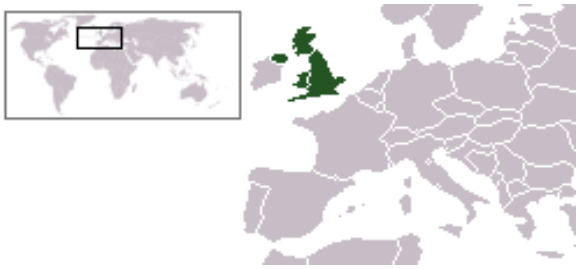
UK Project Management Round Up



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INTRODUCTION

Spring has sprung here in my rural fastness. Local readers might ask how I can tell with all the rain and low cloud and my response is that I can see bluebells, daffodils and hyacinths in my garden, all in bloom! Having run out of space last menoth, I had planned to cover the Infrastructure Projects Authority (IPA) pipeline, a Giga factory in Somerset and decommissioning the Culham Fusion Reactor this month but the IPA bit has been overtaken by events (see below) and the Giga factory is under political review and so not yet in a reportable state. As there is a lot on nuclear already, I'll skip the Culham news for now. Instead, we start with the Good News of a major project finishing on time, follow up with a summary of Net Zero news and then comment on a rare piece of positive reporting on a major rail project before moving on to the latest speculation about Small Modular Reactors and round off with some news about PM professional associations here in UK.

GOOD NEWS

National Highways have a long running upgrade programme to reduce congestion, improve safety and create more reliable journeys on Britain's motorway network. This part of the programme redevelops junction 10, where the A3, the major route from London to the Solent area crosses the motorway. It aims to create new and safer routes for cyclists, pedestrians and horse-riders. It includes an additional lane on the A3 in both directions. Capacity increases are planned with a larger roundabout with extra lanes and free flow left turns at all four corners of the junction. Improvements to the local environment and wildlife are also planned. The project started in the summer of 2022 and is scheduled to complete in the summer of 2025 at a cost of £317million.

This latest stage closed a section of the M25 between junction 10 at Wisley to junction 11 at Chertsey. Some 300,000 vehicles use this stretch of motorway daily so the 3 day closure planned for the weekend of 15 – 18 March was expected to have a major impact, to allow for the demolition of the existing Clearmount bridleway bridge and the

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installation of a large gantry weighing in at 128 tonnes and spanning 63 metres. The work was first of five intentional motorway closures, the work carried out over the weekend builds on the progress Balfour Beatty has already made, having recently demolished the Wisley Lane and Cockcrow footbridges. The work was completed ahead of schedule and the motorway reopened at 22.00 on Sunday, eight hours ahead of the planned completion.

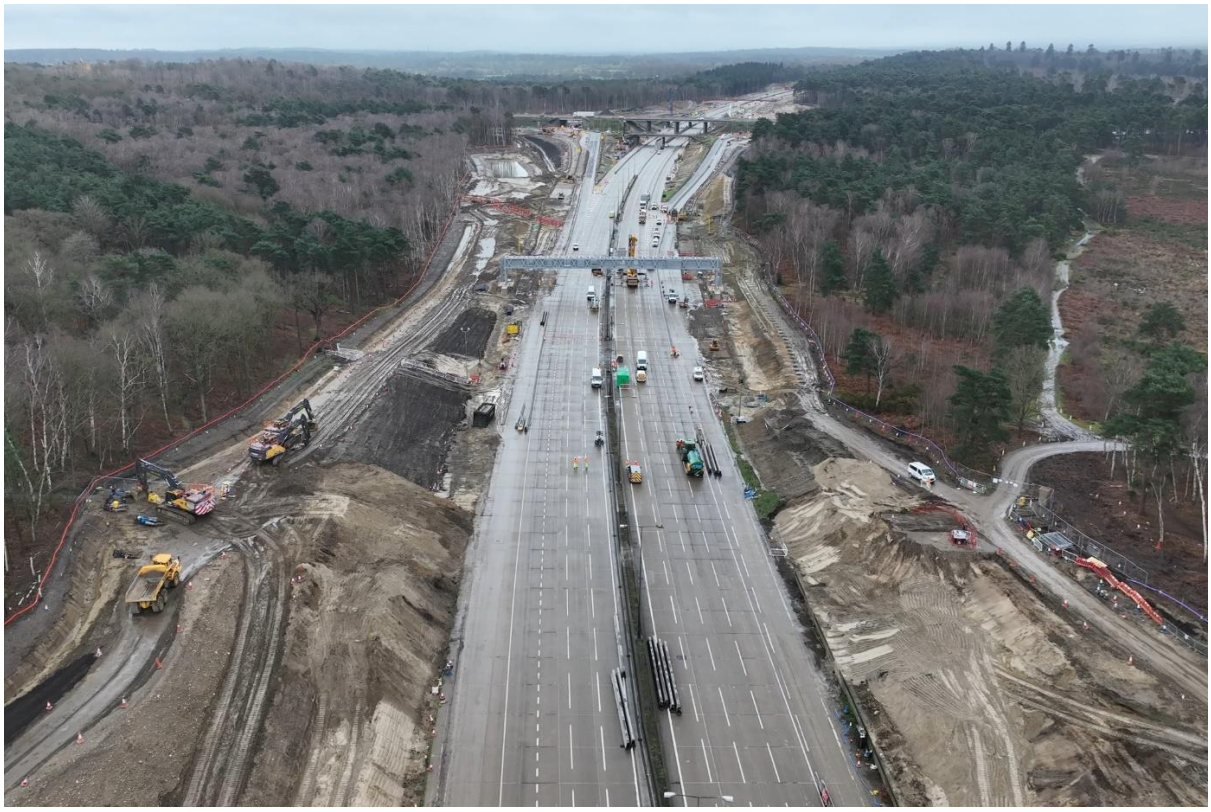


Image: Balfour Beaty and New Civil Engineer

CARBON EMISSIONS

Possibly the best news so far this year is the report UK carbon emissions fell by 5.7% in 2023 according to Carbon Brief (https://www.carbonbrief.org/). Global emissions, by comparison moved up by 1.1%. According to *The Times*, UK reduction means that the country is now more than halfway to net zero by 2050, despite the UK economy growing 82 per cent in the past 33 years. As an aside, *The Times* also noted that the last time we were at this level was 1879, when the British army was fighting Zulu warriors, Queen Victoria (right) was on the throne and Albert Einstein was born.

Image: Wikipedia

NET ZERO PROJECTS

It is well known that renewable energy sources such as wind, solar and tidal cannot on their own provide the totality of UK energy needs. We are facing the closure of several sources of energy as the old nuclear and oil fired power stations reach the end

of their working lives and new ones to replace them are still under construction, other options need to be explored. One such option is to use gas fired power stations as back up. Hence the stories that follow are important projects.

- **New Gas Opower Stations**.

The Energy Security Secretary, **Claire Coutinho**, warned Parliament (12 March 2024) that the country faces a "genuine prospect of blackouts" without gas as a backup for renewable energy sources. It was not entirely clear why the announcement has been made as it has been widely accepted that renewable energy on its own would not be sufficient to ensure the necessary power requirements of UK. In the medium term, new power stations would be needed to replace existing power plants under the current net zero trajectory and gas fired was seen as the only option.

Further Government statements claim that these new power stations are expected "to be built net-zero ready", and only to be used for short periods to ensure consistent power supplies. Again, nothing new here. "That means companies must build power plants which are ready to connect to carbon capture technology or that can be changed to burn hydrogen instead of gas," she said.

The statement went onto stress the need for new gas-fired power stations must be capable of adaption for carbon capture and storage or hydrogen-firing within a plant's lifetime. Ministers are to give the go ahead for a new generation of gas power stations to provide backup electricity as Britain transitions towards net zero. Decisions by Ministers, now there is something new!

- **FutureGrid.**

UK has made major commitments to achieving Net Zero by 2050, publishing its roadmap in December last year. As a result of the commitment, there are many projects to help achieve this. One such is the £12 million FutureGrid project which is the first of many steps towards a full-scale conversion of the existing National Transmission System (NTS) to transport hydrogen. It involves constructing a test facility from decommissioned assets that will be used to carry out a wide range of hydrogen tests in an offline environment, to demonstrate its effect on our assets, as well as the operation of the network.

Gas from the North Sea and import terminals is distributed by National Gas to local distributors for domestic and business use, heavy industry and power stations. The Government wants to reduce reliance on natural gas as part of its Zero Carbon strategy so conversion to hydrogen is seen by some as a partial solution.

The project has several contributing partners; DNV, Northern Gas Networks (NGN), HSE Science Division, Fluxys, Durham University and the University of Edinburgh. It is being run RAF Spadeadam in Cumbria. A simulation of the 7500 Km gas distribution pipeline has been set up to test increasingly concentrated hydrogen blends. The project started with blends of up to 2 per cent, before reaching 100 per cent last month, in preparation for any potential conversion of a larger proportion of the network to hydrogen in the medium term.

"We need hydrogen to keep the lights on and British industries running as we transition to net zero," **Jon Butterworth**, the chief executive of National Gas, said. Achieving

100% blend proved the network was "ready for the transition". Without the permission to increase the limits, imported supplies would need to be deblended at a purpose built plant at the National Gas import terminal in Bacton, Norfolk. This could cost up to £600 million a year to operate according to press reports.

The UK Government apparently sees "potential strategic and economic value" in supporting the blending of up to 20 per cent hydrogen by volume into the local gas distribution networks but Department for Energy Security and Net Zero spokesperson said it did not recognise the "highly speculative" estimate of the cost of running a deblending facility, adding that it "cannot progress with regulatory changes until we have received sufficient safety evidence". The spokesperson went on to say "Hydrogen has the potential to play a key role in supporting industry to cut their emissions, which is why we support the use of hydrogen blending in limited scenarios. Suppliers being able to meet the required safety standards will be a key factor in enabling the wider rollout of blending into the gas network." Decisions are awaited!

MINI NUCS

The Government is placing a number of eggs in the nuclear basket by turning to the prospects of deploying small modular reactors (SMRs). We were first alerted to the priority seemingly placed on these latest gizmos to catch the Ministerial eye in January when it was announced that planning restrictions were to be relaxed to enable said gizmos to be built almost anywhere. This relaxation is necessary for two reasons: first, the Great British Public (GBR) has an annoying habit of objecting to anything "new", and second, the cooling requirements for SMRs is substantially less that that needed for full size reactors so they do not need to be built on the coastline. According to the new rules, only population density or proximity to military activities will preclude new installations. My planning imp was concerned that these seemed to indicate a worrying linkage to intellectually challenged populations. It also seemed to rule out anything in the Stonehenge area, given its military connections – we are suitably grateful for small mercies.

SMR Cost Cutting

Now we have news of a new technique that cuts the construction time and costs for SMRs. The engineers amongst readers will know that the heart of any nuclear reactor is the pressure vessel (and I do not refer to how tea is made on site). This vessel contains the fuel reaction and is nuclear fuel when the one of several barriers that contain radioactive material and prevent escape to the

Image: Sheffield Forgemasters

environment. Pressure vessels are traditionally made of very thick steel that has to be welded together very carefully to ensure integrity and long lasting strength. The process is time consuming and expensive, taking between 120 to 150 days using traditional techniques.

A new method of welding has been employed by **Sheffield Forgemasters**, one of UK's oldest steelmakers. Electron beam welding can reduce the time taken to complete the welding process to around two hours, according to **Jesus Talamantes-Silva**, director of research at Sheffield Forgemasters. The new process works by firing electrons at an extremely high speed to fuse two pieces of metal together. The main difference to traditional welding methods is that no third-party material is introduced so the join is potentially much safer as well as faster. This should drastically accelerate the manufacturing of SMRs.

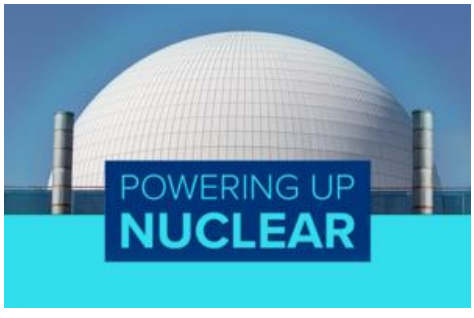
While we are calling these reactors small, they still weigh in at around 57 tonnes, have a diameter of three metres and have 200 millimetre thick walls. Forgemasters is the first to use the welding technology to build a full-scale SMR pressure vessel although the technique is used in the automotive and aerospace industries to produce smaller, relatively low-value components.

MPs Strike!

This is not a case of *Everybody Out Brothers* (a cry beloved of trade unionists in the last century industrial UK) but if this the previous reports seems like too much good news, you are right. The good citizens of the Westminster Village, otherwise known as the Houses of Parliament, or MPs, even, have raised a cautious had to ask for more, just like Oliver Twist.

The Chair of the House of Commons Environmental Audit Committee, **Philip Dunne**, said that the government's "overall vision for the sector at this stage lacks clarity" despite "pledging hundreds of millions of pounds in support for [small modular reactor] projects". Clearly, not one of our readers! However, he does have a point, and not unreasonably asks the Government to subject plans to scrutiny by the National Audit Office (NAO) for "value for money (VFM)" review.

My cynical Gnome again wonders whether VFM could take into account the impact of the lights going out in middle England but the Chair raises questions over timelines. The government target for a 24 gigawatts nuclear capacity is 2050. Contract award for the first SMRs is expected next summer but, according to *The Times*, final investment decision on building at least one small modular reactor is not due to be taken until 2029, which means that the first such plant is unlikely to be operational until 2035. At present, six designs, including one from Rolls-Royce, are competing for up to £20 billion in taxpayer funding. So, not all is clear to the slower reader. My Nuclear Gnome notes that MPs (no names, no pack drill) have given the government a deadline of March 21 to respond to their concerns. The only response I can see pointed to the Department's nuclear



road map which "clearly sets out" all they need to know. The 74 page document is available from https://www.gov.uk/government/publications/civil-nuclear-roadmap-to-2050/civil-nuclear-roadmap-to-2050-accessible-webpage.

MAJOR INFRASTRUCTURE PROJECT TURNROUND

Hot off the press comes what most project people would claim to be a rare positive report on a British Infrastructure project. We are used to the incessant claims of project failure so it comes as somewhat of a surprise to see a National Newspaper (*The Times*) report positively on a major infrastructure project. Hard on the heels of the early finish of the A3 / M25 bridge project comes news of a 10 day shutdown on a key section of one of Britain's busiest railway lines: the TransPennine route between Manchester and York.

The good news is not the shutdown but what it presages. First of all, the hardy Northern traveller will not be subjected to the cruel and unusual (not) punishment of rail replacement bus services but will be able to luxuriate on alternative rail routes during the closures. This particular closure will allow a 750-tonne crane to be positioned to replace a bridge deck on Huddersfield viaduct. This is major part of the TransPennine Route Upgrade Project (TRU) planned back in 2017 as a routine upgrade scheme budgeted at £1.5 billion.

When the Department for Transport (DfT) scrapped the eastern leg of High Speed 2 (HS2) back in 2021, the project was suddenly expanded to £11.5 billion and effectively became a rebuilding of the whole line between Manchester and Leeds. The Press claimed this had become the "Crossrail of the North", a consolation prize from the government after the hobbling of HS2. The TRU became the first building block of Northern Powerhouse Rail, a scheme intended to fulfil Boris Johnson's pledge in the 2019 general election to "level up" the country.

The upgrade is broken down into eight core projects – four west of Leeds and four to the east – plus four facilitation projects for Northern Powerhouse Rail. Construction has begun on three of the eight projects. Work already carried out includes the installation of 60km of overhead electric cable between Church Fenton and Colton Junction near York.

The Times reported that the full line will now be electrified, be equipped with digital signalling, have nine new or modified stations and have all platforms rebuilt to a length of 195 metres to handle trains with eight instead of six carriages. The number of services running along the line hourly will double from three to six. Other benefits include re-laid track, to enable ISO Standard shipping containers to travel from Liverpool to the east coast for the first time. Line capacity will include 15 extra freight trains a day, each carrying the equivalent of 129 HGV-loads and thus removing up to 1,935 lorries from the road network, including the nearby M62.

National Audit Office (NAO) reports on HS2 showed that construction cost per miles for HS2 has been almost ten times the price paid by France for their new 188-mile stretch of high-speed TGV network. This indicates that there were many lessons to be learned if the problems on HS2 are not to be repeated on other infrastructure projects.

Neil Holm Network Rail's TRU managing director took charge of the £11.5 billion, 76-mile TransPennine route upgrade (TRU) three years ago. Previously, he had worked on the construction of the HMS Prince of Wales aircraft carrier. The rail project had an amber-red warning from the Infrastructure and Projects Authority, meaning that successful delivery of the project was in doubt. But Holm reported that the route will be completed in 2037, four years ahead of schedule — and £1.5 billion under budget.

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The first section, between Manchester and Stalybridge, passed its trials with a test train earlier this month. Much of this is due to replanning the work so that instead of closing only at weekends when traffic is lower, work periods are extended to 10 days, thus avoiding the complex hand over of control of the track, setting up and dismantling and simplifying supply chain movements. The 10 day shut down is reported to be able to complete the same work that would be achieved in 10 weekends.

The upgrade is being designed and delivered by two alliances. The TRU East Alliance – comprising Volker Rail, Murphy, Siemens and Network Rail – is responsible for work between Leeds and York. The TRU West Alliance – comprising Arup, Amey Rail, Bam Nuttall and Network Rail – is responsible for work between Leeds and Manchester. Jacobs is design partner on the client side.

CLOSING REMARKS

Last year, I reported that re-wilding was all the rage conservation-wise and we had seen several extinct to UK critters re-introduced. It is now quite easy to find eagles, pine martins, beavers, cranes and others making a return to sites all over UK. Well, someone has opened the door to a much larger re-introduction, or as it is now called, a de-extinction. A woolly mammoth could be coming to a site near you!

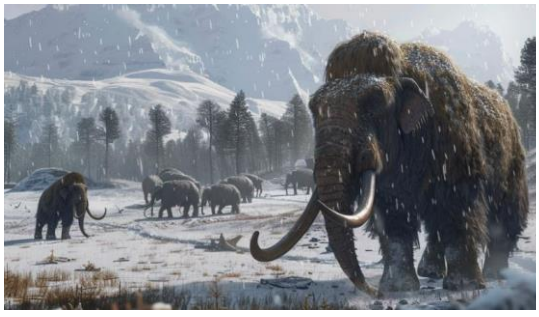


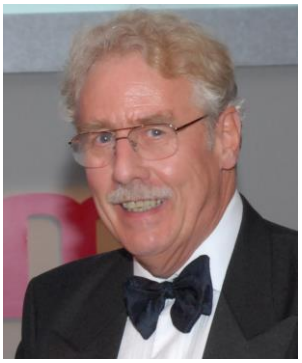
Image: Colossal Biosciences

This is a story rooted in USA, where **George Church,** a Harvard genetics professor, is the founder of Colossal Biosciences, a biotech company that plans to recreate the woolly mammoth by 2028. The company has announced a breakthrough that could lead to the species being recreated, while also helping to preserve today's elephants. The project involves gene editing Asian elephants that very closely resemble woolly mammoths. DNA extracted from dozens of carcasses found preserved in the Siberian permafrost show how similar the extinct mammoth and modern Asian elephants are. The de-extinction

process is obviously complex but recent developments seem to indicate that some form of recreation is possible.

Many scientists are sceptical about the project as, they say, producing hairy, cold-resistant elephants is not the same as reviving the mammoth. There are possibilities here for conservation, so this is a story that is likely to lumber along!

About the Author



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Miles Shepherd is an executive editorial advisor and international correspondent for PM World Journal in the United Kingdom. He is also managing director for MS Projects Ltd, a consulting company supporting various UK and overseas Government agencies, nuclear industry organisations and other businesses. Miles more than 30 years' experience on a variety of projects in UK, Eastern Europe and Russia. His PM experience includes defence, major IT projects, decommissioning of nuclear reactors, nuclear security, rail and business projects for the UK Government and EU. His consulting work has taken him to Japan, Taiwan, USA and Russia. Past Chair and Fellow of the Association for Project Management (APM), Miles is also past president and chair and a Fellow of the International Project Management Association (IPMA). He was, for seven years, a Director for PMI's Global Accreditation Centre and is past Chair of the ISO committee developing new international standards for Project Management and for Program/Portfolio Management. He is recently stepped down as Chairman of the British Standards Institute project management committee. He was involved in setting up APM's team developing guidelines for project management oversight and governance. Miles is based in Salisbury, England and can be contacted at miles.shepherd@msp-ltd.co.uk.