shouldered by dogmatic policies. Ever changing models of local government with stretched and inadequate capacity compete rather than cooperate to join up the dots on development, transport, resource use and waste management. Local plans are not sufficiently up to date, nor in step with neighbouring plans to create an approach that's greater than the individual parts. It's all a bit fragmented and, well, hit and miss.

## *Where is the 'big picture' debate about land and what best to do with it?*

Localism may serve current political thinking, but it is in reality a drag on enterprise. There's nothing wrong with those closest to the problem influencing outcomes, but taken to the extreme if everyone thinks only locally, the regional, national and global realities are inevitably harder to see and harder to respond to.

If land use planning were a tripod, I think that we would have more than enough weight on the localism leg but we really need a lot more weight on the regional and national ones. Consequently, the current approach is imbalanced and unstable and is, unsurprisingly, falling over.

Failing to deliver 'the big picture' for the UK opens the door to underestimating risks more widely. Determining what must be imported to meet demand sparks the questions "if not produced by us then who, how and how much?" Hitherto we have become used to being able to source pretty much anything at will. A 'just in time' world of interconnected and interdependent supply chains is a wonder to behold until – like a broadband signal – it fails.

As Brexit, Covid and now Ukraine have all demonstrated, once our equilibrium is shaken the links that hold it together are seen to weaken and even break. Worse, links we did not even know existed expose the fragility of our due diligence and ignorance of what really makes things happen, what really delivers our goods and services. As a country we realise too late that we were 'asleep at the wheel', we took too many things for granted, we were complacent.

But this is just the beginning. An exit agreement, a family of viruses and an invasion have served to expose what our 'localism' has done to weaken our wider view. 'Global Britain' may sound like a good slogan but the reality is that we may be more insular than ever.

So how well prepared are we to really 'tackle' climate change or, more accurately, man-made consumption far beyond the planet's capacity to supply sustainably and safely? It is society's voracious appetite for goods and services that fuels consumption and the consequent production that causes global warming, not production alone. No amount of emotion or advocacy about the effects of increasing carbon and methane emissions will alter the causes without re-engineering the means of global production. This is the reality of what is required to have any chance of achieving net zero across the planet. It is an inconvenient truth that success at a national level whilst welcome will not move the global dial unless the top six major emitters achieve it together first. As we move into the second half of 2022, we have around 7 years left to reach halfway to our 2050 ambition of reducing carbon emissions in the UK and globally, and in spite of all the worthy talk delivery is just too slow.

***It is society's voracious appetite for goods and services that fuels consumption and the consequent production that causes global warming, not production alone***

I am no longer optimistic. Not because I am a 'doomster' but because of how badly we appear to respond to

comparatively simple domestic issues we can control. So how confident can we be of dealing with the complex big-ticket issues of decarbonisation and primary resource use. Issues which are long term and dwarf political cycles? Pledges come cheap; action is all that counts. I predict that the 'scrutiny industry' will be expanding in the next few years as the gap between rhetoric and delivery gains traction. The sooner the better.

***More transparency and more engagement with stakeholders is vital as we drive change, raise standards and continue to improve perceptions***

So, what about our house? The UK minerals and mineral products industry? I can testify that we were immersed in precisely these issues more than two decades ago when we still had time to limit temperature rise to less than 1.5°C, now most unlikely. We have built a solid record of our action on sustainable development over the intervening period. We have also documented the tremendous work our members have done for nature through quarry restoration over the last 50 years which is unparalleled across any industry.

The industry prepared its own strategy to ensure that our economy and quality of life could be supplied sustainably for the next 25 years with the essential mineral products it needs. The UK Minerals Strategy was formally launched in 2018, founded on the three pillars of sustainable development and acknowledged by Government, to their credit. It is a live text which can be regularly reviewed by each generation as the challenges emerge and evolve. The industry must hold itself to account if it is to retain its licence to operate as the public's resistance to mineral extraction – despite their demand for mineral products – is likely to increase over the coming decade. More transparency and more engagement with stakeholders is vital as we drive change, raise standards and continue to improve perceptions.

One thing is certain – when it comes to the 'capitalist engine' that drives

most of the global economy and which underpins development and civilisation, the limits to that growth will be governed by our use of land and the environmental consequences that stem from this. Food, water, energy and non-energy minerals, and mineral products. These are all strategic resources with local and global impacts. They all must form the foundations of 'a bigger picture'. None of us can ever, ever assume supply. All supply must be planned, monitored and managed. We all need to think more long term and more strategically to see the 'big picture'. We may have seen the last of this phase of capitalism as we are now living in a more protectionist and parochial environment, just as we need a greater and more collective approach to solving global problems. There can be no room for complacency, there simply isn't the time to go down the wrong path.

***There can be no room for complacency, there simply isn't the time to go down the wrong path***

No major political party is gripping the need to think about demand and supply as part of their route to power. It remains tediously more about party politics, performance, personality and media and news management. We ignore raising our eyes to the horizon to see the 'big picture' at our peril. The past three decades have been the complacent phase of capitalism despite the Brundtland report "our Common Future" way back in 1987. We have gone for growth, talking a good game on sustainability, and whilst there are shining examples of good and best practice, none of it is sufficiently at a scale to make a real difference. I believe we have now entered a different phase, possibly era, of capitalism which must demonstrably balance the three pillars of sustainable development far better and prove it at scale. We cannot continue saying one thing and doing another as the time already wasted now cruelly exposes. Pledges must be delivered and proven and not just marketed.



# Working landscapes

Mineral working has long been a feature of landscapes that are now in areas with protective designations. A new paper from the MPA addresses the relationship between quarries and designated landscapes – both of which result from the underlying geology.

**The importance of the minerals extracted from within National Parks and Areas of Outstanding Natural Beauty (AONBs) is the focus of a new MPA document 'Minerals in Designated Landscapes'.**

In it the MPA highlights the unique – and sometimes controversial – relationship between the country's protected landscapes and the geology that helped to shape them which provides essential minerals for UK construction and manufacturing.

A substantial proportion of mineral resources are located in designated landscapes and their settings, including granite, limestone, sandstone and sands and gravels. And the biggest resources and reserves of industrial minerals, which have limited geographic distribution, occur more often than not within or close to protected landscapes.

The new document follows the MPA's recent contribution to a Government policy paper consultation at the start of 2022 on National Parks and AONBs which itself is a response to proposals set out in 2019's independent Landscapes Review, led by Julian Glover.

*Mineral products operators make a vital contribution to rural economies*

Neither the Glover Review nor the Government's policy paper make any significant reference to mineral extraction, despite the fact that geology dictates that almost half the country's quarries are located in designated landscapes or within 5 km of their boundaries. Mineral products operators make a vital contribution to rural economies in designated landscape areas and the industry is a huge source of public income in some counties.

## 47%

of active quarries in England and Wales are located inside National Parks or AONBs, or within 5km of their boundaries.

For example, quarries in and around the Peak District National Park contribute more than £5 million in business rates alone, while Derbyshire County Council estimates that up to £50 million is paid annually in salaries to skilled employees in the minerals industries in Derbyshire, with most of these jobs in rural areas where employment can be scarce.

For centuries, working the land for mineral has been a feature of landscapes that are now designated as National Parks and AONBs. Indeed, many popular attractions inside these areas were created through quarrying, from country parks and wildlife reserves to nature trails and off-road cycleways.

So the MPA has sought to explain the continued need to supply minerals from designated landscapes, recognising the need to minimise any adverse effects of mineral extraction, the delivery of benefits to communities through quarry restoration and biodiversity gain, and a continued commitment to operate in line with the requirements of national planning policy and environmental legislation.

Mark Russell, the MPA's Executive Director for Planning and Mineral Resources said: "National Parks and AONBs are working landscapes for millions of people across the country as well as places to be cherished for their beauty.

**Minerals can only be worked where they lay in the ground**

"Mineral extraction must not be overlooked as minerals can only be worked where they lay in the ground and these operations make a unique contribution to rural economies, besides providing a wide variety of essential mineral resources that the country depends on for construction, manufacturing and industrial end-uses.

"That's neither fully understood nor always appreciated by the Government and there would be a significant adverse economic impact if future policy changes failed to properly consider the important role of mineral producers in designated landscapes and their settings.

"The limited geographic distribution of some mineral resources means it would be impractical to provide all the minerals society requires solely from outside National Parks and AONBs or their immediate surrounding areas. The substantial investment in sites and

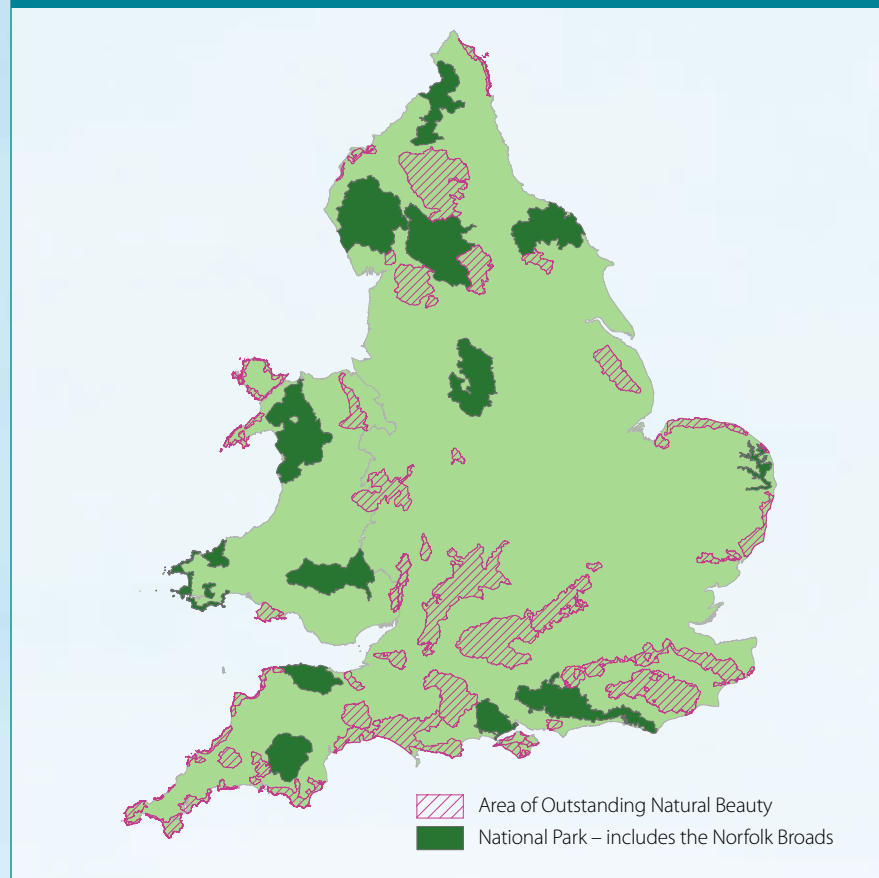
infrastructure, including rail links, means these may be the most sustainable sources of some materials.

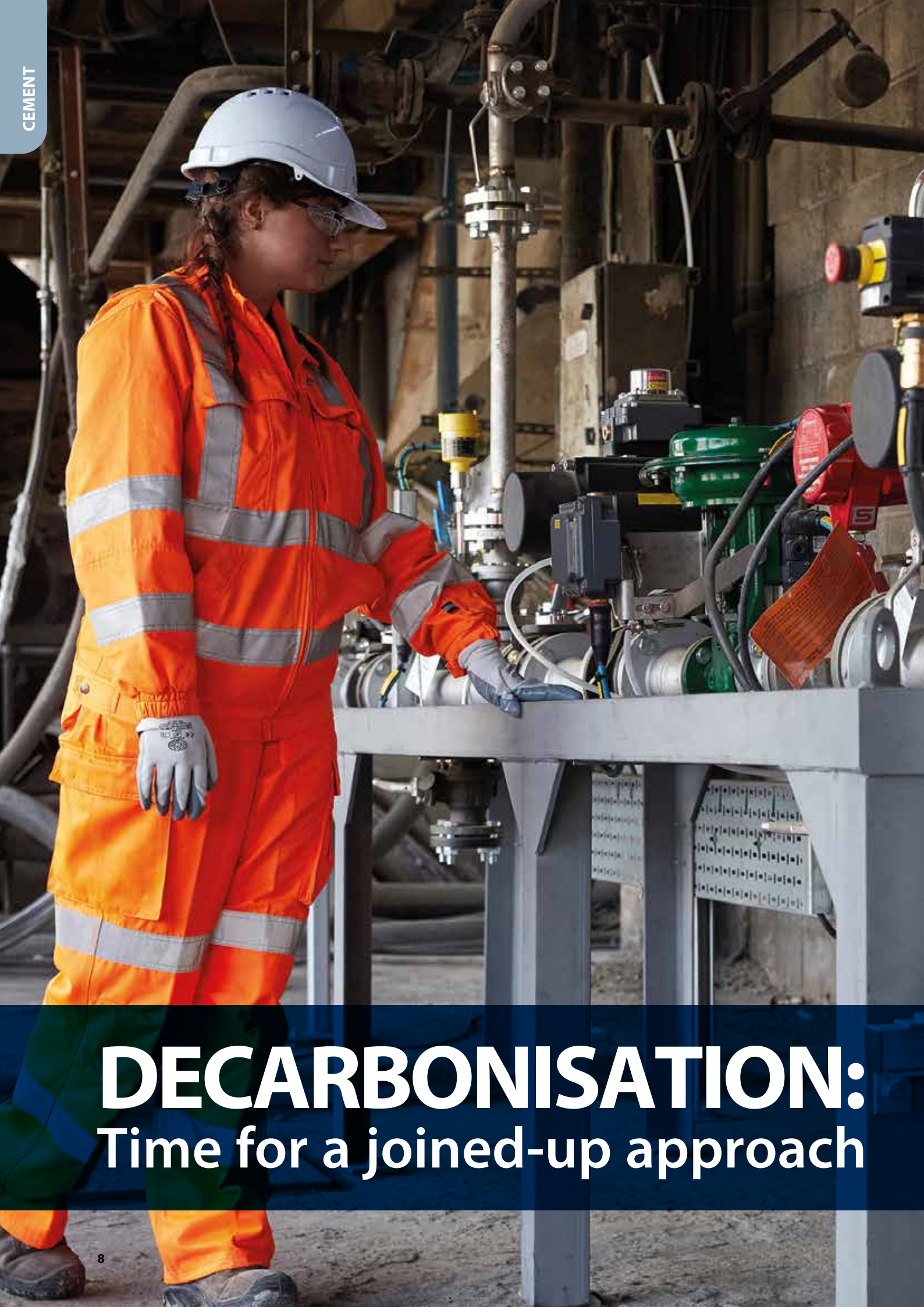
"There are already stringent standards for operating in areas like National Parks. National planning policy already includes additional checks and balances to ensure that any mineral operations are properly scrutinised to ensure they meet the highest operational standards and are able to demonstrate exceptional circumstances that extraction and production is in the national interest."



**'Minerals in Designated Landscapes' can be downloaded from the MPA website.**

**Designated landscape areas in England and Wales**





# DECARBONISATION: Time for a joined-up approach



Less than two years since the launch of the UK concrete and cement industry roadmap to beyond net zero carbon, tremendous progress is being made. But could disjointed Government proposals hinder progress and pose a threat to the competitiveness of the cement industry, asks MPA Director for Energy and Climate Change Dr Diana Casey.

A lot has happened since the October 2020 publication of the pioneering UK concrete and cement industry roadmap which set out detailed plans on how the industry can get to beyond net zero by 2050. Having halved carbon emissions since 1990, the sector has kick-started several new initiatives and innovations that have begun the transition to beyond net zero. In the same period, we have seen some key Government policy announcements, including the Ten Point Plan for a Green Industrial Revolution, Sixth Carbon Budget, Industrial Decarbonisation Strategy and Net Zero Strategy: Build Back Greener.

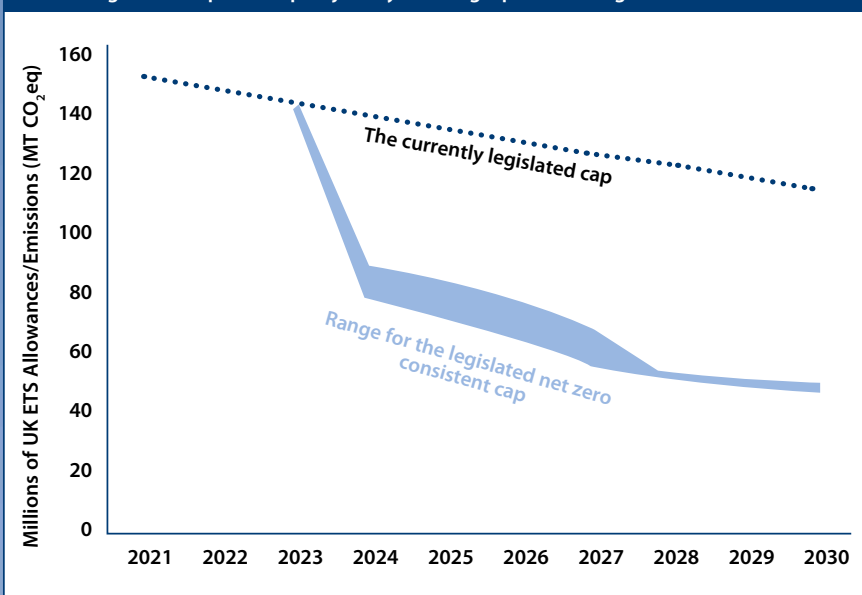
However, recent proposals in the UK Emissions Trading System have prompted concerns in the cement sector that policy efforts to accelerate decarbonisation may result in carbon leakage – where businesses transfer production to other countries with lower costs related to climate policies. In this scenario, the UK's demand for cement would be met from overseas; undermining the industry's jobs and crucial economic contribution. But it doesn't have to be like this. The UK Government just needs to start developing future decarbonisation policy in a joined-up way.

There seems to be a misconception that cement doesn't travel by sea because it is too bulky and too heavy to move around. In reality, cement is a global commodity, relatively easy to transport – either in its powdered end-product state or as clinker, an intermediate component of cement – anywhere in the world. This makes it vulnerable to carbon leakage – a fact recognized by both the EU and the UK Government.

In the UK, imported cement currently meets around a fifth of the demand. UK cement producers therefore compete with other producers across the world. Any additional operational costs placed only on UK producers serve to make domestically produced cement less competitive against overseas imports.

We all agree on the need to decarbonise and we know how to do it – as set out in our roadmap. Carbon trading is one tool in the box to help us along the way. A globally harmonized carbon price is the 'holy grail' ensuring all cement producers pay the same cost of carbon for their products. But the UK's accelerated path to decarbonisation compared to many other parts of the world means that a UK-specific carbon pricing mechanism is applied, the UK Emissions Trading System (UK ETS).

Figure 1: Proposed cap trajectory showing a possible range for 2024 to 2028



Left: Graduate Trainee Manager Miriam Joyce monitors the fuel switching trials at Hanson's cement plant in Ribblesdale, Lancashire.



UK ETS is a cap-and-trade system where a cap is set on the total amount of greenhouse gases (including carbon dioxide) that can be emitted by UK sectors covered by the scheme. Within the cap, participants receive a proportion of 'free' emission allowances (to mitigate against carbon leakage) and/or buy allowances at auction, or on the secondary market, which they can trade with other participants as needed. Each year participants must surrender allowances to cover their reportable emissions. The cap is reduced over time, so total emissions must continually fall<sup>1</sup>.

The free allowances help to reduce the impact of costs faced by UK cement plants but they do not cover 100% of emissions and UK cement producers have to purchase a considerable number of additional allowances. The number of free allowances received are benchmarked against the most carbon-efficient plants in Europe to incentivise all other plants to decarbonise to the benchmark level and below it, so they need to buy fewer additional allowances to comply with the scheme.

In March this year an array of proposed changes for developing the UK ETS<sup>2</sup> were published by the UK ETS Authority. Among the proposals is a plan for a step-change drop to the total emissions cap in 2024 with a range for the 'possible' cap between 2024 and 2028 (Figure 1).

This step change reduction takes no account of the technical ability for UK cement plants to decarbonise and the technologies being fast-tracked by cement producers for rapid deployment won't happen in the necessary timescale. For example the first CCUS (Carbon Capture, Utilisation & Storage) projects – a key part of the industry's decarbonisation roadmap – are not expected to be up and running before 2027 with most sites unlikely to introduce CCUS until well into the 2030s. This timeframe will be set by the

availability of electricity grid capacity and CO<sub>2</sub> transport and storage infrastructure, the construction of which is entirely outside of the control of cement producers.

Furthermore, a drop in the total cap will mean fewer free allowances to protect against carbon leakage. And while the scheme proposes to protect current levels of free allocation to the end of 2025, proposals on the future of free allocations are not included in the current consultation.

The UK ETS Authority has committed to consult on free allocation methodology before the end of 2023. But in the meantime, without this information, how can the cap be set at the right level to encourage decarbonisation and mitigate carbon leakage? How can the impact of the proposals on UK industry be assessed?

### ***Such a disjointed approach to policy makes it difficult for UK cement operators to plan ahead***

Meanwhile, the Treasury has announced its intention to consult on a range of carbon leakage mitigation options, including whether measures such as product standards and a carbon border adjustment mechanism (CBAM) could be introduced. Although promising, this consultation is completely separate to the UK ETS proposals. Such a disjointed approach to policy, and the uncertainty surrounding future costs, makes it difficult for UK cement operators to plan ahead.

This is a shame, because game-changing decarbonisation technologies like fuel switching and CCUS involve large, long-term investment that requires complete transparency of the policy environment to give certainty and confidence to those considering investing.

In setting the cap, the UK ETS Authority must look at both incentivising decarbonisation but also fully mitigate against carbon leakage. Introducing a step change reduction in the cap and claiming this gives the industry enough clarity for them to invest further in decarbonisation shows a lack of understanding about the importance of the UK's cement industry and what can and can't be done to reduce carbon emissions and associated timeframes. It's worth noting that the purchasing of emission allowances has generated just under £7 billion for the UK Treasury, but only a fraction of this has been earmarked by Government for spending on industrial decarbonisation and the infrastructure required to enable it.

Cement is a key component of concrete, which in turn is the most consumed man-made substance on the planet; unsurprising when you think that our modern built environment of homes, schools, hospitals, roads, bridges, clean water and energy infrastructure and much more all depend on it. The cement industry provides much needed, skilled jobs in rural parts of the UK, so misjudging this policy now could result in less competitive domestic production. That means offshoring jobs, a reduction in the industry's contribution to the public purse and an increasing reliance on imported cement putting our domestic security of supply at risk. In any case, the UK's demand for cement will not go away so there wouldn't even be a reduction in global carbon emissions. There's a lot riding on the Government ensuring a joined-up approach is taken.

<sup>1</sup> Participating in the UK ETS – GOV.UK ([www.gov.uk](http://www.gov.uk))

<sup>2</sup> Developing the UK Emissions Trading Scheme (UK ETS) – GOV.UK ([www.gov.uk](http://www.gov.uk))

# Roadmap to Beyond Net Zero in action

Here are examples of live projects delivering the UK concrete and cement industry's 'Roadmap to Beyond Net Zero':



## Low carbon, multi-component cements

Replacing primary Portland cement with lower-carbon secondary components such as fly ash, ground granulated blast furnace slag from steel production, and ground limestone are common in the UK but current standards permit only the use of single components. Research part-funded through the Industrial Energy Efficiency Accelerator programme shows the use of multiple components can achieve up to 60% lower carbon cements and could result in a reduction in carbon emissions from cement production of over 4 million tonnes every year. MPA recommendations have been put to the British Standards Institution to include these multi-component cements in the UK concrete standard (BS 8500) to help designers, specifiers and contractors reduce construction emissions.



## Advanced fuel mix for cement production

More than 80% of the heat required to make cement comes from burning fossil fuels or waste from non-biomass origins. But a BEIS-funded research project shows that with a combination of biomass, hydrogen and plasma energy, cement manufacturers could eliminate the use of fossil fuels. World-first trials took place at two MPA member sites – Hanson's Ribblesdale Works used hydrogen with biofuel while Tarmac's Tunstead Works used plasma energy. The project confirmed that it's possible to achieve net zero fuel cement production. Now the sector needs access to secure supplies of cost-competitive biofuel and hydrogen to make net zero fuelling of cement manufacture a commercial reality.



## Cements made with reclaimed calcined clay

An MPA-led consortium co-funded by Innovate UK recently began investigating the potential for primary cements to be part-substituted with low-carbon calcined clays. The project will assess the feasibility of producing calcined clays from lower-grade clays reclaimed from extraction or other industrial processes. Reclaimed clay sources also include waste bricks which do not require heating as they have already undergone thermal treatment. Ten different clay sources are being tested by MPA member Imerys and University College London with the potential for cements with calcined clay to have a carbon profile 40-60% lower than primary cement, indicating that millions of tonnes of carbon could be saved each year.



## Carbon Capture, Utilisation and Storage (CCUS)

Two regional 'clusters' of industry – in the North West and on the East Coast – are the first to prepare for the deployment of pioneering CCUS technologies in the mid-2020s. Hanson's Padeswood cement plant is located within the North West cluster and is among those pursuing funding for a CCUS project that would capture and store 800,000 tonnes of carbon dioxide each year. If the proposal secures the multimillion pound investment needed, the lifespan of the existing cement works would be significantly increased and 56 new, high-value operational jobs would be created plus 350 further jobs during construction. A decision on the application is expected this year and, if successful, the capture plant could be operational in 2027.



## Understanding carbonation in concrete

Carbonation is a process where concrete absorbs carbon dioxide from the atmosphere throughout its lifetime. The Intergovernmental Panel on Climate Change (IPCC) recognises that carbonation happens in concrete and that it is an important carbon sink. However, there is limited research on the process and currently no formal method of calculation. This project will identify reliable sources of data to quantify carbonation in concrete, the scale of the carbon sink represented by concrete and develop a verified model for calculating the annual size of carbon sink. Development of a model will enable the UK to include the permanent sequestration of carbon dioxide in concrete in the national greenhouse gas inventory.

Silica sand is an essential raw material for a vast array of products and industries. But this nationally scarce resource has been virtually wiped out of national planning policy. Isn't it time to draw...

# ...a line in the sand?

There are little more than a handful of sites producing high-purity silica sand in Britain. And so given its importance in manufacturing wind turbines, solar panels and insulation among other things (as well as other important sectors critical to the UK economy) you might expect policy-makers to be working closely with producers, downstream industries and planning authorities to ensure future needs can be met sustainably.

However, over the past 15 years there's been a worrying decline in interest from national Government in forecasting, surveying and safeguarding the country's less abundant mineral resources like silica sand.

That's according to Nick Horsley, MPA Director of Planning, Industrial Minerals and SAMSA, the Silica and Moulding Sand Association which recently celebrated its 80th anniversary.

SAMSA was established early in World War II to coordinate an adequate supply of high-purity silica sand to make optical glass for lenses and periscopes, and to create casts for components needed for military and agricultural machinery.

## *The Government's localism agenda really isn't working for minerals*

"All sands are equal but some are more equal than others!" exclaimed Nick. "And there's a marked lack of understanding of the importance of silica sand – not to mention all the products that it's essential for – and how it is different from the more widely available sands used in construction.

"Silica sand producers supply a broad array of downstream industries to strict specifications, often transported hundreds of miles to customer sites."

Nick says that planning policy and guidance that specifically relate to silica sand have been diluted in recent years to the point where there's no longer any strategic understanding of the material at national level. And gone are the days when Government employed specialists to work with specific minerals sectors such as silica sand – experts who recognised that a steady and adequate supply of raw materials was critical.

Surveys such as the Annual Minerals Raised Inquiry (AMRI), which provided Government with key data, ceased in 2014, and despite strong calls from industry and local planning authorities for its reinstatement, the only comprehensive survey undertaken in the last decade was commissioned by the silica sand industry itself to support a update of the Silica Sand Mineral Planning Factsheet published by the British Geological Survey.

"Historically, and certainly into the early 2000s, the strategic importance of silica sand was reflected in the fact it had its own specific mineral planning guidance note, MPG15," Nick continued. "But in the last decade the Government implemented its own version of 'Fahrenheit 451', disposing of established and understood planning policy and guidance which had evolved over time, along with the knowledge and expertise that went with it. The Government's localism agenda really isn't working for minerals, especially those of national importance."

### ***The Government is simply burying its head in the sand!***

"Today this essential industrial mineral that society relies upon is little more than a footnote in the NPPF (National Planning Policy Framework). There's little strategic understanding in national Government of the need to carefully manage these precious resources, which is curious given its ambitions around net zero which will require supplies of silica sand for making components for wind turbines, solar panels, insulation, etcetera."

And the concern is not just coming from within the silica sand industry. Dialogue with mineral planning authorities which have silica sand quarries in their jurisdiction have highlighted similar concerns. This starts with a lack of clear policy, inadequate guidance and a disjointed approach right through to a paucity of knowledge, skills and resources in planning teams.

"Like all mineral products, the British industry sectors which depend on silica sand in their production processes – and they are numerous – need to have certainty and confidence that there will be a long-term stable supply in order to invest in their factories and their people," Nick added.

"The Government needs to 'make the link' between silica sand, the industries it supports and the benefits those industries bring to society. The mineral resources in the ground beneath us are essential and they need to be understood, forecasted, planned for, managed and monitored to ensure a steady and adequate supply to meet the country's needs. At the moment the Government is simply burying its head in the sand!"

*A new video showcasing 80 years of SAMSA is available on [www.samsa.org.uk](http://www.samsa.org.uk)*

## **50 things that use silica sand:**

1. Abrasives
2. Adhesives
3. Agriculture
4. Asphalt
5. Batteries
6. Brakes
7. Bricks
8. Ceramics
9. Chemicals
10. Compost
11. Computers
12. Cosmetics
13. Cookware
14. Detergents
15. Electronics
16. Equestrian arenas
17. Fibre glass
18. Floor screeds
19. Foundry castings
20. Gas production
21. Gearboxes
22. Horticulture
23. Insulation
24. Jars & bottles
25. Lighting
26. Medical glass
27. Metal castings
28. Mirrors
29. Mortars
30. Oil production
31. Optical glass
32. Paints & coatings
33. Pharmaceuticals
34. Phones & tablets
35. Plastics
36. Play pits
37. Pumps & motors
38. Roofing
39. Rubber
40. Sanitaryware
41. Sealants
42. Solar panels
43. Sports pitches
44. Tableware
45. Tiles (wall & floor)
46. Toothpaste
47. Vehicle engines
48. Water filtration
49. Wind turbines
50. Windows

# £12 billion BLACK HOLE

**The cost of the backlog of repairs to local roads in England and Wales has reached £12.64 billion, a figure that's compounded by rising inflation, reports this year's Annual Local Authority Road Maintenance (ALARM) survey.**

The ALARM survey highlights the scale of the worsening issue faced by local authority highway engineers who have to make difficult choices about keeping local roads open and safe versus improving overall conditions.

The only survey of its kind, ALARM is commissioned by the Asphalt Industry Alliance (AIA) and looks specifically at local roads that are not part of the Strategic Road Network – over 97% of the country's roads.

This year marks the 27th consecutive ALARM survey, which received a record number of responses from 73% of local authorities in England and Wales. It reports local roads funding and conditions based on information provided directly by those responsible for their maintenance.

In 2021/22, despite an increase in average highway maintenance budgets (up 4% on 2020/21), the proportion being invested in the carriageway itself is down and the reported backlog of repairs has increased by almost a quarter (23%) to £12.64 billion – or £61,700 for every mile of local road in England and Wales.

The 'backlog' represents the amount that would be needed – as a one-off catch-up cost – to bring the network up to condition that would allow it to be managed cost effectively and sustainably as part of a proactive asset management approach.

Rick Green, AIA Chair, said: "Local authority highway teams have a legal responsibility to keep our roads safe, but do not have the funds to do so in a cost effective, proactive way. As a result, while they report some slight improvements in surface conditions, the structure of our roads continues to decline.

"Although surface repairs have a part to play in extending the life of local roads, short-term fixes, including filling potholes, is indicative of a road network that is 'on the edge' and less efficient and sustainable when it comes to materials usage and whole-life carbon emissions."

The findings of ALARM 2022, which relate to the 2021/22 financial year, show that in England and Wales:

- Local authorities needed an extra £1 billion last year just to reach their own target road conditions, before even thinking about tackling the backlog of repairs.
- One in five roads could need rebuilding in the next five years – nearly 37,000 miles of the network.
- £107.4m was spent filling potholes in 2021/22.
- One pothole is filled the equivalent of every 19 seconds.
- Roads are only resurfaced on average once every 70 years.

"The link between continued underinvestment, the ongoing structural decline and below par surface conditions of our local roads is clear," added Rick Green. "The country's ambitions to encourage active travel, plus cutting waste and carbon emissions, will not be achieved with a short-term approach that can't deliver a first-rate local road network.

"Recent government announcements regarding three-year spending on maintenance (for England) are a step in the right direction but don't go far enough. To ensure we have a safe, resilient, sustainable network on which we can all rely, a longer-term approach and significant investment is still needed across the country.

"The longer it takes for the funding to be put in place to tackle the backlog of repairs, the more it is going to cost to put it right in the future. Four years ago, the AIA calculated that an additional £1.5 billion per year was needed for 10 years to bring local roads up to scratch. In the meantime, the network has continued to decline and ALARM 2022 indicates that an additional investment of more than £2 billion a year over the next decade is now needed."



The complete ALARM report for 2021/22 can be viewed at [www.asphaltuk.org](http://www.asphaltuk.org).

The Asphalt Industry Alliance is a partnership between the Mineral Products Association and Eurobitume UK.

*Asphalt containing hydrated lime being installed by South West Highways; overseen by Dr Helen Bailey of Driven Company Associates Ltd.*

# LIME AND REASON

**New research shows that using hydrated lime in asphalt can extend the life of road surfaces. With live trials well underway in the UK, could this innovation catch on, asks Director of the British Lime Association, Dr Rebecca Hooper.**

For the first time we have UK-specific research evidence showing that hydrated lime additions can extend the service life of highway materials whilst improving climate resilience.

Two recent papers from the Nottingham Transport Engineering Centre (University of Nottingham) help the understanding of how adding hydrated lime to asphalt reduces bitumen ageing, maintains bitumen softness, avoiding stiffening with age as well as increasing moisture resistance.

Hydrated lime – or calcium hydroxide – has been specified for many years to increase moisture resistance of asphalts, but there's evidence that it can reduce asphalt ageing by also lowering the oxidation of bitumen. That suggests hydrated lime could be an effective multi-functional additive for asphalt in the UK.

The research shows how hydrated lime additions absorb 'polar compounds' (such as carbonyls and asphaltenes) within bitumen. Adding hydrated lime means that, with ageing, there are fewer oxidative reactions that cause bitumen to

become stiffer, more brittle and lead to cracking and deterioration of roads.

The study compared the performance of mastics containing hydrated lime to those made with granite or limestone fillers alone, and found that in all cases the hydrated lime made the asphalt mastics softer after ageing – or less stiff – than its counterparts with standard filler alone.

The materials studied were aged using Thin Film Oven Testing (TFOT) – where short-term ageing is simulated by heating a thin film of binder for extended periods – and Pressure Ageing Vessels (PAV) testing – where longer term oxidative bitumen ageing is simulated under increased pressure and higher temperatures. Mastics and recovered bitumens were evaluated for softening point, viscosity and complex modulus using a dynamic shear rheometer. Chemical changes in the bitumen, and the fillers, were determined using Fourier Transform Infrared Spectroscopy (FTIR).

To further corroborate these findings in the real world, specifically in the UK,

researchers are now monitoring a long-term trial on asphalt that was laid on a stretch of the A38 near Burlescombe in Devon in 2021. The British Lime Association has been working with Devon County Council and their suppliers – MPA member Aggregate Industries and contractor South West Highways – along with the Driven Company which is providing technical support, WDM undertaking annual surveys, with AECOM providing materials testing.

The trial will specifically examine the potential durability benefits of including hydrated lime, notably limiting asphalt oxidation to extend the life of the road surface, when compared with another stretch of the same road which has no hydrated lime added.

The hope is that the live trial will prove that road maintenance and resurfacing intervals can be extended, helping stretched local authority budgets to go further and supporting the delivery of National Highway's Net Zero Highways Plan.

**The British Lime Association is interested in hearing from other highway authorities who may be interested in running a similar trials. For details contact the BLA at [www.britishlime.org](http://www.britishlime.org).**

# Caught in the net (gain)

**No other industry comes close to delivering nature recovery and biodiversity gain on the scale achieved by the mineral products sector. So it's curious why the Government's new biodiversity net gain policy does not acknowledge the unique contribution of quarrying.**

**The long-awaited Environment Bill finally entered the statute books in November 2021. Among the policies for improving the natural environment is the new biodiversity net gain condition for planning permissions, going beyond protecting existing wildlife and encouraging nature recovery.**

To meet the biodiversity net gain requirement, which becomes mandatory in November 2023, developers will need to demonstrably measure biodiversity gains of at least 10% using a 'Biodiversity Metric'.

The Metric is designed to provide a means of assessing changes in biodiversity value (losses or gains) brought about by development or changes in land use. The detail of how it will work in practice is yet to be defined and was the subject of a recent Defra consultation which will inform secondary legislation and guidance.

The Environment Act also provides for halting decline in species by 2030. A separate Defra consultation – the Nature Recovery Green Paper – has considered the preparation of Local Nature Recovery Strategies (LNRSs) to identify priorities for

nature recovery, and map existing sites of biodiversity importance plus areas with potential for enhancement.

All of this marks a big step in the right direction for nature, yet it has raised more than a few eyebrows in the mineral products industry as there is little reference to the contribution that quarrying makes to biodiversity gain and nature recovery.

David Payne, Senior Planning Advisor with the MPA said: "The minerals industry is uniquely placed to be able to contribute to nature recovery through site management, restoration and after-use, especially as much of this can be delivered on-site during and after development. Frustratingly, there is barely any recognition of this potential in the various policy documents or generally among civil servants and politicians.

"Biodiversity net gain has been introduced primarily to address the loss of biodiversity and failure of other types of development (particularly new housing) to deliver enhancement, rather than to address any shortcomings of mineral extraction.

"As such the Metric includes assumptions and values that do not reflect specific

experience and evidence from minerals development and restoration, and is not designed to be easily usable for developments that may be operational for many years with phased working and restoration, and associated long-term changes in biodiversity value."

Quarry restoration and aftercare is, of course, already a requirement of planning permission for mineral extraction. Restoration schemes are a result of dialogue and agreements between operators, planning authorities, other regulators, conservation bodies and the community, more often than not delivering a range of after-uses and benefits.

A biodiversity 'net gain' is often achievable because quarrying typically starts on agricultural land which – following the temporary stewardship of mineral operators for extraction of essential materials – is then restored with nature recovery in mind.

## What is biodiversity net gain?

"Biodiversity net gain is an approach to development which means that habitats for wildlife must be left in a measurably better state than they were in before the development.

Source: Defra





The right conditions – soils, hydrology, topography – and the availability of machinery, experience, knowledge and skills, means that the industry can deliver imaginative restoration schemes to restore and enhance landscapes. Biodiversity-led schemes in particular can deliver multiple benefits – ‘ecosystem services’ such as recreation, flood alleviation, water quality and carbon sequestration.

Because of the industry’s commitment to restoration, by 2021 MPA members had already created over 83 sq km of UK priority habitat supporting nature recovery with a further 110 sq km pledged in approved restoration plans, areas the size of Nottingham and Liverpool respectively. And today more than 80 restored quarries make up the MPA’s ‘National Nature Park’, many of which allow safe public access.

The MPA was also the first trade association to publish a biodiversity strategy and the sector remains far ahead of the vast majority of industries by having a long lasting plan that can evidence meaningful improvements in biodiversity.

Last year the MPA was joined by leading conservation organisations – including Natural England, RSPB and The Wildlife Trusts – in celebrating the 50th anniversary of the biennial Quarries & Nature awards that recognise outstanding restoration of quarries with the primary aim of enhancing nature. No other industry comes close to achieving the legacy of the mineral products industry.

“In reality, a net gain well in excess of the minimum 10% can be delivered on most sites through management and restoration if the metric is applied in ways that properly reflect the progressive changes over the life of a mineral operation,” said David.

“In the most recent consultation on biodiversity net gain regulations and implementation, we have pressed again for the Metric and associated tool to be modified to reflect the unique characteristics of mineral, ideally through a

separate worksheet with values reflecting real-world experience and evidenced.”

MPA has also suggested a series of ‘principles’ to assist implementation of biodiversity net gain and, it is hoped, inform Defra and planning practice guidance with specific reference to mineral extraction.

Other concerns include the fact that mineral extraction is increasingly undertaken under leasehold, with the restoration and after-use being dependant on the landowner. So Defra’s plan for biodiversity net gain to require maintenance of created habitats for at least 30 years may prove unattractive and could make some quarry proposals unworkable. MPA also points out that biodiversity net gain obligations may compete with other desirable after-uses, such as agriculture and development. And the availability of the right kind of fill materials required to engineer the land adds further complexity.

“On the positive side, the industry is undoubtedly better placed than most to embrace the opportunities of biodiversity net gain,” said David. “Evidence indicates that while achieving well in excess of the 10% biodiversity net gain is possible on sand and gravel sites, this may be more difficult for rock quarries or where the existing land is highly valued in the Metric.”

One opportunity being explored is in cases where there is a biodiversity gain ‘surplus’ additional to the agreed target, this should be able to be ‘traded’ as biodiversity credits for other sites, including mineral extraction, that are unable to deliver on-site. Another is for mineral extraction to be considered as an enabler to enhancing biodiversity in Local Nature Recovery Strategies (LNRSs).

One thing is for certain: As long as quarries continue to provide essential mineral products, the industry will continue to create tangible opportunities for nature recovery and biodiversity net gain. It would be better if that happened with greater recognition from the Government.

## Quarries & Nature wins Planning Award

The MPA’s Quarries & Nature campaign scooped the top environment prize in the UK’s prestigious Planning Awards 2022.

Quarries & Nature – A 50 Year Success Story beat stiff competition to win the ‘Planning for the Natural Environment’ category in the highly respected awards, hosted by BBC Climate Change Editor Justin Rowlett.

The campaign celebrates the vast and unique contribution of restored quarries to UK nature conservation over five decades and was produced with support from leading conservation bodies including Natural England, RSPB and The Wildlife Trusts.

The Planning Awards, which recognise excellence in planning and placemaking, are judged by an independent panel of eminent professionals who acknowledged that the contribution made by the industry “demonstrates how nature can thrive once land has been restored”.

Nigel Jackson, MPA Chief Executive, said: “We could not be more delighted that the minerals industry’s collective commitment to restore quarries, support nature recovery and deliver biodiversity gain has been independently recognised in the Planning Awards. I am proud of what our industry achieves, not just providing essential materials that underpin our economy and whole way of life, but also going above and beyond to deliver for nature.”



# STONE SUCCESS

**Erroneous planning policy implying that the building stone has to come from 'small-scale' quarries has been changed after years of campaigning.**

**Many of our cities, towns and villages owe their character and sense of place to the country's diverse geology which produces a wide range of building stone.**

And to this day building stone continues to be used throughout construction, especially for character developments, prestige buildings and attractive public spaces.

But until last year the National Planning Policy Framework (NPPF) had been inadvertently stifling the potential growth of Britain's building stone industry, leaving indigenous sources of stone unable to compete with overseas imports.

"The NPPF had always referred to building stone quarries as being 'small-scale' in nature," said Mark North, MPA Director of Planning – Aggregates, Production and Dimension Stone.

"This poor use of wording has long been interpreted by mineral planning authorities – in some cases deliberately it is felt – to mean that building stone quarries must be small in scale.

"And whilst quarries that produce building stone usually do so at relatively low volumes compared to aggregates, for example, that does not mean that the quarries have to be small.

Over the years that small-scale perception has been used to restrict proposals which have prevented building stone producers from growing their businesses to meet the healthy local and national demand.

That has left the door open for stone to be imported from elsewhere in the world, resulting not only in a larger carbon footprint from transportation, but also the stone often coming from countries which have inadequate health, safety and environmental controls.

So after years of campaigning, the MPA has managed to have the wording 'small scale' removed with reference to building stone quarries, a move that reflects the country's growing desire for self-sufficiency in essential products.

"It's a small but critical change to the NPPF," added Mark, "which will give producers of building stone a little more confidence as they look to invest to grow their businesses and apply to extend their operations to meet the demand for traditional stone in construction, especially given the Government's current wish to see good design and beautiful buildings."





### Jubilee planting

**Plans to plant 17,000 trees at a restored Hertfordshire quarry in celebration of the Queen's Platinum Jubilee have been announced by Tarmac.**

The new woodland, incorporating 19 different species of trees, will be created at the Grade II\* listed Panshanger Park as part of the Queen's Green Canopy initiative.

The park boasts several remarkable arboreal specimens including the famed Panshanger Great Oak which, legend suggests, was planted by Queen Elizabeth I.

With the involvement of numerous partners, the initiative will restore woodland areas and parkland in the northern part of the park which is currently used for arable farming.



### Fuels facility

**A new facility enabling the use of 100% alternative fuels at Rugby cement plant has been inaugurated by Cemex.**

It enables the cement kilns to switch away from fossil fuels and instead use fuel derived from household residual and commercial waste that may otherwise go to landfill.



The facility is one of several initiatives by UK cement producers to eliminate the use of fossil fuels and move towards renewable fuel sources (see feature on page 8).

### Low carbon concrete down the river

**Low-carbon concrete is becoming ever more popular for developers looking to minimise the embodied carbon of their construction projects.**

Capital Concrete recently supplied their low-carbon mix to Keltbray for a new 10,000 sq m waste facility next to the River Thames in East London.

The material is a zero cement, geopolymer concrete made by reusing steel slag and fly ash, both industrial by-products which have cementitious properties. And the aggregate used in the mix was supplied to Capital's nearby concrete plant by river barge to help reduce emissions and road traffic.

The facility will recycle construction, demolition and excavation waste from building projects in the capital, processing material for reuse in construction or for use in land reclamation further down the river.

### Rare remains revealed

**One of Europe's most significant Ice Age discoveries in recent years was made as a result of quarrying near Swindon.**

Mineral extraction at a Hills Quarry Products site revealed the remains of at least five Ice Age mammoths, including two adults, two juveniles, and one infant, with a number of stone tools made by Neanderthals found nearby.



The discovery was initially made by amateur fossil hunters before additional resources were brought in, supported by funding from Historic England. It is estimated that the artefacts and mammoth remains date to around 210,000 – 220,000 years ago. Sir David Attenborough also visited the site during the filming of a BBC1 television documentary about the discoveries.

### Biogenic asphalt launched

**The UK's first commercially available 'biogenic' asphalt for road surfaces has been launched by Aggregate Industries.**

Developed in partnership with Shell Bitumen, the warm-mix asphalt uses a low carbon bitumen that's made with more efficient production processes using alternative energy sources to lower its embodied carbon.

The asphalt also contains biogenic material that effectively locks CO<sub>2</sub> within the road surface rather than releasing it into the atmosphere, making the product a 'carbon sink' – something that absorbs and stores more carbon from the atmosphere than it releases.

# Government as client...

**As the industry's biggest client, how can the Government make better use of its purchasing power?**

Nothing gets built without an adequate supply of essential mineral products. And almost half the 400 million tonnes of mineral products made in Britain each year are procured by the Government – directly or indirectly – for energy and transport infrastructure, flood defences, schools and hospitals, town centre regeneration, social housing, etc.

With that kind of buying power and its commitment to building “better, faster and greener” – plus changing procurement practices set out in its ‘Construction Playbook’ – the Government has a golden opportunity to positively influence the way materials are planned for, specified, sourced and delivered.

Getting this right would be a win-win for the Government, British industry and the environment – a sustainable future for all. Getting it wrong could lead to unintended consequences which would jeopardize economic prosperity and impede the journey towards net zero for the whole construction supply chain.

As the biggest supplier to construction, the mineral products industry is fully on board with the transition to better, faster and greener building. We're already ‘working with the grain’ to deliver for the public sector and, with a little more understanding and support in four key areas, the mineral products industry could play an even greater role in the green revolution.

## 1. Source locally, responsibly, sustainably

Sourcing materials locally within the UK is the key to sustainability, economically, socially and environmentally. Today more than 90% of the mineral products used in Britain are sourced and produced in Britain (unlike many other materials). Mineral products companies directly support local economies and employ 80,000 people, many in provincial areas that align with the levelling-up agenda. The British mineral products sector is also world renowned for high standards in things like safety, operational excellence and environmental success. The sector is an exemplar of a circular economy, with recycling rates close to the maximum 30%. And the UK concrete and cement industry is already well on the way to achieving its roadmap aim to go beyond net zero by 2050, having already reduced carbon emissions by more than 50% since 1990. Through well thought-out legislation, the Government has the opportunity to ensure this great British industry remains competitive, supports British jobs, reduces imports and even boosts exports.

## 2. Specify products for whole life carbon

Sustainable, advanced construction solutions are widely available thanks to years of investment and development by the mineral products industry. Companies have been supplying low carbon concretes, asphalts and other materials for the past decade and continue to reduce embodied carbon in their products.

But such products are yet to become standard mainly because getting them specified remains a challenge and there are insufficient incentives for developers to choose low carbon solutions. Where changes to specifications are considered, it is critical that whole life carbon assessments are done to gain a true picture carbon performance – the ‘greenest’ products in terms of embodied carbon may not always deliver the lowest carbon over their life. By advocating greater the use of low carbon solutions (not just low carbon products) as standard, Government has the potential to grow this part of the market and save substantial amounts of carbon in construction.

## 3. Transparency for planning and investment

The scale and complexity of supplying mineral products requires long-term thinking and major investment. It usually takes several years and millions of pounds to establish new mineral sources. Companies need the Government to set the right economic, political and regulatory conditions to ensure their businesses remain viable while meeting material needs. And the industry needs to know what those needs will be – how much and when – to be able to plan and prepare to deliver, especially for large-scale infrastructure projects. Well before work begins on large schemes, the Government must be clear on what materials are required in what timescales and insist that developers carry out resources and materials supply audits, rather than assuming the materials will turn up at the gate when they are needed. Having clarity and certainty about the Government's intentions for the built environment will give businesses the confidence to invest in people and facilities to meet demand as well as ensuring the most cost-effective and sustainable supply solutions.

## 4. Invest in people, develop understanding

Despite being an essential foundation industry, delivering a national strategic resource at volumes larger than any other industry, surprisingly little consideration is given to mineral products and the value they bring. This has a profound impact when new policies are proposed which adversely impact the industry, sometimes inadvertently. Making the right decisions and giving proper advice to Government depends on having the right knowledge, awareness and understanding of the mineral products industry. That requires competent people across several Government departments – nationally, regionally and locally – who between them have a good level of expertise covering every aspect of the industry. This is not the case today. By making the link between mineral products, economic prosperity and our built environment, policy-makers will be able to develop informed policy. The industry is keen to develop a more open, two-way engagement with Government to ensure mutual understanding and better policy-making.