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ADRIAN BULL

THE NEW NI PRESIDENT ON COMMUNICATING
NUCLEAR AND CREATING THE ADVOCACY NEEDED
FOR THE NEXT NUCLEAR GENERATION

THE JOURNAL

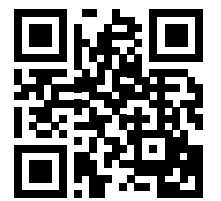
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HONOUR FOR PRESIDENTS: PAST AND PRESENT

It's a huge privilege and honour for me to be taking over the reins as President of the Nuclear Institute for the next two years. But – as I'm talking about honours – the very first thing I must do is pass on congratulations to my predecessor as President, the one and only Fiona Rayment, on becoming a Dame in the King's New Year Honours list.

I've known Dame Fiona for around 30 years now – dating back to our time working together in BNFL – and she's never failed to demonstrate technical excellence and exceptional leadership in all the time I've known her. I was a member of the NI's Nominations Committee when her name was first mentioned as a possible President, and it was one of the shortest and easiest discussions I can remember. We all agreed that, if she was willing to take on the role, she'd be the perfect choice. The NI has benefited massively from her leadership, and I know all members will join me in offering congratulations for all she's done for the NI and for the nuclear sector.

The NI – like the nuclear sector as a whole – is now in better shape than ever before. The past few months alone have seen the commitment to building Rolls-Royce SMRs at Wylfa and the final investment decision for Sizewell C – a project profiled in this edition and that marks the first time the UK has decided to build a replica of a nuclear power plant that we've built before. Let's hope that trend can continue!

The UK now has the opportunity to be one of the first countries in the world to turn SMRs from concept to reality, helping to get us back to the global 'top table' of nuclear nations. There are also huge opportunities in the nuclear defence sector following the Strategic Defence Review,



Adrian Bull, MBE, HonFNucl

and across the clean-up, decommissioning and site-restoration sectors, where we continue to demonstrate our global leadership. The same is true in research, transport, advanced fuels and fuel cycles, and much more.

All of that underscores the importance of attracting and retaining skilled people, and making sure that our professional standards are valued and respected by our colleagues, current and incoming employers, and all the industry's external stakeholders.

That's just one of the ways the NI is supporting the sector and I'm very much looking forward to getting more involved in this work over the coming two years. Many of you may have heard Ed Miliband's speech in December, when he heralded a "golden age of nuclear" for the UK. I believe we're also seeing a golden age of the Nuclear Institute.

We'll be starting the year at full speed, with a strong presence at Nuclear Week in Parliament in January and I'll report back on that in the next issue. I look forward to seeing many of you there!

Yours,

Adrian

GET PUBLISHED IN THE JOURNAL

Since the inception of the British Nuclear Energy Society in the 1950s, readers of *Nuclear Future* and its predecessors have been able to read technical papers on contemporaneous issues facing the nuclear sector.

Nuclear Future welcomes papers across a wide spectrum of nuclear-related topics, including science, engineering, medicine, safety, security, non-proliferation safeguards, regulation, law, economics, human factors and project delivery. All published papers are registered with a DOI, ensuring they are accessible for national and international citation. Each year, the Nuclear Institute recognises excellence through the prestigious Pinkerton Prize, awarded to the most outstanding paper. Submission details can be found in the Journal section.

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“If more people in the industry realised how influential they could be in bringing in the next generations, it would be hugely empowering.”

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Wylfa confirmed for first Rolls-Royce SMR siting

The UK government has announced that Wylfa, on the island of Anglesey in North Wales, will host three Rolls-Royce SMRs, with the site – where a Magnox plant is being decommissioned – potentially able to host up to eight units ultimately. Great

British Energy – Nuclear will start activity on the site in 2026, with the aim of Wylfa's SMRs supplying power to the grid from the mid-2030s.

The 470 MWe Rolls-Royce SMR design has been selected as the preferred technology for the UK's first SMR project, with

a final investment decision expected in 2029.

The SMR measures around 16 m by 4 m and 90% of it will be built in factory conditions, limiting activity on site to assembly of prefabricated, pre-tested, modules primarily. This

will reduce project risk significantly and has the potential to drastically shorten build schedules.

SOURCE: WNN

INSIGHT: Wylfa's nuclear revival can transform Anglesey and ALL of North West Wales

By Virginia Crosbie, Sasha Wynn Davies and John Idris Jones



The announcement that Wylfa on Anglesey has been chosen as the preferred site for the UK's first fleet of Rolls-Royce SMRs, alongside the momentum behind the Anglesey & Gwynedd AI Growth Zone, marks potentially one of the most significant economic turning points for North West Wales in a generation.

The original Wylfa power station did not simply provide electricity to the grid; it enabled the creation of Anglesey Aluminium, then one of the largest industrial employers in Wales. Together, the two sites supported thousands of well-paid jobs in a predominantly remote rural community and anchored the wider North West Wales economy for decades.

When Wylfa and Anglesey Aluminium closed, the economic shock was profound. The loss of those anchor employers didn't

just remove well-paid jobs; it drained spending power from the local economy, weakened skills pathways and left a long shadow over community confidence.

Since then, too many young people from Anglesey and North West Wales have had to leave to find good-quality work. Many of the talented apprentices originally trained for the Horizon Wylfa Newydd project are now at Hinkley Point C in Somerset. Their success is admirable, but their departure represents a loss to their communities.

If we want to support the Welsh language and the culture that defines Anglesey and wider North West Wales, we must create long-term, local opportunities that allow families to stay together. That is why the decision to proceed with three SMRs at Wylfa – with the potential for up to eight units – is so significant.

Each will generate 470 MW of reliable, low-carbon power, but while the SMR deployment – which is likely in the late 2030s – represents a step change in how nuclear can be delivered (modular, more affordable and easier to finance), its success depends on reducing barriers. The Government's Nuclear Regulatory Taskforce review recently set out reforms

that must now be acted on to reduce delays, duplication and unnecessary cost.

The new nuclear investment also aligns with another major catalyst for the region: Anglesey Freeport. This will unlock inward investment, streamlining planning and preparing industrial sites across the island, including those central to nuclear operations and new digital infrastructure. It strengthens the case for North West Wales as a hub for clean energy, advanced manufacturing and next-generation technology.

The third pillar of this transformation is the Anglesey & Gwynedd AI Growth Zone – one of the most ambitious digital and clean-energy clusters ever launched in Wales. Backed by Stena, Bangor University and the Isle of Anglesey County Council, and centred on Prosperity Parc (the former Anglesey Aluminium site) and Trawsfynydd, the Growth Zone already has more than £10 billion of potential investment interest.

M-SParc – Wales' first dedicated science park – continues to nurture local talent, support innovative businesses and attract high-value employers to the region. Its success,

including a planned expansion, demonstrates that North West Wales already has the research, innovation and entrepreneurial strengths needed to underpin digital growth and the new nuclear programme.

Long-term careers, fast-growing digital and AI roles, and a strengthened skills pipeline across North West Wales – with Coleg Menai, Bangor University and local training providers helping to equip people of all ages for these new opportunities – all offer the chance to keep families, communities and the Welsh language flourishing.

Anglesey has been gearing up for new nuclear since 2008, when 'Ynys Ynni-Energy Island' was born. It has had several false dawns and many supportive stakeholders disappointed by failure to match rhetoric and delivery. The social licence to operate must not be further eroded. The opportunity to deliver on promises must not be lost this time.

Wylfa powered the last industrial chapter of North West Wales. Today, it stands ready to help power the next – creating opportunity, confidence and high-value work for generations to come. It has to deliver, working hand in hand with the host community of Anglesey.

Taskforce calls for radical reset on nuclear regulation

A series of “radical, root-cause solutions” is required to simplify the UK’s nuclear regulatory system and speed up the construction of new nuclear projects at a lower cost and on time, according to the recently published Nuclear Regulatory Taskforce report, led by John Fingleton, former CEO of the Office of Fair Trading.

In its final report, the taskforce outlines 47 recommendations, which

include five root-and-branch propositions:

- Stronger political leadership, including the government providing a robust strategic direction for the civil and defence nuclear sectors
- Establishing a Commission for Nuclear Regulation to be a unified decision-maker across all regulators, planners and approval bodies
- Clarifying risk tolerability

and proportionality, bringing Britain into line with the rest of the world

- Merging the Defence Nuclear Safety Regulator into the Office for Nuclear Regulation
- Avoiding regulation that prioritises bureaucracy over safe outcomes.

The taskforce noted that reforms could lead to faster delivery of reliable low-carbon power, a quicker and cheaper renewal of the nuclear deterrent,

savings of tens of billions from the current projected cost of decommissioning legacy nuclear activities, lower energy costs, and a near-term boost to investment into the UK and economic growth and productivity.

SOURCE: WNN

BEHIND THE SCENES: Inside the development of the Taskforce Report

By Mark Bassett, FNucl; Dame Sue Ion, FEng, FNucl; and Andrew Sherry, FNucl

The proposals in the Nuclear Regulatory Taskforce report have the potential to be a catalyst for the UK nuclear industry. We spoke to three NI Fellows who were at the core of its development – Mark Bassett, Dame Sue Ion and Andrew Sherry – to learn more about the process, the desired outcomes and the timeline.

Q: How was the report developed?

The taskforce was established in May 2025, and we quickly decided on three approaches to gathering evidence from across the civil and defence nuclear sectors to underpin the review:

1. We issued a general call for evidence covering the main themes of our review, and received more than 100 responses from regulators, industry, NGO’s and individuals.
2. We visited nuclear sites and organisations to see first hand how the UK regulatory system impacts on new nuclear build, defence and decommissioning sites.
3. We engaged directly in discussions and workshops

with a range of organisations, to have structured and unstructured discussions. The information-gathering process dominated the four months, with taskforce members engaged in all discussions, each naturally taking the relevant lead in their respective areas. Mark Bassett brought a regulatory and international perspective; Sue Ion brought a dutyholder and industrial perspective; and Andrew Sherry brought a culture, skills and innovation perspective. We also had environmental and planning law input from Mustafa Latif-Aramesh, while our Chair, John Fingleton, offered experience of regulatory systems across a range of other sectors.

Q: The report defines three drivers for costs and delays: risk aversion, process over outcome and lack of incentives. How can each be solved?

Risk aversion has become a systemic cultural issue across our sector, in dutyholders, regulators and the supply chain. This must be addressed by developing a more proportionate interpretation of ALARP (As

Low As Reasonably Practicable), balancing the benefit of risk reduction against the time, cost and trouble needed to do so.

Process over outcome has arisen from the accumulation of changes and additions to safety cases, management processes and operating procedures. We must simplify our approach to safety by: ensuring early and effective engagement between project leaders and a new lead regulator; empowering people by creating a culture of constructive challenge rather than slavish compliance; and developing simplified safety approaches that reduce complexity and are accepted by regulators as being fit for purpose.

Lack of incentives relates to the fact that we are currently, knowingly or unknowingly, incentivising our industry and regulators to perpetuate complexity, time and cost over simplicity and safe delivery. This can be through structures, culture and contracts, and we believe a reset is required, such that incentives encourage everyone at all levels to focus on a more proportionate approach to deliver safety and environmental outcomes.

Q: What is the biggest regulatory challenge and how can it be overcome?

Sue Ion: It is the complexity of our regulatory regime and the siloed approach we take to regulation, where safety, environment and other regulatory areas are addressed independently by numerous regulatory bodies. This is why we have proposed a commission for nuclear regulation and a one-stop shop lead regulator.

Mark Bassett: The UK goal-setting regulatory system, with ALARP and tolerability of risk at its heart, is a strong one, with the dutyholder clearly responsible for safety – but we often fail to secure the true flexibility and innovation benefits inherent in ALARP. Over time, we have become more quasi-prescriptive in regulatory expectations. By implementing our recommendations in this area, we should get a better understanding of the time, cost and trouble side of the ALARP balance, and better clarify what ‘broadly acceptable’ should mean in the nuclear context, while maintaining safety standards

UK initiates site search for new large reactors

The UK government has revealed plans for further nuclear reactors – both large and small – and has initiated a search for suitable sites.

Speaking at December's NIA conference, Energy Secretary Ed Milliband said planning rules are being reformed to expand the areas where projects can be built beyond the eight existing sites and include technologies like SMRs and AMRs.

He said: "I have commissioned

Great British Energy - Nuclear to identify suitable sites across the UK that could potentially host another large-scale nuclear project, including in Scotland. That will report back by Autumn (2026) to inform future Spending Reviews and this will align with the Strategic Spatial Energy Plan (to) inform our future nuclear building programme."

Simon Bowen, Chair of GBE-N, said site identification will be followed – subject to funding

– by the selection of what gigawatt technology to use. He added: "We've got an established technology at Hinkley and Sizewell and that must be a very credible frontrunner or a credible technology for us to continue to develop, but we have to market-test that to see whether there are better value-for-money options."

SOURCE: WNN

and achieving greater international harmonisation.

Andrew Sherry: The human element of what we do – our culture and behaviours – has become acclimatised to being risk-averse, to trust process over outcome and to accept incentives that increase time and cost for little safety benefit. Without a new focus on culture change, we risk addressing the symptom not the cause. Remember 'culture eats strategy for breakfast!'

Q: The report highlights "transformation of the nuclear industry's culture" as fundamental – what does this look like?

All nuclear organisations define their mission, values, and sometimes even behaviours they expect from their workforce – but in many cases, the actual values and behaviours are different from the aspirational ones. Culture change means agreeing on the most appropriate values and behaviours needed to deliver the mission, then incentivising and reinforcing them through three key steps:

1. Understand the culture of the organisation today by having organisational experts carry out an external culture assessment.

2. Develop a clear view of the values and behaviours required to deliver the mission.

3. Understand the delta between aspiration and reality, consider how the culture change can be delivered through training, communication and incentives, and put in place key performance indicators to measure and target appropriately.

Q: Site selection is also outlined as a vital aspect to overcome for widespread SMR deployment – how can this be implemented?

First, as sites are precious, any designated site should be assessed at the outset for maximum capacity. Existing designated sites, which are owned by the NDA or EDF, should be allocated speedily once a credible developer has emerged and the SUPD (Semi-Urban Population Density) criteria should be reviewed to acknowledge the progress in safety of modern advanced reactor systems.

It seems wrong for housing and other developments to be approved closer to existing operating reactor sites while new systems are precluded by SUPD criteria developed decades

ago for older systems. The comments for SMRs also apply to large GW systems.

Q: The report states "the time for action is now" – how quickly do you anticipate implementation and what are the risks of delay?

We put time limits on all our recommendations for a reason. Action is needed urgently and we expect full implementation plans to be available by March. Delay just prolongs the continuation of overly complex, duplicative and neither reasonable nor proportionate application of the system. This is all about achieving safe deployment of modern systems, a new deterrent and faster, cheaper decommissioning.

Change is difficult. It will require leadership at the highest levels of government, dutyholders and regulators to maintain momentum. It will also need strong advocacy within all organisations at all levels. However, the prize – in a world of climate change, security of supply issues and global political challenges – is for Britain once again to have a thriving industry and be a major global nuclear player.

SOURCE: WNN

● The views expressed in this article are the contributors' own and do not necessarily reflect those of the NI.

NEWS IN BRIEF

Dounreay has cleared away a radioactive legacy, generated from the site's efforts to diversify in the late 1980s and 1990s, removing 29 containers of Low-Level Waste produced from the decontamination of oil and gas pipework.

Framatome has completed the manufacture of the reactor pressure vessel for the second of two EPR units being built at the Hinkley Point C nuclear power plant in Somerset, UK.

The US Air Force Research Laboratory's Space Vehicles Directorate has given Intuitive Machines an £8.2 million contract extension to develop next-generation nuclear power systems for spacecraft and lunar infrastructure.

TerraPower has submitted its Sodium reactor and energy storage system into the UK's Generic Design Assessment process in the company's first regulatory step to deploying the technology in an international market.

Aalto Atomics, developer of sodium-cooled small modular reactors, and Microsoft are collaborating on using artificial intelligence to "transform how complex energy systems are designed, approved and built".

EDF and Framatome have announced the launch of a feasibility study aimed at producing cobalt-60 for medical applications in one of EDF's nuclear reactors.

Idaho National Laboratory has launched full-scale production of enriched fuel salt for the world's first test of a molten chloride salt fast reactor.

Hinkley Point B given decommissioning go-ahead by ONR

The UK's Office for Nuclear Regulation (ONR) has granted formal consent to EDF Energy to decommission the Hinkley Point B nuclear power plant in Somerset. The station, which comprised of two Advanced Gas-cooled Reactors (AGRs), was first synchronised to the electricity grid in February 1976 and generated more than 311 terawatt-hours of electricity before it was shut down in August 2022.

Since then, both reactors at

the site have been defuelled in advance of the site moving into its decommissioning phase. The Hinkley Point B nuclear site will be transferred from EDF to Nuclear Restoration Services (NRS), a subsidiary of the Nuclear Decommissioning Authority. NRS will decommission the site, which will involve dismantling and demolishing the plant and buildings, as well site clearance and restoration.

All seven of the UK's AGR plants – Torness and

Hunterston B in Scotland, Dungeness B in Kent, Hartlepool in Teesside, Heysham 1 and 2 in Lancashire, and Hinkley Point B in Somerset – are scheduled to be shut down by 2028. Four AGR plants are still in operation. Hartlepool and Heysham 1 are expected to operate until 2028. Heysham 2 and Torness are currently due to generate until March 2030.

SOURCE: WNN

ONR Focus: New rolling strategy for nuclear regulation

The Office for Nuclear Regulation has introduced a new 'rolling' strategy that represents a significant shift in how it will plan for the future and recognises the need for innovation in regulatory approach and strategic direction.

The ONR says the new approach will provide the agility and flexibility needed to regulate a rapidly evolving sector effectively. Unlike previous strategies it is not time-bound. It will be a living document that will evolve and be updated to take advantage of new opportunities and any potential change in strategic direction.

An initial draft strategy was launched at the end of 2025, with industry feedback sought prior to a 9 January deadline. Mike Finnerty, ONR's Chief Executive and Chief Nuclear Inspector, said: "Our draft strategy sets out a modern, agile and productive regulatory approach, with public trust and strong standards of nuclear safety and security at its heart.

"Being less risk averse and more open to innovation, with more efficient processes and less gold-plating, will help us regulate the industry in a way that enables the sector to deliver the government's ambitions safely and securely – with benefits for the UK and for the public we serve, for generations to come."

NEWS IN BRIEF

Pebbles of X-energy's TRISO-X fuel have begun 13 months of irradiation testing at Idaho National Laboratory to evaluate the fuel across operating scenarios and qualify them for commercial use.

Terrestrial Energy Inc has signed a manufacturing and supply contract with Westinghouse subsidiary Springfields Fuels Limited for the design and construction of an Integral Molten Salt Reactor fuel pilot plant in Preston.

DID YOU KNOW?

Nuclear risk comes in all shapes and sizes – and that even includes swarms of jellyfish! The Gravelines power plant near Calais in France temporarily shut down four of its six nuclear reactors in August last year, when the creatures got into the pumping station filter drums. However, it caused no safety implications.

UK nuclear revolution powers next-gen cancer therapies

The UK's used nuclear materials will be recycled to create an evergreen supply of new precision cancer medicines, offering hope for patients with previously untreatable cancers, following a £9.9 million investment from the Innovate UK Sustainable Medicines Manufacturing Innovation Programme (SMMIP), backed by a further £8.9 million from industry.

Led by United Kingdom National Nuclear Laboratory (UKNNL) and Medicines Discovery Catapult (MDC), the project will use a radionuclide called lead-212 to create Targeted Alpha Therapy treatments. This new application could offer hope to patients with hard-to-treat cancers by targeting and destroying cancer cells with minimal damage to healthy tissue and reduced side-effects.

UKNNL has developed a way to harvest a sustainable supply of lead-212 from recycled nuclear fuel that has already been used to power homes across the country. A tiny amount of lead-212's parent material

– equivalent to a single drop of water in an Olympic-sized swimming pool – is extracted through a series of chemical reactions. An even tinier amount of lead-212 is taken from this sample, which, when developed under the right conditions by scientists at MDC, could treat thousands of patients.

The UK has large reserves of lead-212, meaning this approach could be scaled up to power new cancer treatments for patients in the UK and worldwide. The funding from the SMMIP will develop the foundations needed to support clinical trials and bring these treatments to patients. This will unlock the UK's full potential as a global leader in this groundbreaking area of cancer care.

SOURCE: Press Release

This could offer hope to patients with hard-to-treat cancers

BY THE NUMBERS

Nuclear jobs

The increasing commitment to nuclear within the UK's net zero future is fuelling rapid rises in job numbers, with thousands of new workers joining the sector last year and the prospect of many more to come. Here are some of the numbers behind this impressive growth...

55 The percentage rise in nuclear jobs over the past decade

11,000 The number of new jobs in a year fuelled by Sizewell C and Rolls-Royce SMR

98,173 The number of people employed across the sector, according to the NIA's annual Jobs Map – a record high that makes Britain one of Europe's largest nuclear workforces

3 The multiple by which the South West nuclear workforce has risen due to Hinkley Point C since 2015 – with more than 31,000 now employed in the region

70,000 The number of jobs across the country that are set to be generated in support of Sizewell C

12,000 The number of people employed on decommissioning work at Sellafield

17 The percentage rise of nuclear employees in Wales compared with last year – a total of just under 1,000

3,000 The number of jobs set to be created in Wales to support the Rolls-Royce SMRs at Wylfa



13,500 The number of jobs in the defence sector in Barrow – an increase of more than 7% since July 2024

7,600 The number of jobs estimated to be created by the boom in technology collaborations following the UK-US collaboration agreement

5,413 The number of nuclear jobs in Scotland – a regional growth of just 5%, because of a lack of new projects.

SOURCE

Nuclear Industry Association <https://www.niauk.org/uk-nuclear-jobs-surge-near-100000-from-record-government-investment/>

To join, volunteer and get involved, find your nearest branch on the NI website and get in touch: www.nuclearinst.com/NI-Regional-Branches

Record-breaking attendance at NI/NIA Annual Dinner

NI HQ

Contributor: James Barker

The Nuclear Institute and Nuclear Industry Association welcomed a record 1,924 guests to the Grosvenor House Hotel in London at the start of December, to celebrate a momentous year for the industry.

NI CEO Robert Gofton said: "What a fantastic evening. The NI/NIA Annual Dinner is now the must-attend event of the year. It brings together the whole nuclear family in a setting that matches the occasion. JW Marriott

Grosvenor House, on Park Lane, sits in the heart of Mayfair and offers a five-star backdrop worthy of celebrating the age of nuclear.

"The event sold out in August – the fastest sellout to date – so the demand speaks for itself. We are grateful to everyone who attended, and especially proud of the collaboration between the NI and the NIA. Both organisations share a clear commitment to delivering an exceptional evening for our individual and company

members. It will be a challenge to top this for 2026, but we will give it our best shot. Keep an eye out and be ready to celebrate again next year."

The event also supported Papyrus, which is the UK charity dedicated to the prevention of suicide, and the promotion of positive mental health and emotional wellbeing, in young people.

Special thanks to all the event sponsors for their support in 2025. Platinum sponsors: Amentum, KBR/

Frazer Nash Consultancy, Dassault Systemes, Westinghouse, Morgan Sindall Infrastructure, BakerHicks, and AtkinsRéalis; After-dinner sponsors: Cavendish Nuclear; AV sponsors: Laing O'Rourke; Gold sponsors: Mactech, Costain, Tectubi Raccordi, Framatome, Alpha Safety, Hochtief, Manufacturing Technology Centre, Honeywell Federal Solutions, Ansaldo Nuclear and Bocard.

Save 3 December in your diaries for the 2026 event.

Presenter slots open for Postdoc Conference

NAILS Committee

Contributor: James Barker

This year's Postdocs and Industry in Nuclear Energy (PiNE) meeting – previously known as Postdocs in Nuclear Energy – will take place at the University of Strathclyde in Glasgow on 14-15 April 2026.

The event will bring together postdoctoral or equivalent-level researchers working in nuclear

energy across the UK. There will be an expanded focus on collaboration between postdocs and industry professionals, aiming to strengthen connections between academic research and practical applications in the sector.

As always, PiNE offers an informal and supportive environment, where researchers

can share their work, explore collaborative opportunities and learn more about developments in nuclear energy research and innovation.

Abstracts are invited for presentations in the following categories:

- Materials
- Robotics, automation and AI
- Fuels

- Radiochemistry
- Reactors (fission and fusion)
- Waste management and disposal
- Decommissioning and remediation
- Regulation and policy, and careers.

For more information, please visit pine-2026.github.io/PiNE-2026-website

Innovation Special Interest Group launched

Innovation SIG

Contributor: Phoebe Lynch and Jake Surman, Co-Chairs

A new NI Special Interest Group (SIG), Innovation SIG, has been launched to cover all forms of innovation relevant to nuclear – including technologies at TRL 4+, strategic innovation and new ways of working – with the view to integrating these into business-as-usual.

The SIG will promote best practices, facilitate knowledge transfer and encourage creative problem-solving. It is open to NI members, partner organisations and stakeholders from diverse

disciplines who wish to:

- Advise on innovation initiatives
- Identify skills gaps
- Organise innovation-focused events
- Conduct peer reviews
- Promote a mindset of openness and experimentation.

The Group will be co-chaired by Phoebe Lynch, Nuclear Restoration Services, and Jake Surman, Environment Agency. They can be contacted at innovationsig@nuclearinst.com

New chair for the SMR Special Interest Group

SMR SIG

Contributor: Rebecca Hughes

Dr Robbie Lyons is standing down as Chair of the Small Modular Reactor Special Interest Group (SMR SIG), having led the group since 2022. He will hand over to Steering Committee member Amritpal Agar.

As Chair, Dr Lyons drew on his PhD research into the effect of supply chain configuration on small modular reactor economics, helping the group make tangible contributions to the discussion of SMRs and their potential to change the civil nuclear energy paradigm.

We thank him for his work in making the SIG a success.

The Steering Committee is currently focused on engagement with the NI membership and wider nuclear sector through event participation. Having contributed to the Digital SIG's 2025 conference in October, it now intends to host its own event, framed around the thought leadership produced by SIG members.

Members who would like to contribute to the SIG should contact smrsig@nuclearinst.com.

To find out more about events taking place near you, contact your nearest branch or visit www.nuclearinst.com/Events

Communication and SES in the spotlight

Central England Branch

Contributor: Alex Thomas

The branch held two enthralling events at Harwell during the final quarter of last year. At the first, Professor Adrian Bull MBE, from the Dalton Nuclear Institute at the University of Manchester, discussed the origins of the UK nuclear industry, while, at the second, Tom Blaser, Lead Consultant at NSG Environmental, gave an overview of the process for developing post decommissioning Site End State (SES) strategies.

Bull's talk covered nuclear's

rollercoaster ride from post-war positivity through to its present-day position – including an interesting insight into why it took almost 30 years to recover to the point where Hinkley Point C was endorsed, in 2016. The event concluded with a lively discussion about nuclear messaging, in which Bull stressed the need to listen before speaking, identify common ground, and communicate early and often, without being afraid of not knowing all the answers.

Blaser, meanwhile, highlighted the importance of

SES planning in supporting safe, cost-effective clean-up, enabling beneficial reuse and compliance with regulatory obligations. He explained how SES strategies must include a Waste Management Plan and a Site-Wide Environmental Safety Case, and used a case study to illustrate the systematic approach. He highlighted two key lessons: the early and frequent engagement of regulators, and maintenance of a clear audit trail of assumptions and decisions made.

New drive for North East business development

North East Branch

Contributor: Phil Vaughan, FNucl

Branch members attended the inaugural meeting of the NOF Nuclear North East England Stakeholder Group in November. This brought together the regional cluster with the aim of positioning it as a key hub for the nuclear industry, supporting two power plants planned for Hartlepool and Billingham, plus the activity from Rolls-Royce SMR.

The region has long played

an active role in nuclear, with the EDF (UK) power station at its centre and an experienced local supply chain, which includes leading global businesses. NOF is a trade organisation with a long history of success in various energy sectors, and the establishment of the cluster will be of great assistance to the nuclear sector.

The NI NE Branch is now seeking to develop an events

programme to complement the NOF commercial drive. It will hold quarterly 'News and Nuclear Professionalism' sessions at Hartlepool College in 2026, featuring talks from local companies, plus a series of 'lunch and learn' sessions, starting with the major nuclear companies in the region.

To find out more about the NI NE Branch, contact: chair.northeast@nuclearinst.com

Event puts Hartlepool past and future in focus

North East Branch

The branch took up residence at Hartlepool College of Further Education at the end of last year, for a fascinating and fruitful set of talks on current and future projects in Hartlepool and the wider region.

The talks began with an introduction by Gary Riches, who reiterated the goals of Hartlepool College and its desire to continue playing an active role in bringing nuclear to

the region. This was followed by Branch Chair James Bewley giving an overview of projects in the region, and wider news from the industry, including discussions on: the recently issued Nuclear Regulatory Task Force report; the first convening of the NOF Nuclear North East England Stakeholder Group; and the Nuclear Institute Nuclear professionalism standard.

Guests then enjoyed a talk

on Hartlepool Power station by Alan Davies, who first powered on the station in 1983 and went on to work there for many years.

Mick Renshaw CEng CMgr MISTructE FIMechE FCI finished off events with an excellent presentation on Cavendish Nuclear's work with X-energy UK to develop the construction feasibility study for the new AMRs due to be built in Hartlepool.

Financial training for NI members

NI HQ

Contributor: James Barker

The NI has engaged with the Association of Accounting Technicians (AAT), the world's leading professional body for accounting technicians, to provide specialist financial training options for its members, with a special discount on two of its courses.

Business Finance Basics for Finance Professionals is aimed at those looking for a renewed understanding of financial concepts, covering the core skills that underpin sound financial planning and management, while Business Finance Basics for Non-Finance Professionals will support understanding of key financial statements and accounting concepts for those seeking to understand financial planning and management.

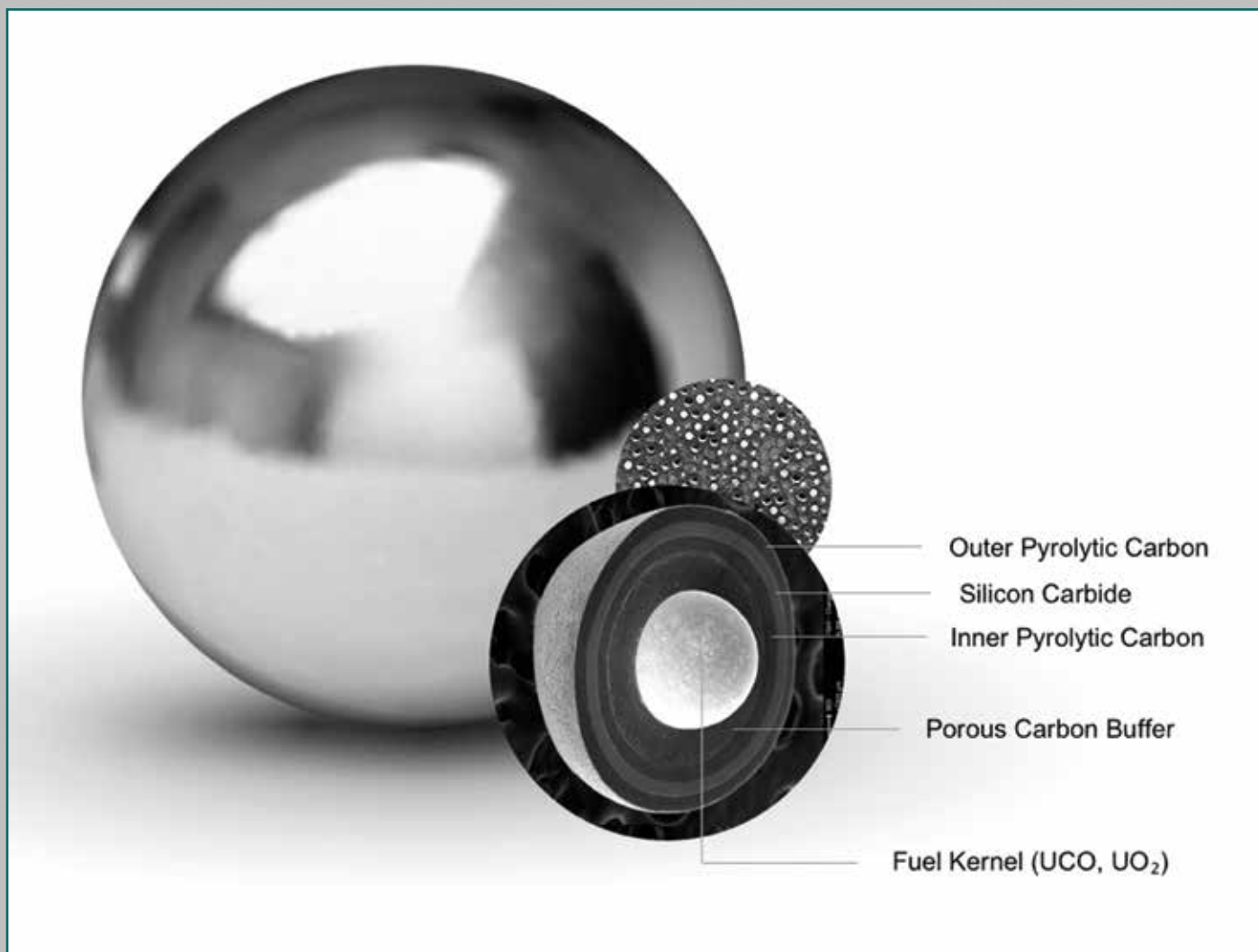
Each course involves a three-hour session consisting of six modules, including video tutorials and interactive learning.

Robert Gofton, NI Chief Executive Officer, said: "As part of our commitment to developing our members, we're proud to launch this new partnership.

"In today's nuclear sector, financial literacy isn't just for finance teams; it's a core skill for professionals at every level.

"Whether you're early in your career, managing budgets, or looking to better interpret financial reports, these courses – especially those tailored for non-finance professionals – will empower our members with essential management capabilities."





TRISO FUEL

The hand in this image is holding a tri-structural isotropic (TRISO) fuel pebble.

The spherical pebble contains tens of thousands of tiny TRISO fuel particles, each about the size of a poppy seed. Each particle contains a uranium, carbon and oxygen fuel kernel at the core, encapsulated in layers of carbon- and ceramic-based materials to prevent the release of radioactive fission products.

The particles act as their own containment system, allowing fission products to be retained under all reactor conditions. They cannot melt in a commercial high-temperature reactor and can withstand extreme temperatures that are well beyond the threshold of current nuclear fuels. This image shows X-energy's version of this fuel, known as TRISO X.

Ignite your nuclear future: connecting talent, technology and opportunity at the Nuclear Institute Professionals Conference 2026

The UK nuclear industry is entering a transformative era. With ambitious new build projects across fission and fusion, significant expansion in the defence sector, life extension and decommissioning of existing assets, the demand for skilled nuclear professionals has never been greater.

Against this backdrop, we are launching its first Professionals Conference in May 2026, dedicated solely to supporting the personal and professional development of those in the nuclear sector, regardless of role specialism.

This conference is designed to provide a dedicated programme that supports career progression, showcasing the full spectrum of nuclear skill across technical and non-technical disciplines.

It also aims to unite the UK nuclear workforce by fostering a strong sense of community and belonging across organisations, and provide an inspiring day of connection, learning and innovation.

Following the publication of the *Nuclear Regulatory Taskforce* report in November,

this need to focus on the development of skills and knowledge in the sector across all disciplines couldn't be more timely as we look to support the rapid implementation of the report's recommendations. The conference also aligns directly with the National Nuclear Strategic Plan for Skills, reinforcing our commitment to professional development and community building.

With 500 delegates expected, the scale of this conference speaks volumes. For you, this translates into:

- **Networking at scale:** Build relationships across disciplines, organisations, and career stages.
- **Knowledge sharing:** Gain insights from experts and peers on emerging technologies, leadership strategies, and sector priorities.
- **Professional recognition:** Showcase your expertise and learn how to achieve chartership, professional registration and Continuing Professional Development (CPD) milestones.

SEVEN ZONES OF OPPORTUNITY

Unlike many existing industry conferences that focus on particular technical topics, policy, regulation or project updates, this conference will prioritise skills, wellbeing, inclusivity and professional growth.

The conference experience is intended to be immersive, interactive and inspiring, with seven themed zones:

1. Equity, Diversity & Inclusivity Zone

For members committed to EDI, this zone offers practical strategies, bias-busting tools and discussions on cultural competency and neurodiversity.

2. Mental Health & Wellbeing Zone

High-pressure environments demand resilience. This zone provides resources, mindfulness sessions, and expert-led talks on managing stress and preventing burnout – critical for sustaining long-term careers in nuclear.

3. Nuclear Business Services Zone

Explore finance, HR, compliance, and operational excellence. NI members in business services will gain insights into funding models, risk management and workforce planning.

4. Career Development Zone

A highlight for members seeking progression. From CV clinics and interview coaching to chartership guidance and CPD pathways, this zone is a one stop shop for advancing your career.





By attending, you aren't just keeping pace, you're helping set the pace."

5. Technology Zone

Engage with innovations like AI, robotics, VR/AR and cybersecurity. See how digital tools are reshaping safety, efficiency and collaboration, and be able to discover opportunities for cross-sector partnerships.

6. Networking & Mentoring Zone

Structured networking sessions, themed meetups and mentorship matchmaking. Whether you're seeking a mentor or offering guidance, this is where lasting professional relationships begin.

7. Leadership Zone

For aspiring leaders, this zone offers coaching, scenario planning, and strategic insights. NI members can learn from established leaders and develop skills in strategic thinking, crisis management and inclusive leadership.

WHO SHOULD ATTEND?

The nuclear sector is evolving rapidly. New technologies and workforce challenges demand fresh thinking and collaborative solutions. By attending, you aren't just keeping pace, you're helping set the pace.

Therefore, the conference is aimed at nuclear professionals across all disciplines including science, engineering, business services (such as finance, HR, marketing, IT,

project management) and academia who are interested in their professional development, specifically around:

■ Professional registration support

Access guidance on achieving chartership and maintaining CPD compliance. This is a direct route to strengthening your professional standing within the sector.

■ Alignment with the Nuclear

Professionalism Standard®
Build experience to support an application for Member (MNucl) or Fellow (FNucl), demonstrating you can consistently uphold the highest standards of nuclear safety culture, professional ethics, and personal responsibility.

■ Discounted Access & Added Value

Tickets include Nuclear Institute membership for non-members, making it an ideal opportunity to introduce colleagues to the Institute's benefits. Limited free tickets will be available for students, reinforcing our commitment to inclusivity.

■ Mentorship & Community Building

Engage with our mentorship programme and complementary stakeholder groups, such as Women in Nuclear UK. Build a network that supports your career journey and creates new opportunities.

■ CPD-Accredited Learning

Workshop and panels will be CPD-

accredited, ensuring that your time at the conference contributes directly to your professional development goals.

What's more, the conference will be followed by the North West Branch Annual Dinner.

Next year will be the 77th year of this flagship event that regularly welcomes over 600 attendees, allowing conference attendees additional networking opportunities in a social setting.

OPPORTUNITIES FOR COMPANIES & SPEAKERS

The conference isn't just for delegates: it's a platform for organisations to shine and reach a wide range of professionals under one roof. Sponsorship and exhibition packages are available with a range of benefits to raise your organisation's visibility to this specialist audience.

With the North West Branch Annual Dinner this same day, we are also welcoming combined sponsorship to cover both the conference and the dinner. Contact events@nuclearinst.com if you'd like to find out more and for the latest availability of packages.

HOW TO GET INVOLVED

Registration is now open – visit nuclearinst.com/events to secure your place. NI members, of course, receive the best ticket rates and we encourage group bookings with bulk ticket options available.

This is more than a conference – it's an investment in your future, your network and your professional growth.



Early careers leadership

By Russell Morris, Principal, Capability Development at Nuclear Waste Services

The nuclear industry is growing, and the ability to safely and efficiently deliver on all aspects, from producing power to managing and disposing of nuclear waste, is crucial. Taking a proactive approach to the development of the next generation of employees is as essential as delivering the

technical innovations that will drive the nuclear sector forward.

Almost all nuclear infrastructure and operations projects stretch across generations, which means we not only need the right skills and the right people for present-day operations, but we need the

skills and generational development to grow throughout a nuclear lifetime – which could be upwards of 100 years.

As such, apprenticeships programmes, group graduate schemes, training programmes and school outreach initiatives are an essential part of finding, nurturing



There is now, more than ever before, a strong need and demand for apprenticeships.”

the early career stages – and doing this the right way is an essential part of any nuclear company’s leadership strategy. The NDA group, for example, has more than 1,000 individuals in an early careers programme, and NWS is currently supporting 18 apprentices and 33 graduates across disciplines including nuclear science, project management, facilities management, commercial, finance, cyber, engineering and HR. Not only is this developing leadership talent within NDA, but it is building vital skills and expertise that will be relevant and beneficial to the wider industry.

Stepping down a level on the leadership ladder, investing in the education and development of students can be approached in many ways. Attending careers fairs to showcase the different opportunities and career paths within the industry, for example, is as important for building up awareness and positivity in the industry as much as it is in helping to highlight apprenticeship and work experience opportunities. One approach taken by NWS is to visit schools and support student mock interviews, delivering curriculum-aligned lessons and setting school projects for students to help build teamwork and leadership.

Wider initiatives, such as the Dream Placement Programme and Bright Stars Competition – which are both coordinated by the Cumbria-based Centre of Leadership Performance – provide opportunities for companies such as NWS to provide direct, one-week work experience, where students can learn more about careers and leadership. Participating companies can often learn from the students, too.

Teddy Waning, a Dream Placement student who went on to join NWS, explains: “I saw first hand the organisation’s commitment to developing the next generation. That experience confirmed that NWS was where I wanted to build my career. I later joined as a Nuclear Scientific Degree Apprentice

and, two years on, I’ve benefited from a wide range of technical and personal development opportunities.

“Working across two teams has exposed me to different leadership styles and taught me that effective leadership isn’t ‘one size fits all’. It’s about adapting your approach, communication and mindset to the people around you. That culture of adaptable, supportive leadership is one of NWS’s greatest strengths when working with early careers.”

The Bright Stars programme, meanwhile, is firmly fixed on the earlier years. It is a competition in which primary school pupils are challenged to develop their own social enterprise to ‘make a profit and make a difference’. The aim is to nurture a culture of aspiration and enterprise among the pupils – and it has proven to be a great way to support the learning and development of the future generation while investing in local communities.

Other examples of successful outreach approaches are focused on supporting underprivileged individuals who may otherwise be unable to follow their career potential. The Nuffield Research Programme, for example, allows companies such as NWS to welcome students from low-income backgrounds who are expected to be the first in their immediate family to attend university. It offers engaging, hands-on, project-focused work experience for students aged 16-17 years old, giving them the chance to work with internal experts on a practical research question and make a meaningful contribution to the work of the host.

The Change 100 Programme, meanwhile, is an award-winning internship programme, coordinated by Leonard Cheshire, that supports paid work placements and mentoring for talented students and graduates with disabilities or long-term conditions. It aims to remove barriers experienced by disabled people in the workplace so they can achieve their potential.

Having the right people, with the right skills, at the right time will be critical as the industry moves into this next period of growth. The success of the industry rests on early careers programmes such as these building the leadership skills required in the next generation. These programmes will continue to evolve as we invest in the next generation, with the dual focus of delivering on company missions while contributing to the wider Nuclear Skills Plan of attracting, retaining and enabling our future leaders.

and developing our industry’s future leaders.

There is now, more than ever before, a strong need and demand for apprenticeship and graduate development programmes. One of the biggest value elements these programmes offer is identifying and schooling good management skills at

Masculinity in engineering – a barrier and an opportunity

By Dr Mark McBride-Wright, MBE, CEng, FIChemE, FEI

Very few industries experience moments where the slate is almost clean and a new culture, new workforce and new identity can be shaped from the ground up. Nuclear is at that moment right now.

We are entering one of the most exciting periods in its history with the emergence of entirely new subsectors, from SMRs to fusion research, and as someone who has worked at the intersection of engineering, safety culture and inclusion for over a decade, I find this moment both energising and full of possibility. I have seen first-hand the level of curiosity and appetite for change – and at its core is how this new culture will be shaped by

the way each of us chooses to show up.

Masculinity in engineering research carried out by EqualEngineers highlights a pattern familiar across high hazard sectors – that many engineers, particularly men, grow up in environments that reward toughness, self-reliance and emotional suppression. These traits can be useful in certain high pressure technical situations – but they also create significant challenges for speaking up, asking for help, raising concerns or showing vulnerability.

The most recent survey, carried out in 2022, identified that more than four fifths of the respondents had experienced some form

of emotional or mental health issues, with more than 70% feeling that men are expected to control their emotions by not showing weakness, fear or crying openly and only 50% saying they felt comfortable talking about stress with their employer.

In safety critical environments, cultural behaviours can become cultural risks. If people hesitate to share what worries them, or feel pressure to appear strong at all times, hazards can be missed and psychological strain grows. The nuclear sector cannot afford a culture where silence is normal.

THE SAFE LEADER FRAMEWORK

The SAFE Leader Framework – which stands for Share, Act, Feel and Empower – reframes leadership by connecting psychological and physical safety. It encourages people at all levels to share their story, act with purpose, feel the impact of their behaviour on others and empower those around them to speak up.

This was recently seen in action during the EqualEngineers Pathways Programme insight day at the UK Atomic Energy Authority, where students, apprentices and experienced engineers shared why they chose nuclear and what safety means to them. When people feel safe to speak openly, they become more invested, more confident and more capable of contributing to high performing teams.

The coming years will define what it feels like to work in nuclear for generations. We have a chance to build a culture that welcomes diversity of thought, removes barriers for men and women to speak openly and sets new standards for safety and inclusion. As we welcome a new generation of nuclear talent and see widespread intergenerational transition, we have a window to reset expectations and behaviours. By getting recruitment, retention and culture right, we will determine the success of nuclear's next chapter.

To find out more about EqualEngineers and to join a complimentary future workshop, please visit: <https://equalengineers.com/tsl-workshop/>



Fuelling net zero: TRISO fuel for high-temperature gas-cooled reactors

By Thomas Haynes, University of East Anglia

To decarbonise industry, advanced nuclear reactors offer the opportunity to move beyond traditional baseload electricity generation and provide heat for energy-intensive industries, many of which require heat in the range of 250 to 550°C.

Traditional light water reactors and carbon dioxide cooled reactors, such as the UK's legacy advanced gas-cooled reactors, sit at the bottom of the temperature range, limited by the corrosion of their respective zirconium and graphite core internals. In contrast, helium-cooled reactors are able to reach much higher temperatures as their compatible TRISO fuel contains a kernel of uranium dioxide surrounded by layers of carbon and silicon carbide, forming a theoretically hermetic seal between the kernel and the primary circuit.

My work involves developing computer models to predict how TRISO fuel behaves during manufacture, routine operation and plant upsets. These take the form of both traditional finite element-based models and peridynamic models, which predict both the underlying mechanisms and circumstances in which TRISO particles can fail and fission products will be released.

HOW DID I GET HERE?

While doing my degree in physics, I did an undergraduate literature review on the Windscale fire, so I had an early interest in nuclear. However, when I completed my degree in 2008, opportunities in the nuclear industry were limited and I got a job as a Transport Modeller in Notting Hill and then trained to become a physics teacher. A friend who worked in the Nuclear Safety Group at Sizewell B offered to show me round his power station and I remember thinking 'I wish I'd done this with my career'. So, inspired by this, I did an MSc in Nuclear Engineering at Imperial and stayed on to complete a PhD in Materials Science under Professor Mark Wenman,



sponsored by EDF. I went on to complete several post-docs, mainly with UK-NNL, then secured an academic position in Nuclear Engineering at the University of East Anglia.

HOW THIS HELPS THE INDUSTRY

Previous models for TRISO fuel performance have assumed that TRISO particles are perfectly formed spheres, which are placed into a vacuum in a stress-free state before being irradiated. They aren't. TRISO particles go through many manufacturing steps and have a diverse morphology with variable shapes, coating thicknesses and porosity. Recent work at Imperial, Bristol and East Anglia has shown that this results in high residual stresses before the particles are even encapsulated.

Just recently, my PhD student Udemé Inyang-Udoh published a paper showing that encapsulating the particles in either graphite or SiC has a substantial impact upon the stress state in the particle's SiC 'pressure vessel' layer when the fuel enters the reactor. This is in addition to the impact of delamination at the interface between the fuel kernel and pyrolytic carbon. Unlike UO₂ fuel pellets, TRISO particles enter a reactor with a history.

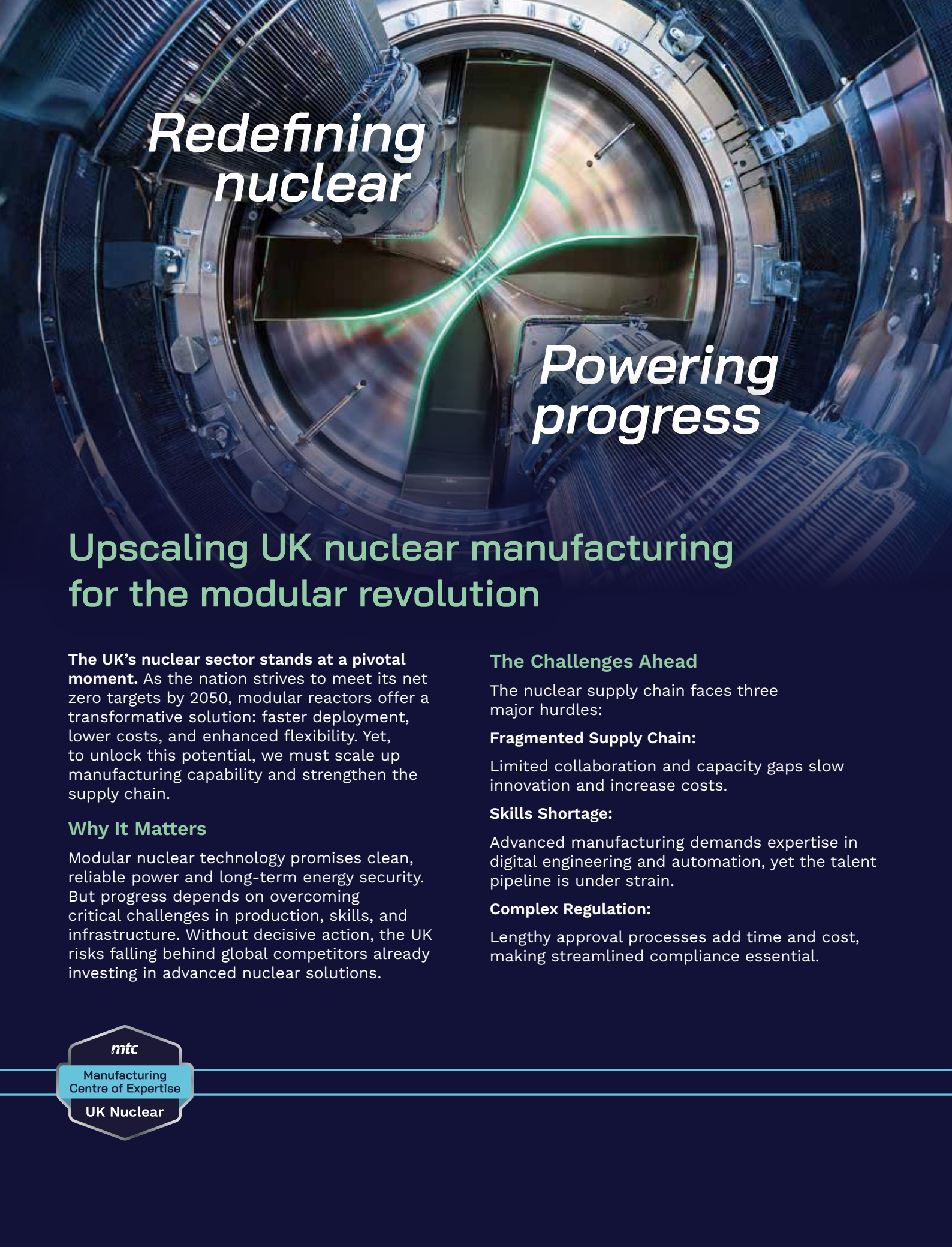
Developing models can inform the manufacturing parameters and tolerances for fuel for the next generation of reactor. However, my work is also about inspiring and training the next generation of nuclear professionals. Nuclear Engineering has a terrific potential to inspire students in many ways, including generating radioisotopes to cure cancer, working on the largest construction projects in the world, or powering space travel. I support students in their dissertations and work with industry people to give them a solid, grounded industrial focus and many of our keenest and brightest minds are now going into the nuclear industry.

WHAT'S NEEDED TO MAKE IT A SUCCESS?

We need to work together with people in industry and academia on different continents to solve problems and develop new nuclear technology such as high-temperature reactors and TRISO. There are no longer any test reactors at UK universities, so we need to go overseas for any meaningful engineering-scale irradiation. From a fuel performance point of view, if the UK industry is to remain an intelligent consumer, we need to maintain our meaningful links with facilities and programmes across the world. If we really want to become world-leading in this technology, we need to develop a test reactor in the UK as well as the infrastructure to use it.



My work is also about inspiring and training the next generation



Redefining nuclear

Powering progress

Upscaling UK nuclear manufacturing for the modular revolution

The UK's nuclear sector stands at a pivotal moment. As the nation strives to meet its net zero targets by 2050, modular reactors offer a transformative solution: faster deployment, lower costs, and enhanced flexibility. Yet, to unlock this potential, we must scale up manufacturing capability and strengthen the supply chain.

Why It Matters

Modular nuclear technology promises clean, reliable power and long-term energy security. But progress depends on overcoming critical challenges in production, skills, and infrastructure. Without decisive action, the UK risks falling behind global competitors already investing in advanced nuclear solutions.

The Challenges Ahead

The nuclear supply chain faces three major hurdles:

Fragmented Supply Chain:

Limited collaboration and capacity gaps slow innovation and increase costs.

Skills Shortage:

Advanced manufacturing demands expertise in digital engineering and automation, yet the talent pipeline is under strain.

Complex Regulation:

Lengthy approval processes add time and cost, making streamlined compliance essential.

mtc

Manufacturing
Centre of Expertise

UK Nuclear

MTC is uniquely positioned to help industry overcome these barriers and accelerate the UK's nuclear ambitions.

MTC - Driving Solutions for a Nuclear Future

Large-Scale Nuclear Expertise

MTC brings hands-on engineering expertise to large-scale reactor projects, delivering advanced manufacturing solutions that cut lead times and costs. Our modular approach ensures consistent quality while reducing operational risks.

SMRs & AMRs

By utilising modular approaches, we reduce construction timelines and expense, deliver projects faster and ultimately minimise the risk associated with SMRs.

Fusion Component Manufacturing

Our Component Manufacturing Technology team specialise in crafting fusion components with precision and reliability. We're equipping industry with the skills and processes needed to master digital engineering and produce high-quality fusion components.

Talent for Tomorrow

The future of nuclear depends on a skilled workforce. Our advanced training centre works with industry to develop training programmes that prepare engineers for next-generation technologies, ensuring resilience and long-term capability.



Partner with Us

Together, we can redefine nuclear manufacturing and secure a sustainable energy future.

Discover more at www.the-mtc.org or scan the QR code.

Save the Date

National Nuclear Manufacturing Conference

Empowering the golden age of nuclear.

NNMC26 will convene industry leaders from across fission and fusion to accelerate capability and turn momentum into industrial strength.

Scan here
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Thursday 9th July 2026 | MTC Coventry

MTC combines hands-on engineering expertise with cutting edge technology to solve manufacturing challenges for businesses of all sizes - all delivered by one independent organisation that feels like part of your team.



The build-and-repeat benefits of Sizewell C

As Nigel Cann steps into the role of CEO, he tells Nuclear Future about the build-and-repeat benefits of Sizewell C in his first interview in post – by Nick Osbourne, Sizewell C

Sizewell C was described in an independent report last year as “likely the best prepared nuclear project in modern nuclear history”. Now, with final investment committed and the site ramping up to take the project forward, the company’s new Chief Executive Officer, Nigel Cann, is confident about the challenge ahead. That ‘best prepared’ statement is certainly bold, he says, but there are many reasons to believe Sizewell C is uniquely placed to deliver on that promise.

Cann was appointed to his new role in December, after leading the project to financial close as Joint MD with Julia Pyke. Having started out as a 16-year-old apprentice at

Dungeness A in 1980, Cann’s career journey took him to Sizewell B before he stepped up to Station Director at Hinkley Point B and, eventually, Delivery Director at Hinkley Point C. He has worked on every nuclear technology available in the UK, and offers unique experience of operating and building nuclear power stations.

Sizewell C will be a near copy of Hinkley Point C in Somerset, and that is one of the reasons the Enco report came to its strong conclusion – identifying that the “replication case” means the project has “high chances of avoiding pitfalls” that can lead to schedule and cost overruns. Cann concurs, explaining:

“Copying Hinkley means we began with a fully fixed design. Hinkley didn’t have that design certainty – they had to make around 7,000 changes mid-flight. We’ve only had to make around 60. That’s one hell of a head-start – and cost certainty is just one of the benefits that gives us.”

The ‘build and repeat’ approach is already paying dividends at Hinkley Point C, where there are significantly greater efficiencies in the construction of Unit 2 compared with Unit 1. Construction for the liner cup floor, for example, was 30% quicker at Unit 2 than at Unit 1, while the time taken to pour the concrete for the base slab improved from 10 months for



Unit 1 to just seven for Unit 2.

"You basically have to think about Sizewell C as Units 3 and 4 in a series," adds Cann. "We are going to benefit massively from the gains Hinkley Point C is making and we would expect to transfer, and even improve on, that upward trend in efficiency."

STORAGE, OFF-SITE WORKING AND DIGITISATION

Replication brings with it many added benefits, most notably the ability to plan and implement more aspects earlier in the programme. To that end, Sizewell C announced last year that it had agreed the lease of Orwell Logistics

Park, in Ipswich, securing a million square feet of space for storage, logistics and freight management – one of the largest lettings transactions in the UK. The move represented a big opportunity for Sizewell C to stay ahead of the game. "That's another advantage of the design certainty that replication gives us," says Cann. "It means we can order and store components early, so they're ready for when we need them."

"Take our switchboards as an example: manufacturing started on those in September last year and they'll be ready in 2027. That's several years before we are going to need them. Manufacturing continuity is a great

“

We can order and store components early, so they are ready for when we need them.”



To build the first in a series is always quite difficult, but to not build more is criminal.”

advantage. We’re essentially coming in right after the order has been completed for Hinkley Point C, so we’ve been able to secure the same supply chain, the same people to build them, and significantly reduce the risk of the equipment becoming obsolete. And by securing Orwell Logistics Park, which is down the road from our construction site, we have a great place to store them.”

Manufacturing continuity is making big gains across the project. Around 80% of the components are already forged for Unit 1 of the power station, while 50% of Unit 2 is also complete.



“As well as storing off site, the project is looking to move as much work into off-site factories as possible, too. This is motivated, in part, because Sizewell and Suffolk cannot accommodate the same amount of people that Hinkley and Somerset can, and, in part, because of the commitment the project has made to minimise the impacts on the local community. However, it’s also simply about efficiency.”

Cann adds: “Off-site welding is a good example of the efficiencies of moving work away from site. We simulated a room of the power plant and a module of pipes and valves which need welding, and we showed that – by doing this in a factory, rather than on site – we can reduce the number of welds by 37%. That’s a big time and cost saving. This was just a first test and we’re now looking at phase two. Our plan is to have a factory in the UK doing these welds throughout the main construction phase.”

Off-site production, increasing modularisation, and prefabrication are all things that are not possible to the same extent when building a first-of-a-kind project. As part of a fleet, however, there is more time and resource available to improve efficiency.

“It sounds contradictory, but copying also allows us to innovate,” says Cann. “We don’t want to change the ‘what’ of Hinkley, but working from a fixed design means we can interrogate the ‘how’. That means we can do more modularisation than Hinkley could do, we can build more in factories off site, and we can push much more on the ‘how’.”

Sizewell C is also hitting the main construction phase at a time when digitisation

has advanced significantly as a tool.

“The digital world moves fast,” says Cann. “We have more advanced tools at our disposal than Hinkley did at the same stage, so we’re working very hard on how digitisation can help us. What can we do with AI? What can we do with machine learning to add value? It’s integral for us to harness the power of those technologies.”

The project has already made digital strides, with integrated digital platforms, virtual reality inductions and digital immersion rooms – high-tech meeting rooms that use large-scale projections to create an immersive, 360-degree virtual environment of the construction site and project data.

“The digital immersion rooms, which we’ve developed with one of our partners, Atkins, are really exciting,” says Cann. “They will allow us to make dynamic decisions about issues on site, get instant advice, and make real-time decisions based on all the available data. The time and resource that will save could be transformative.”

SUPPLY CHAIN, SKILLS AND SCHOOLING

All projects ultimately come down to the people who build them, and replication gives Sizewell C an advantage when it comes to the supply chain. In effect, it has been gifted a ready-made supply chain from Hinkley, taking on the civils team that worked over in Somerset.

“It’s another massive head-start,” says Cann. “No other major infrastructure project in the past decade has started with that kind of advantage. We’ve already got a significant

number of those replication contracts signed with Hinkley's supply chain."

That is good news for many businesses up and down the country. Sizewell C has already delivered in excess of £2.8bn in contracts for more than 400 UK suppliers – and it will award 70% of its construction value to UK businesses during construction. In its home county of Suffolk, it is creating many contracts for local businesses, and has so far awarded £941m of contracts to businesses in the East of England, of which £581m has been awarded to local business in Suffolk. The project has also opened a new office in Manchester to attract talent in the region, and after almost two years of construction, the project has already delivered £168m in contracts to businesses in the North.

Suppliers and communities right across the UK are benefiting from the opportunity of Sizewell C today – from steel makers in Rhondda to bus manufacturers in Ballymena; welders in Hull and Aberdeen to concrete suppliers in Leiston in Suffolk – and that shoring up and expansion of the nuclear supply chain and infrastructure skills capability will be a huge legacy of the project.

"You can't overestimate the impact of what Hinkley Point C and Sizewell C are doing in terms of supply chains, skills and workforce," adds Cann. "These are people and businesses that will not only deliver the next nuclear power stations – they will be core to construction and infrastructure development in the UK for a generation."

To support the growth of this next generation, Sizewell C will construct College on the Coast, a new permanent post-16 education college in its host town of Leiston. The move is set to transform higher education access, putting in place a long-term skills legacy for a region where options for higher education are limited and post-16 dropout rates are high. The college, however, is just one element of the education offering planned, as Sizewell C's education campus will also include an apprenticeship hub and centre of excellence – with other academic and training partners invited to support the long-term vision.

It is a big piece of the puzzle in making sure Sizewell C can access the workforce it needs and leave the industry in better shape. "The education campus is important for us to build the highly skilled, homegrown workforce on our doorstep, delivering thousands of jobs and apprenticeships for local people, and leaving a legacy that will offer the kind of education, training and skills development the region needs," says Cann.

"Around a third of our peak on-site workforce will come from the local community – that's around 2,600 local jobs from within our near-8,000 peak workforce. We do a lot of work in the local community to ensure that local people can access those jobs, including jobs fairs in our most important urban areas, and we've made jobs pledges with local MPs, including Jack Abbott and Jess Asato, to ensure we deliver jobs for their towns."

Apprenticeships are also vital to Sizewell C's plan, with 1,500 promised across the construction phase. "Nuclear does apprenticeships very well," says Cann. "I started as an apprentice in Dungeness A, back in 1980, so I've seen the effectiveness of that particular career path. I joined an industry that I think is classless and that really does give people opportunities regardless of background – and that's why I like it."

"We've committed to delivering 540 of our 1,500 apprentices from the local area. Our Apprenticeship Hub, which will be part of our education campus right here, next to the site, will be really important in supporting those young people."

THE BENEFITS OF BUILDING

The benefits all these opportunities will bring to the East of England and across the country are huge. A recent report by global economic advisory firm Oxford Economics estimated that Sizewell C will generate £26bn of gross value added (GVA) for the UK, or an annual average of £1.57bn per year, during its construction phase. It will also enable an approximate 22% expansion in Suffolk's GVA by 2050 relative to Oxford Economics' baseline forecast, outperforming all growth across the national economy and each of its 12 other regions, and the national average.

The project has already committed to investing £4.4bn in the East of England, £900m in Wales and £2.5bn in the North of England, and Cann says: "Sizewell is about social benefits, economic benefits and re-industrialisation – and it's really about people and the social licence you need to build these things. At times, people will question why you are building in their area, so we work really hard to make sure we've got that social licence and that we maintain it. It's an everyday effort."

"It's about two years before we get to the nuclear aspect and we're making great progress. We had 25 milestones for last year – 25 for 25 – and we attained those. We've just built the first of three bridges, which connects our construction sites; we've opened up the first of our Park and Ride stations to limit the amount of construction traffic on the roads; we're building new roads and roundabouts, new railways, a jetty, a beach-landing facility, sea walls, on-site accommodation, and a desalination plant for our own water ahead of a new mains pipeline coming in 2032. The team is growing, too. We have almost 2,000 people on site daily and we've just reached our 100th apprentice."

"All this progress must be looked at through the lens of replication. We wouldn't be where we are now without Hinkley Point C. You have to accept that to build the first in a series is always quite difficult, but to not build more is criminal – because you have the recipe. Building a series gives the industry confidence, it gives the supply chain confidence, and it helps build the skills we need. Our job now is simple: to demonstrate that this fleet approach works. We have to be quite predictable and do exactly what we said we're going to do – and, ultimately, we have to deliver for the community, for the region and for the country."



The net zero challenges for grid stability

By Jim Thomson, FNucl

In the next few years, there will be an ever-growing demand for, and dependence upon, low-carbon electricity produced through a blend of renewables, nuclear, battery-inverters, pumped storage and interconnectors to support the quest for net zero. However, while essential for progress, the widespread use of solar, wind turbines and battery storage can put grid stability at risk, with increasingly significant economic, political and health consequences.

The inertia from large generators such as nuclear and gas can act to dampen out grid frequency oscillations, but with fewer of those on the grid, there is greater risk of instability. At the same time, extensive reliance on renewables also creates the well-known potential for *dunkelflaute* – where low generation coincides with high demand. In addition, climate change will cause more extreme weather events that will challenge grid resilience.

Two recent blackouts – in Texas and Iberia – highlighted some important lessons for our carbon-free future.

THE IBERIAN BLACKOUT

On 28 April, 2025, the Spanish grid, operated by RED Electrica, suffered a massive grid outage that blacked out the entire Iberian Peninsula. An initial report highlighted key moments in the incident, and the lessons learned will be important in many other countries, including the UK, as electricity grids evolve.

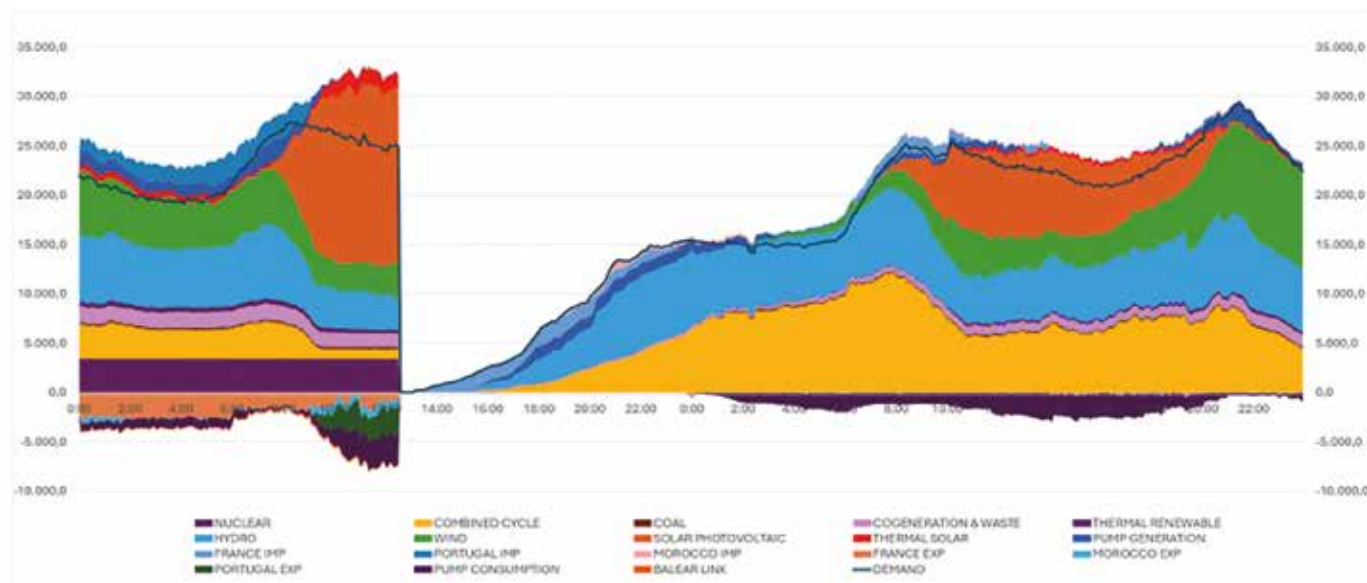
At the time of the blackout, 78% of the region's electricity generation was from renewable sources (60% solar), with 15% from gas and nuclear, and the balance from imports. Early reports suggested that a lack of 'inertia' in the grid system – caused by solar and wind plants being inverter-based generators, which generate DC that is then converted to AC before feeding into the grid – might have been a major factor in the blackout, but RED Electrica's preliminary report contradicts this, explicitly stating it was NOT the cause.

The report outlines that the incident began at 12.03 local time with the loss of a major solar PV plant in the Badajoz region. When mitigation measures aimed at damping

the system-wide frequency oscillations were implemented, it reduced the system's voltage-control margins, reducing the power supply to Portugal and raising grid voltage in Spain.

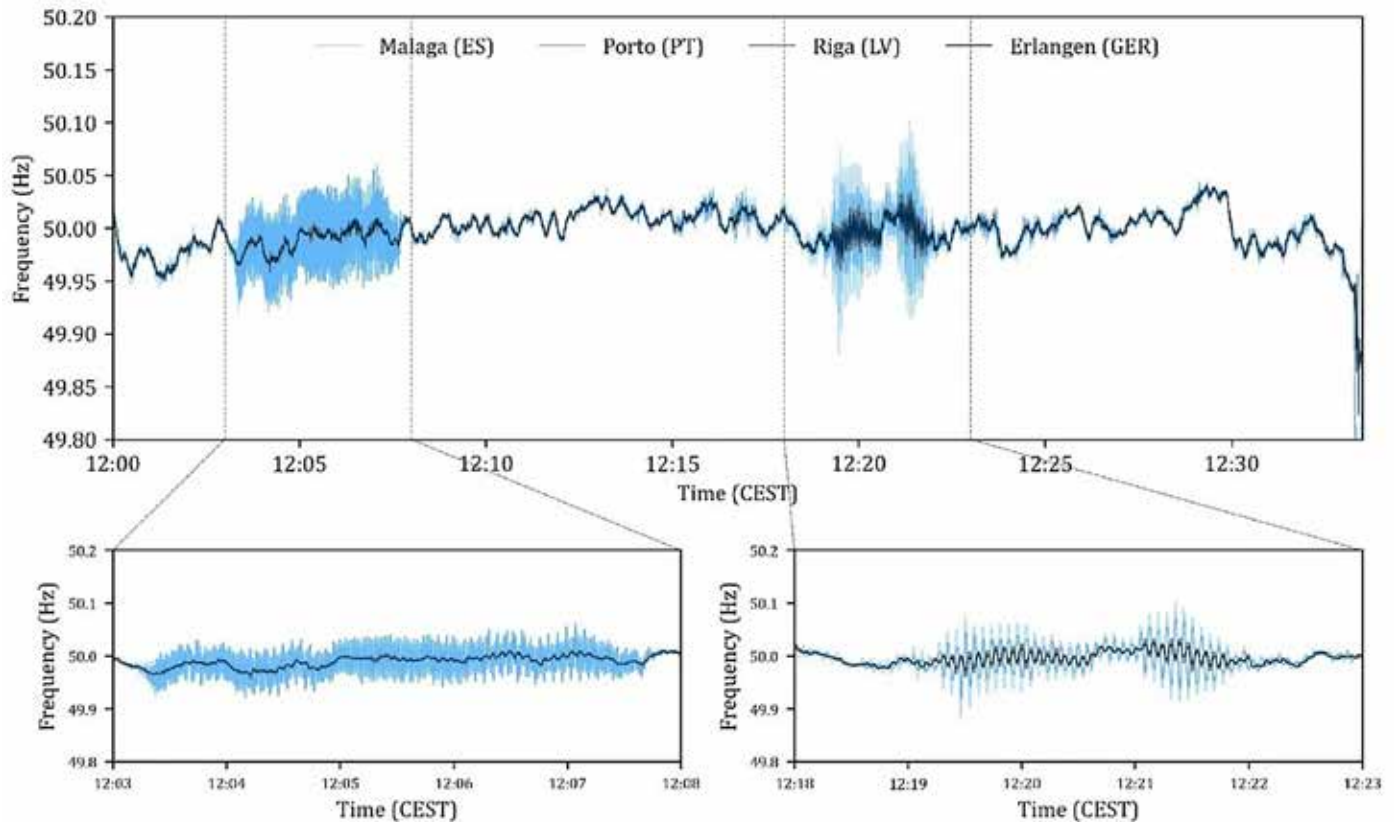
Energy exports to France were reduced, causing the voltage to rise further and the system reached an operating state significantly different from the initial conditions, characterised by reduced damping and diminished flexibility in voltage control. Grid voltage increases may have been because of sluggish tap changers on grid transformers. Additional conventional generation start-up was requested, but this was not immediately available.

As the voltage continued its upward trend, renewable generation did not have the capability to regulate voltage dynamically, and when a substation in Granada that was supplying the grid with 355 MW and absorbing 165 MVar tripped at 12.32.57, the system voltage rose to 424 kV. Export to France, which had been 450 MW, dropped to zero and, 19.5 seconds later, another



Generating plant operation before the Iberian grid collapse and during the black start recovery (nuclear plant did not take part in the black start). Major contributors: dark purple = nuclear baseload; yellow = CCGT; pink = Moroccan imports; blue = French imports; green = wind; orange = solar. The black line is electricity demand.

Credit: ENTSO-E



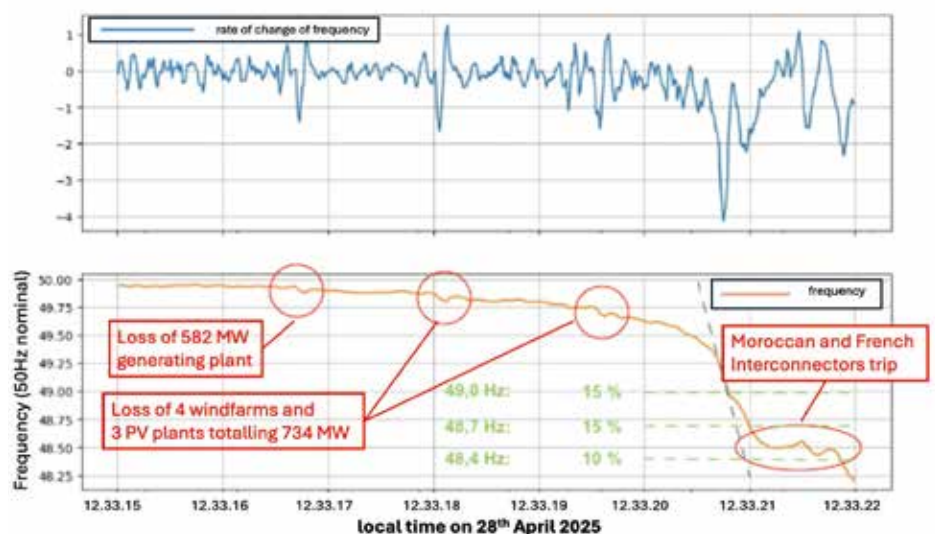
Grid frequency oscillations in the 30 minutes before the grid collapse

Credit: Linnert et al, FAU, 2025

generator tripped while supplying 582 MW, followed shortly by a solar PV plant, which was connected to a different transmission network and had been supplying 145 MW.

Four windfarms and three solar PV plants then tripped, totalling 734 MW, and conventional generation was unable to absorb the reactive power. Each generation disconnection caused a slight increase in voltage, triggering disconnection of other generators and a cascade of failures, with grid frequency also dropping sharply. The Moroccan interconnector then tripped, losing a further 314 MW, and when the frequency fell to 48.46 Hz, the AC connector to France tripped out, with the HVDC link following shortly after.

Load shedding was being attempted (but could not happen fast enough), the Iberian systems were isolated and, eventually, the system collapsed into total blackout at 12.33.24. Four operating nuclear reactors had been shut down and, in a matter of seconds, Spain lost a massive 15 GW of capacity, which caused the whole system to collapse. It then required a black start – which took more than 18 hours – to get back online.



Spanish grid frequency (orange) and rate of change of frequency (blue) in the last few seconds prior to grid collapse. The normal operating lower limit was 49.5 Hz. Final grid collapse was at 12.33.24 – note that generating plant losses are shown but load shedding information is not available at time of writing. (Source: Luis Badesa, Associate Professor at UPM, Madrid – ‘Blackout in Spain and Portugal: What do we know so far?’ with annotations by the author.)

“

The Iberian grid was behaving normally... yet a total blackout happened in less than one minute.”

In the meantime, 35,000 people had been stuck in trains, lifts had trapped occupants, traffic lights failed, and equipment such as respirators stopped (although general hospitals had backup generators). Airports were shut, telecoms and internet services stopped, businesses closed and there were at least eight attributed deaths

The preliminary RED Electrica report discusses – without any clear conclusion at this stage – the impact of ‘rapid schedule changes in photovoltaic generation driven by price fluctuations in electricity markets’ as a potential contributory factor. This could have led to rapid changes in generation output.

The European Network of Transmission System Operators for Electricity (ENTSO-E) has accepted the report’s main findings that grid voltage increases and the cascading series of generation disconnections was

the most probable trigger for the blackout. This has never before been linked to a blackout in any part of the European power system.

The exceptional character of this incident highlights the need to improve the resilience of the Iberian power system. ENTSO-E sees at least two important lines to consider: enhancing voltage control management procedures and capabilities throughout the electricity system, and assessing how system defence plans can be improved.

The speed of collapse of the Iberian grid is especially noteworthy. The grid was behaving more or less normally, with normal levels of demand in the middle of the day, yet a total blackout happened in less than one minute.

THE TEXAN BLACKOUT

Four years before the Iberian incident, an extreme weather-induced, large-scale blackout occurred in Texas. The state’s electricity grid is run by its own operator (ERCOT) and is mostly isolated from the rest of the United States. In February 2021, an unusually cold spell saw temperatures drop to 14 degrees Celsius lower than normal for a period of six days, causing electricity blackouts between 15 and 18 February.

All types of power plants were affected by the storm and with so much power plant capacity lost, at a time when demand was at a record high, ERCOT resorted to load shedding. Between noon on 14 February and noon on 15 February, a total generation loss of 24,600 MW occurred, comprising wind, CCGT, coal-fired plant, nuclear and solar

– totalling around half the entire generating capacity available.

Weather forecasts failed to appreciate storm severity and ERCOT had underestimated the most extreme winter scenario demand by about 9,600 MW. The situation was made worse by the fact that some power generators were inadequately weatherised for the conditions, while failures in the natural gas system exacerbated electricity problems.

ERCOT managed to avoid a catastrophic collapse of the electric grid and the requirement for a black start, but reports indicated that there were state-wide shortages of water, food and heat, with more than 4.5 million homes and businesses left without power, some for several days, and at least 210 people killed. Natural gas prices spiked to more than 40 times their normal at Texas trading hubs and the price of electricity spiked to \$9,000 per MWh. Although it was an exceptional storm at the time, extreme weather is expected to become more common with climate change.

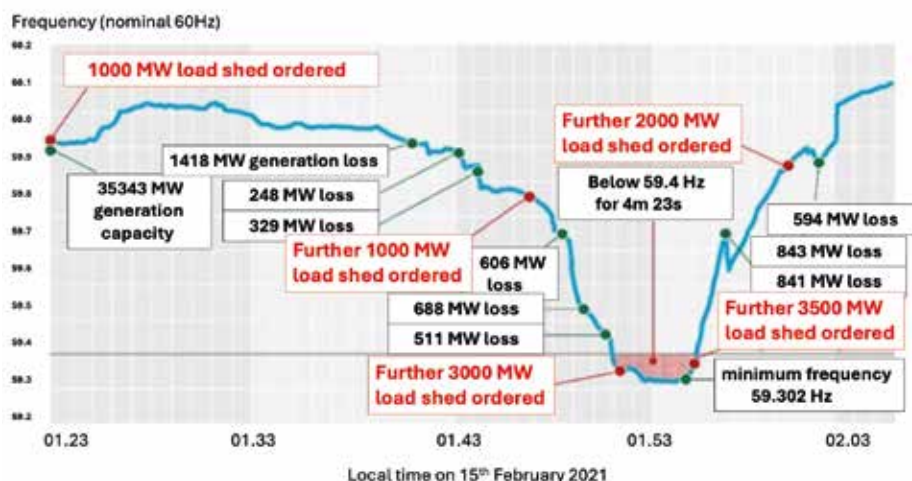
CONCLUSION

The resilience of carbon-free grid systems will be essential as our economies and lives become totally dependent on electricity. These incidents highlight the major grid-failure modes of concern, showcasing how frequency and voltage instability, dunkelflaute and extreme weather can provide risks going forward.

Accurate forecasts of electricity demand in extreme weather will be necessary – but, ultimately, creating grids with sufficient resilience is essential. As such, large nuclear generators will continue to have a key role to play in anchoring the grid against system fluctuations.

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- Raúl Bajo Buenestado, The Iberian Peninsula Blackout – Causes, Consequences and Challenges Ahead, Baker Institute for Public Policy, Rice University, 2 May 2025
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- The University of Texas at Austin Energy Institute, The Timeline and Events of the February 2021 Texas Electric Grid Blackouts, July 2021



ERCOT generation losses and load shedding during a critical period in the early morning of 15 February 2021, showing 10,500 MW load shedding within a period of about 35 minutes to prevent grid collapse. Adapted by the author to improve clarity from a diagram in The University of Texas at Austin Energy Institute document ‘The Timeline and Events of the February 2021 Texas Electric Grid Blackouts, July 2021’.

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Introduction to the YGN Committee 2026

Lacey-Jo Marsland, MNucl Chair

Lacey-Jo Marsland is a Nuclear Safety Engineer at AtkinsRéalis and is the incoming YGN Chair for 2026. Read the Q&A section with her for an in-depth interview where she discusses her journey into the sector and her insights from experience with the YGN to date.

Jake Moorman, MNucl Vice Chair

I work at Nuclear Waste Services as a Site Evaluation Technical Support to the UK's Geological Disposal Facility programme, contributing towards finding a final site for the safe and secure disposal of the UK's radioactive waste.

Last year, I was the International Liaison lead for the YGN and I absolutely loved working with other nuclear societies around the world to enhance and create opportunities for cross-border collaboration, while delivering some great opportunities for our members here in the UK. As I take on the Vice Chair role, I'm looking forward to developing my strategic management skills and helping guide the YGN towards a successful future.

Evie Smith Vice Chair

I work in Project Support at Sellafield Ltd in the Retrievals Value Stream. I have been an active volunteer with the YGN for nearly five years, contributing to a range of initiatives that connect members with opportunities for growth and networking. Last year, I served as the 'Intro to...' Lead on the Strategic Committee, helping shape the YGN's vision and member engagement.

After a successful year on the committee, I am excited to step into the Vice Chair role for 2026, where my focus will be on strengthening the YGN community and ensuring members gain maximum value from their YGN experience. I am passionate about leadership and collaboration and am looking forward to bringing fresh ideas and energy to the YGN's activities in 2026.

Craig Pilkington Outgoing chair

I am a Senior Mechanical Engineer at Assystem, seconded onto the Rolls Royce SMR project and I am incredibly excited for the future having seen such a huge turnaround in activity and public opinion during my eight years in the industry. After a year as YGN chair, I am looking forward to continuing to support the mission, while stepping into a support and advisory role to see all of the plans and hard work of this passionate incoming committee.

Over the past year, we launched a new five-year strategy and secured Great British Energy – Nuclear as our Company Partner, so the YGN and its community of early careers members and volunteers is in a great position for 2026 to continue to make real change within the nuclear industry.

Latham Russell Improvements Lead

I am a Process Engineer at Rolls-Royce, working on a range of programmes. I started on the company's engineering graduate scheme, working as a data scientist to a technical assistant role for the company directors. I am active in mentoring the younger generation and I aim keen to promote the nuclear industry and inspire future generations.

I was the YGN Secretary of Operations in 2025 and am looking forward to my new role, which is a new committee position for the YGN. I will be looking at how the YGN operates and identifying and implementing improvements. One aim is to ensure the time spent by our dedicated volunteers is used as effectively and efficiently as possible, allowing us to achieve even more than ever.

Victoria Chan Marketing and Communications Lead

I work as a Decommissioning and Dismantling Engineer and Orano Limited, providing technical support across projects and contributing to business development initiatives. I have been involved with the YGN since 2024 and continue for a second year in my role. Last year, my team and I revitalised the YGN TikTok, launched the YGN Engines Series to showcase subcommittee volunteers and relaunched the Chain Reaction STEAM Series, in collaboration with the Education, Attraction and Outreach team.

This year, I plan to build on these initiatives, further develop the STEAM Series and encourage more young professionals to join the YGN network and attend our events. I'm excited to continue promoting the YGN's work, sharing the opportunities available, and supporting our generation of nuclear professionals.

Ayman Darve Secretary of Operations

I am a Mechanical Engineer specialising in Nuclear MEP Systems Design at Mott MacDonald. Over the past four years, I have gained experience in both consultancy and contracting, managing large procurement packages, coordinating multidisciplinary teams and delivering detailed technical reviews to keep projects on track.

I'm excited to take on this role for the YGN, focusing on ensuring smooth committee operations, clear communication and strong



coordination throughout the year. Having previously coordinated graduate development initiatives, hosted presentations and helped lead a team of more than 100 students on an international platform, I'm passionate about supporting early-career professionals and the exciting ventures ahead for the institute. I look forward to retaining the structure, reliability and enthusiasm within the committee, and helping the YGN to continue building momentum and impact across the nuclear industry.

Oliver Armitage

International Liaison Lead

I am a Systems Design Engineer at Rolls-Royce with four years' experience in the nuclear industry. I have spent the past two years on the YGN International Subcommittee, contributing to key initiatives including organising international webinars, expanding the UK Innovate 4 Nuclear competition and representing the UK at global conferences and European Nuclear Society (ENS) meetings.

The highlight of my time so far has been seeing how the YGN brings together people from across a diverse sector to collaborate in ways they otherwise might not. I'm really excited to step into the lead role for 2026 and build on that collaboration across the UK and internationally through events like the International Youth Nuclear Congress 2026 and by welcoming other European nations to the UK for the ENS Core Committee meeting in June.

Pravin Piramanayagam

Intro to Series Lead

I work in Decommissioning and Waste Strategy at AtkinsRéalis and I am excited to be stepping into this role. The YGN has always been the place where I felt I could ask real questions, meet people who genuinely care and learn without pressure. The feeling of openness is something I really want to pass on, and my goal for 2026 is very clear: to make the nuclear industry feel understandable, approachable and exciting for anyone coming in, no matter their background or starting point.

I want to bring a welcoming atmosphere to our industry and develop sessions that make real sense to our ever-growing community – breaking down big, complex topics like new build, SMRs, decommissioning, fusion, and so on, without losing depth and traction. If someone leaves an 'Intro to...' session thinking 'That clicked. I get it now. Maybe this could be my place', that's the impact I want the YGN to have.

Lucy Jarvis

Industry Liaison Lead

I am a Technical Advisor at Sellafield Ltd, contributing to a range of innovative projects including robotic obsolescence and condition monitoring and inspection technologies. I have been an active volunteer with the YGN for more than four years, supporting key initiatives such as speaking competitions and the 'Intro to...' event series. In 2025, I proudly served as Industry Lead and am excited to continue in this role into 2026.

One of my main focuses is strengthening our collaboration with our newest company partner, Great British Energy – Nuclear, and expanding our Company Catalyst network to foster deeper industry engagement. I am passionate about driving forward

opportunities for early-career professionals and helping shape the future of the nuclear sector through innovation, connection and knowledge sharing.

George Caliment

Sponsorship and Finance Lead

I am an Electrical, Control and Instrumentation Engineer for Assystem, seconded into the Defence and Decommissioning Business Unit. I have been involved with the YGN since 2023 as a member of the International Liaison Sub-Committee and have led a number of initiatives and activities such as the 2025 International Trip to Finland and various bids for international events.

In my new role, I am looking forward to implementing the financial management experience I gained during the organisation of previous YGN events as well as creating a dedicated sub-committee. The main goal for 2026 is to ensure that the YGN budget is used as efficiently as possible, helping to continue its positive impact across the nuclear sector.

Ellis Matthews

Education, Attraction and Outreach Lead

I am an Electrical, Control and Instrumentation Engineer at Assystem, embedded in the Sellafield Decommissioning project. Having spent eight years in the energy sector, the need for nuclear energy has never been more apparent, so I am very excited to lead the YGN Outreach Team – a role where I can share the journeys, stories and projects that highlight the importance of nuclear energy and our work.

This year, I will be continuing the projects and ambitions that my predecessor established in this role, while also presenting more opportunities for our volunteers to participate and promote their passions as we collaborate within the YGN.

Thomas Steel

Membership, Retention & Development Lead

I am a Process Engineer with Amentum, predominantly working on EDFs generating stations. In my YGN role, I intend to build on the success of last year and bring new improvements including a bigger in-person speaking competition and harder-to-obtain technical tours at places such as BAE or Cammell Laird shipyards. I am looking forward to working with all the committee next year to ensure that the YGN is the best it can possibly be.

Alanna Downing

Inclusion Lead

I am the co-founder of Enable Nuclear and a Senior Quality Auditor at AWE, as well as a Community Manager within the Tetris eSports Community – and I am back for another year of leading Inclusion for the YGN. Last year, we focused on building the role, designing a new sub-committee, launching a monthly communications plan and helping the NI and YGN sign up to the Hidden Disabilities Sunflower scheme.

This year, I am looking to take YGN Inclusion to business as usual, with another year of great monthly communications posts, quarterly webinars and assisting the committee with any and all inclusion discussions with other events.

Space law and nuclear power: a strategic nexus for the future

The YGN hosted an insightful webinar titled Introduction to Space Law, featuring Professor Joanne Wheeler MBE, Managing Partner at Alden Legal and Director of the Earth & Space Sustainability Initiative. With more than three decades in the space sector, Wheeler explored the legal frameworks governing outer space and the critical role nuclear technology plays – and can play – in powering missions beyond Earth.

WHY SPACE LAW MATTERS

Outer space is no longer a distant concept – it underpins life on Earth. From GPS navigation and global communications to banking, agriculture and disaster response, satellites enable essential services. Wheeler highlighted that we interact with approximately 30 different satellites every day.

This reliance demands robust governance. International treaties, national laws, regulations and specialised agencies form the backbone of space law and its implementation. The Outer Space Treaty (1967) and related treaties such as the Liability Convention (1972) – establish principles of responsibility and jurisdiction. Once a state launches a space object, it bears liability for any damage caused by that space object, even decades later. Wheeler cited rare cases like Cosmos 954, a Soviet nuclear-

powered satellite that crashed in Canada in 1978, which was settled diplomatically.

UK REGULATORY FRAMEWORK

The UK framework operates pursuant to two key statutes:

- **Outer Space Act 1986** – Governs UK activities overseas
- **Space Industry Act 2018** – Regulates space activities conducted from the UK, including by foreign entities.

Ofcom serves as the UK's "gatekeeper" to the International Telecommunication Union (ITU), which allocates radio frequencies and orbital slots globally.

NUCLEAR POWER SOURCES IN SPACE

For a nuclear audience, Wheeler's discussion on radioisotope power sources (RPS) was pivotal. Since 1961, RPS have powered missions where solar energy is insufficient. The UN Office for Outer Space Affairs (UNOOSA) recognises their unique advantages:

- **Compactness and high-energy density** – Reduces launch mass
- **Long operational life** – Critical for deep-space missions and lunar bases.

Contrary to misconceptions, nuclear power sources are permitted in space – only nuclear weapons are banned. Applications include radioisotope thermoelectric generators

(RTGs) and nuclear reactors using U-235, which may operate on interplanetary missions or in high Earth orbits.

SAFETY AND LEGAL PRINCIPLES

The Principles Relevant to the Use of Nuclear Power Sources in Outer Space (1992) set out radiation protection and safety goals, including:

- Preventing contamination of outer space
- Designing systems with defence-in-depth
- Observing international radiological protection guidelines.

While these principles are not legally binding, they guide states in managing risks. Wheeler noted that the UN Committee on the Peaceful Uses of Outer Space (COPUOS) has provided guidance on the operation of the principles and has endorsed the need for a new five-year work plan (2024–2028) to address new and emerging technologies.

RESPONSIBILITY AND LIABILITY

International law places liability on the launching state, which also usually exercises jurisdiction and control over space objects. Nuclear-related conventions, such as those on radiological emergencies and nuclear safety, can complement space treaties to ensure accountability.

OPPORTUNITIES FOR NUCLEAR PROFESSIONALS

As space missions grow more ambitious, the synergy between nuclear and space sectors will deepen. Both industries share a culture of safety, rigorous standards, regulations and international compliance – making nuclear professionals well-positioned to bridge the skills gap in space regulation and engineering.

In summary, nuclear power is not just compatible with space exploration – it is essential for its future. Understanding the legal, regulatory and technical frameworks will enable the nuclear sector to play a leading role in shaping sustainable, safe and innovative space activities.

On behalf of the YGN and all attendees, we thank Joanne Wheeler for sharing her knowledge and inspiring us to see nuclear's role in shaping the future of space.



Webinar spotlight: exploring the global nuclear fuel cycle

The recent YGN webinar on the global nuclear fuel cycle offered attendees a clear overview of how nuclear fuel is sourced, processed and managed worldwide, followed a week later by a coffee connections event for informal discussion and networking.

The webinar, which was hosted by the YGN's Sam Stanley and Ashley Oshinowo and delivered by Jamie Fairchild from the Nuclear Energy Agency, began with a focus on uranium – the essential element for nuclear power. Although uranium exists in the Earth's crust across most countries, only certain deposits are economically viable to mine. The largest reserves and production come from Kazakhstan, Australia and Canada, which together account for more than two-thirds of global output. Historically, Canada led the way in uranium production, but Kazakhstan now dominates, thanks to low-cost extraction methods.

Charts shown during the webinar illustrated how Kazakhstan sits firmly at the top of global production, followed by Canada and Australia. Canada remains unique as the only country that produces enough uranium to meet its own domestic reactor needs, while most nations rely heavily on imports. Geological factors and mining costs vary widely, making Kazakhstan's resources far cheaper to exploit than in the other nations. These differences shape global supply chains and influence pricing, creating imbalances between supply and demand.

Fairchild explained the seven steps involved in the nuclear fuel cycle: mining, milling, refining, conversion, enrichment, fuel fabrication, and eventually reactor use. While Canadian reactors typically use natural uranium, around 90% of reactors worldwide

rely on enriched uranium, highlighting the global importance of enrichment facilities.

The webinar also touched on the two main mining approaches – conventional and unconventional – each of which have their own environmental and economic implications. Conventional mining involves open-pit or underground methods, while unconventional techniques, such as in-situ leaching, are increasingly common in regions like Kazakhstan because of their lower cost and reduced environmental footprint.

A key theme was whether the fuel cycle can support ambitious 2050 deployment targets for nuclear energy. As countries seek to cut carbon emissions, nuclear power is expected to play a major role. Scaling up the infrastructure to meet these targets will require investment, innovation and international collaboration. Fairchild emphasised that while the industry has the technical capability, achieving these goals depends on policy support and a stable supply chain.

After concluding his presentation, Fairchild opened the floor for a Q&A session highlighting key industry trends. One hot topic was deconversion – which is particularly relevant in the UK, where work is under way to develop industrial solutions for converting uranium hexafluoride (UF_6) into uranium dioxide (UO_2). Fairchild noted that deconversion usually takes place near fuel fabrication plants and often runs alongside fabrication processes.

Other questions explored included:

- How the industry plans to standardise fuel types for advanced reactors and SMRs
- Alternatives to UF_6 given its chemotoxic risks
- Whether fusion energy could ease future uranium demand
- Ways to reuse spent fuel to improve efficiency
- The strain on the global fuel cycle as more countries, especially in Southeast Asia, adopt nuclear power



- Safeguards for a world moving towards closed-loop fuel cycles.

These questions reflect the complexity of the nuclear fuel cycle and the need for forward-thinking solutions as both the technology and the demand evolve. For further reading, participants were encouraged to explore the NEA's Small Modular Reactor Dashboard, the World Nuclear Association's *Nuclear Fuel Report* and resources from the International Atomic Energy Agency. These materials provide deeper insights into reactor technologies, fuel cycle economics and global trends.

The YGN would like to extend a sincere thank you to Fairchild, the organisers and all the participants for making this webinar such an engaging and informative session.





Q&A with **Lacey-Jo Marsland**

Lacey-Jo Marsland is a Nuclear Safety Engineer at AtkinsRealis and the YGN Chair for 2026. She discusses her journey into the sector and her insights from experience with the YGN to date.

What first sparked your interest in nuclear?

Like many people in the nuclear sector, I stumbled upon it by chance. I was completing a Master's in biochemistry when I began applying for graduate schemes that could use the transferable skills I had honed during my studies and while not an immediately obvious candidate for nuclear safety, I was able to demonstrate technical writing skills, teamwork, communication and the ability to grasp complex technical challenges. All of these skills are still relevant to my role today. I was particularly excited by the unique nature of the nuclear sector, both in terms of challenge and

opportunity, and it felt like the chance to gain experience that I couldn't gain anywhere else, and to actually make a difference.

What does your current job involve?

I have worked as a nuclear safety engineer for the past five years on defence and civil projects both for a licensee and as a consultant. I now sit within the 'Power New Build' business at AtkinsRealis, so recent projects have involved supporting safety cases and hazards analysis for Hinkley Point C, Sizewell C and Rolls-Royce SMR. Ultimately, my role is to ensure that nuclear safety risks are reduced to 'As Low As Reasonably Practicable' and that the safety documentation presents that case in a way that meets regulatory requirements. It's an area that will be increasingly important across the sector as new nuclear programmes expand to help achieve clean-

power goals, including the need for new projects to receive the necessary regulatory approvals at the various lifecycle stages.

How did you first get involved with the YGN?

I started volunteering with the YGN in 2022, when I was working in defence and was keen to gain a broader overview of the sector as a whole. The YGN seemed like an ideal place for me to do that and my first role was as part of the organising team for the Annual Day Seminar and Dinner in Cardiff.

I also wanted to gain some public speaking experience, as this was massively out of my comfort zone, so I seized the opportunity to sit on a YGN panel at an event for PhD students, with the idea of giving them insight into the transition from academia to industry. I then joined the YGN committee in 2023 and since then, I have taken on the role of Education, Attraction and Outreach Lead, Vice Chair, and now Chair.

What have been some of your most standout achievements with the YGN?

The international trip to Finland in 2025 was a career highlight for me, getting to learn about Finland's nuclear industry and visit its Low- and Intermediate-Level Waste Repository at Olkiluoto. Another highlight was securing funding and industry support for the YGN to host an engaging stand at New Scientist Live when I was Education, Attraction and Outreach Lead. Attendance at this large-scale outreach event gave our volunteers an opportunity to inspire the next generation to consider careers in nuclear and was incredibly rewarding. I was also honoured to be awarded Nuclear Institute Volunteer of the Year 2025.

What motivated you to take on the role of Chair?

I have been interested in the role ever since I got involved with the YGN because, as well as supporting my own professional development, it is as an excellent opportunity to give back to the sector and support the next generation of nuclear professionals. After gaining leadership experience by serving on the YGN Committee for three years, the Chair position felt like the natural next step. I've already engaged with a number of previous Chairs to hear about their experiences and get some general words of wisdom, and it's great to know that there is such a supportive network for me to engage with throughout the year.

What skills or experiences from your time in the YGN are most valuable to you?

There's a huge focus on skills across the sector at the moment, as we need the workforce to deliver the huge variety of projects across all stages of the lifecycle. I expect my previous experience as YGN Education, Attraction and Outreach Lead will be valuable in enabling me and the YGN to support some of these skills initiatives. I've also been involved in organising the YGN's flagship Annual Day Seminar and Dinner for the past three years, so I'm hoping this will help us to deliver another excellent event in 2026. Watch this space!

What impact do you hope to make during your term?

This year marks the YGN's 30th in existence, so a key theme for me this year is 'Legacy' – both celebrating the past 30 years and thinking about what legacy we want to leave going forward. We've got some exciting plans to mark the anniversary and we've also got the YGN Improvements Lead role, which will focus on future-proofing the YGN. I hope to further embed the YGN values that were introduced in 2025. I particularly want to lean into that sense of community by creating meaningful opportunities for our volunteers and members to connect, contribute and feel valued as part of the YGN. Given the skills challenges faced by the sector, it is crucial

that the diverse perspectives are heard and valued and the views of young nuclear professionals have a large role to play in attracting the workforce of the future and shaping the direction of the sector.

How does the YGN contribute to the NI, the sector and the global community, and what can be done to amplify that?

It actively contributes to the NI through collaboration with the regional branches and NI Committees – with activities such as the annual YGN Speaking Competition. We engage with the UK nuclear sector through engagements like the YGN Company Partnership with Great British Energy – Nuclear, attendance at events such as Nuclear Week in Parliament and our support to the Sector Skills Plan via the Early Careers Working Group.

The YGN is also well connected with the global nuclear community through the efforts of our International Liaison Lead and we have strong links to YGNs across the globe. We organise international trips and have presence at a number of international conferences, and our events and initiatives depend not only on funding, but also on employers giving their people the time and flexibility to attend and organise activities. Strengthening industry support, both financial and through active engagement, is essential to sustain the YGN and deliver meaningful opportunities for our members.

“

There is a place and a role for everybody. You don't need to be an expert to make a difference.”

What message would you like to share with people considering a future in nuclear and thinking about joining the YGN?

There is a place and a role for everybody. You don't need to be an expert to make a difference and there is a lot to be said for transferable skills and unique perspectives. I would encourage those individuals to just go for it! One thing I've found crucial when pursuing new opportunities is proactively reaching out and establishing a network. There's a great community across the industry and the YGN to engage with and learn from.



Security SIG: Building a secure nuclear future

By Milena Rogala, Vulcain Engineering

“Security is not an abstract word.” This is a statement from the recent NI Security Conference, where the importance of applying a clear approach, combining technical rigour and human perspective in equal measure, was made abundantly clear.

As the UK moves into a ‘golden era of nuclear’, from the gigawatt projects of Hinkley Point C and Sizewell C to the emerging SMR and Advanced reactor developments, the question is no longer how much security matters, but what we need to do to make this essential element of our nuclear development a living and integrated part of delivery.

There is one clear message: to build trust and confidence in the sector among an increasing number of stakeholders, security must evolve at the same pace as the technologies and people it protects.

BREAKING DOWN THE MYTH OF UNIQUENESS

A recurring theme in security is the uniqueness of nuclear – or more, the lack of it. This industry comes with a lot of its own distinctive problems and issues, but when it comes to issues related to security, it becomes very ‘ordinary’. Every different industry sector believes that their challenges are distinct, yet across the critical national infrastructure landscape, the core of security principles remain shared.

Sector-specific language cannot stop us. We all share the common language of security – and this connection across industries can allow for collaboration rather than segregation. From insider threat management to supply chain assurance, the nuclear industry can benefit from adopting common language and shared frameworks with other high-hazard sectors. Security should be seen as a strong foundation of society, not a regulatory burden.

SECURITY AS A DESIGN PRINCIPLE

Another focus for the future is the call to integrate security from the beginning, rather than as a late-stage assurance step. It should be on the front foot of the design intent. Early collaboration between engineers, operators and regulators could not only reduce long-term cost, but also ensure proportionate and sustainable protections. Security and safety should go hand in hand, because that is when the project gains predictability and credibility.

VOICES FROM NEXT GENERATION

The future of nuclear security is already in capable hands, with graduates and apprentices bringing modern thinking that bridges theory and practical delivery in areas that include training, digital simulation and cyber resilience. Despite having fewer resources, smaller organisations in the nuclear

supply chain can use frameworks such as ISO 27001 to increase their cyber maturity and establish credibility, while the tasks of maintaining the accessibility of learning and updating operational programmes over time can be enhanced by the use of AI-based tools. These can, for example, provide more interesting and better standardised security inductions.

In 3D security modelling, techniques can evaluate vulnerabilities and optimise costs before construction even starts by testing physical protective systems in digital settings. The combination of engineering accuracy and security vision by digital tools is changing assurance procedures, and people in their early careers are spearheading this transformation.

THE HUMAN ELEMENT: INSIDER RISK

Insider threats are a complicated and frequently uncomfortable issue, but there is no avoiding the fact that even the most sophisticated systems rely on the people who operate them. This is often a taboo subject, but anyone – from academia and researchers to company staff – presents insider danger, as it is as much a human and organisational issue as a technological one.

Vetting and aftercare are two sides of the same coin; security clearance is a moment in time rather than a promise of dependability. Culture, leadership and continuous



involvement are necessary for true resilience, as insider risk is far less likely to occur in a system that prioritises transparency, trust and wellbeing.

LOOKING AHEAD

As the UK moves towards building more upon nuclear industry, the need for strong and adaptive security frameworks is becoming more urgent. The next decade will test not only our engineering capability, but also our ability to anticipate and manage evolving threats.

The NI Security Conference served as a timely reminder that security is not a fixed state, but a continuous process of learning, collaborations and improvement. For early career professionals, it is important to gain insight into the principles that underpin safe and successful nuclear delivery: vigilance, openness and unity of purpose.

A final word from the conference will echo with those in attendance for ever more: "Security is not what happens when something goes wrong; it is what allows everything else to go right."

SECURITY IN TRANSPORTATION

Jonathan Power Higgins is the Director of Nuclear and Assurance at Nuclear Transport Services (NTS), Platinum sponsor of the Nuclear Security Conference. We spoke to him about the importance of security in transportation.

How does nuclear security impact and interact with operations at NTS?

Jonathan Power Higgins (JPH): NTS is the world expert in nuclear logistics, and plays a critical role in delivering safe, secure and reliable transport solutions for the global nuclear supply chain. Security is central to everything NTS does; it is the pillar on which we base all operations. During transportation, nuclear material is at its most vulnerable, so we must ensure security by design, from the first concept of a nuclear move to the end of any operation. Everyone at NTS understands this and is aware of their responsibilities. We have robust systems in place, but our employees make the real difference in delivering a safe and secure nuclear move.

What are the biggest challenges for nuclear security, and why do they matter?

JPH: The threat landscape is constantly evolving and our mitigation techniques must stay ahead of it. Three key challenges stand out: to cover terrorism and theft risks, we design safeguards into every stage of our operations to address these risks, ensuring resilience and security; to deal with growing cybersecurity threats as automation and AI become more integrated, we deploy advanced technologies and strict assurance processes to protect our systems and supply chain; and to tackle insider threats, we invest in rigorous vetting and continuous monitoring to maintain trust and integrity within operations. These challenges matter because any disruption could have significant consequences for the industry. NTS recognises the potential impact if a nuclear transportation were not to go as planned, which is why we take every precaution to mitigate risks and maintain confidence across the global nuclear supply chain

How has cybersecurity evolved to combat new, changing external challenges?

JPH: Cybersecurity has always been a priority, but has evolved into one of our most significant areas of focus. As AI becomes more advanced, detecting and countering threats is increasingly complex. That's why NTS works across the industry and internationally, collaborating with partners, security agencies and government bodies to share intelligence and strengthen cyber resilience. Supply chain vulnerabilities are a growing concern. Attackers often target suppliers, so we implement strict assurance processes and advanced monitoring to keep the industry safe. Our commitment to collaboration ensures security across the entire global supply chain.

What are the most interesting advances in intelligence techniques?

JPH: As much as AI is a threat, it is also a strength. At NTS, we harness AI to analyse vast amounts of data from multiple sources, identifying anomalies and detecting threats early. A single piece of information may seem insignificant on its own, but when combined with other data, it can become critical to preventing incidents.

How can the nuclear community as a whole work to improve nuclear security?

JPH: Information sharing is key. NTS is proud to collaborate with organisations across the nuclear industry, as well as security agencies, government bodies and the private sector. Our international partnerships and expertise in secure transport, advanced tracking systems and major projects position us as a leader in nuclear logistics. Everyone is focused on a shared goal – and while there is still more to do, we believe we're on the right track.

To support a commitment to advancing the understanding of nuclear science and technology, the NI runs a number of Special Interest Groups (SIGs) and sub-Groups, composed of leading experts and other interested parties, to focus on key topics in nuclear.

There are currently five SIGs, covering **SMRs**, **Digital**, **Nuclear Security**, **Project Management**, and **Innovation**. Any NI member can request to join a SIG by visiting the MyNI member area, going to the My Interests tab and selecting the relevant SIG.



New NI President **Adrian Bull** has spent his career talking about the benefit of nuclear to everyone from scientists to government policymakers. Now he wants to get the whole industry to do the same – helping to create the advocacy needed for a new nuclear renaissance

The nuclear memorabilia that sits on the shelves and walls of Adrian Bull's home office tells a fascinating story, not just of a long and successful career in nuclear, but of the challenges and successes the industry has experienced over the decades. In pride of place is the still-shiny tankard that was presented to his father in commemoration of his 25 years of work at British Nuclear Fuels Limited (BNFL) – an acknowledgement of the background that played a major part in inspiring and instigating Bull's own nuclear journey – but there are three other items he identifies with particular importance.

The first is a 1949 book entitled *Atomic Power*, an informative scientific text on nuclear energy that was published a little more than ten years after the fission process was discovered – and, bizarrely, an image of a mushroom cloud was chosen to grace its front cover; the second is a cartoon, from a similar era, of a person pointing to a plug socket and proudly stating: "I don't need nuclear because I've got a socket on the wall for my electricity"; and the third is a one-page government notice that appeared in *Punch* magazine in 1957 advertising the "urgency of the nation's nuclear power programme" and the "vital need to speed up the job".

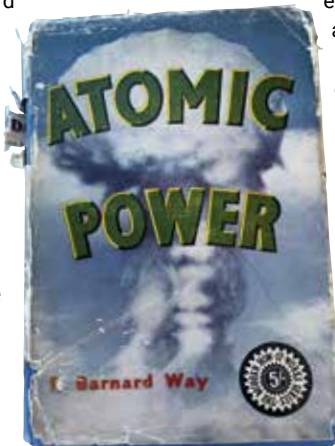
Despite dating back to an era when computers took up entire rooms, televisions were black and white, and data was stored on magnetic tape, each example demonstrates aspects of the industry that many would agree remain



challenging to this day – the first a rather confused approach to communications and an unshakeable association with disaster; the second a lack of wider understanding among the public; and the third a seemingly endless struggle to accelerate development and maximise nuclear's true potential. Overcoming these challenges is not easy, but after applying his early-career technical

experience to communications and policy work, that is exactly what Bull has been trying to do for the past 20-plus years.

"There are two kinds of communications people – the ones with a technical background and the ones who come in with a communications background from elsewhere," he offers. "Each has a very important role to play in nuclear and, as a nuclear technical person with plenty of years in the industry, the



IN PERSON

"If more people within the industry realised how influential they could be in bringing in the next generation, or the generation after that, it would be hugely empowering."



great benefit I have found is that I can go out and talk about nuclear and, although I can't always answer every question I am asked, I always understand it and know enough about it to go and find out the answer. Having that technical and hands-on background is really helpful and I truly believe that, if more people within the industry realised how influential they could be in bringing in the next generation, or the generation after that, it would be hugely empowering."

TECHNICAL ORIGINS

Having a father who worked as a nuclear instrumentation engineer and draughtsman for BNFL, Bull grew up around nuclear and first became aware of the industry when he was six years old, after being encouraged by his father to watch a Trade Test Transmission about the industry. A decade or so later, his aptitude for maths and science led him to take a BA in engineering at Cambridge, for which he secured a £500-a-year sponsorship and work placement from his father's firm. "It felt like they were giving me free money," he recalls. "But I guess, over the past 40 years, the industry has had its money back many times over!" The sponsorship led to an interview and subsequent long-term job with BNFL, which defined his pathway through the industry and ended up lasting 23 years – just two short of his own commemorative mug.

It didn't start off as planned, however, with his first role taking him to the unfamiliar world of computer modelling after the company decided not to fill his preferred job of draughtsman. "They offered me a job that I had tried to persuade them not to give me," he smiles. "I was writing code to model fuel in different test reactors around the world, developing the computer programs to support the licensing of Sizewell B. We licensed the programs from Westinghouse in the US, as they were the leaders in that space, so, in 1988, I went over to Pittsburgh for six months to work on their projects and learn more about them. I came back much more skilled and experienced in using those codes and models for the UK, and it was a great experience."

The international collaboration was something he benefited from immensely and, reflecting on the new UK-US nuclear alliance, he believes that aspect is vital in the new age of nuclear. "We're a much more international sector now, so we can tap into technology and knowledge from all around the world," he explains. "When the nuclear industry started, countries developed their own reactor design



and regulatory system, and only ever planned to build their own reactors. That's almost like the airline industry starting up with national designs of the aeroplane. They'd never have done that because a plane that takes off in Manchester has to be licensed to land in Paris or New York or Tokyo, so they have always had that international approach to standards and regulation. If we can start having designs that are internationally applicable, it will change the game."

When Bull returned from the US, he continued his computer modelling role, but moved on to the Advanced Gas Cooled Reactors (AGRs), looking in particular at tie-bar degradation. These long, bolt-like parts,

about the thickness of a pencil, transcend the height of the fuel elements and are used to remove the fuel from the reactor during the changeover. "They were required to sit in very high temperatures and high radiation fields for many years, so they degraded over time," Bull recalls. "It was our job to predict how – and it was pretty important, because when you're lifting out eight heavy assemblies of highly radioactive fuel, if you drop them, the consequences are going to be pretty horrible."

The tie bars were vital for part-load refuelling, which was a key selling point for the AGRs, so proving the safety case was crucial. It was at this point, however, that Bull realised he had only ever done mechanical modelling and he felt he had "a bit more to offer". To expand his horizons, he moved to BNFL headquarters in Risley and joined the Advanced Technology Evaluation Group (ATEG), where his job was to investigate emerging non-nuclear technologies and determine whether they could be used in the industry. He became involved in microchemical engineering and recalls: "We were looking at whether, instead of doing fuel reprocessing in massive vessels, you could do it on a much smaller scale using precisely controlled chemical reactions in channels about the thickness of a human hair." The idea was to be able to reprocess fuel on the same site as the

We're a much more international sector now, so we can tap into technology and knowledge from all around the world."

reactor, rather than having to take it away, but Bull concludes: "The chemistry worked really well, but it never progressed because the economics didn't stack up."

POLICY AND COMMUNICATIONS

Bull's work on the micro-chemical engineering project went beyond his normal sphere of scientists and engineers, and required him to speak with individuals and groups in other areas, such as security and safeguards, commercial, licensing and legal. He quickly discovered that he enjoyed explaining aspects of nuclear to people who were not nuclear experts – and that he was actually very good at it. His talent was noted, and he was invited to become the part-time Special Assistant to BNFL Director Sue Ion (now Dame Sue), whom he originally met as a young graduate at BNFL's Springfield site when he visited as a sponsored student. At this point, around the year 2000, nuclear was not at its most popular – and Bull was asked to take the lead on compiling the case to government for it to be put back on the agenda.

"They tended to pick an early or mid-career high-flyer for the Special Assistant role and, at the time, I didn't quite realise what it meant to be tapped on the shoulder in that way," he acknowledges. "I started to work more and more with Sue, and when the government did a consultation on energy policy in 2001, BNFL put in a big response for nuclear. It was a huge project and I was coordinating that response with lots of different departments – sitting, skills, technology – so I got incredible visibility. At the same time, my wife was expecting our son, who we knew had Down's Syndrome, so I had to put a lot of focus on both journeys over the course of nine months – and on the same day, 6 September, my son was born and the consultation was submitted within 45 minutes of each other!"

Alongside Bull's Special Assistant role, he managed a group of around 30 people, including colleagues working on IP, patents and technology transfer, and a research team that he describes as "a human version of what we now call Google". As is often the case, both of his roles eventually became three-quarters of a job each. He had to decide which way to go: "I remember thinking, it wouldn't bother me for somebody else to be running those teams, but it would really bother me for somebody else to be doing my energy policy work, because it was kind of my baby – I'd been pulling it all together." Just five days after the consultation

submission, however, the 9-11 tragedy changed the picture completely.

"It put a different complexion on a lot of people's plans for building nuclear," he recalls. "Security played a big part in the government's mind and when the White Paper came out a year or so afterwards, it was very much focused on energy efficiency and renewable energy as the things to take forward." Despite the disappointment at the government's lack of nuclear focus, Bull continued to push the agenda to an ever-wider audience – trade unions, political



parties, local communities – and, as the decade moved on, rising gas prices and a stronger focus on climate change put the sector back in the picture. "In 2006, the Prime Minister, Tony Blair, talked about nuclear being 'back on the agenda with a vengeance,'" he recalls. "That was great – although you do wonder whether the pace we've seen since has quite met that rhetoric!"

In the near-20 years that have followed Blair's ambition statement, Bull has spent his days trying to improve the external perception of nuclear in a number of different roles, often working with others to support the growth of the industry as a whole. Initially, in 2006, he joined Westinghouse to manage its UK and EMEA communications, just after BNFL had sold the US-based fuel and reactor manufacturer to Toshiba. Six years later, he moved to the UK National Nuclear Laboratory (UKNL), spending ten years promoting its research to the external world before moving to the University of Manchester's Dalton Nuclear Institute, where he now focuses on nuclear and energy policy, and stakeholder and community engagement.

It has been a journey with plenty of challenges: "I remember hearing a government minister coin the term 'the energy trilemma' – referring to the three things you need from an energy supply: environmental sustainability, reliability and affordability." The trilemma can be applied to many different levels – to the energy sector as a whole, the nuclear industry or the different types of nuclear – but in each case it recognises that the only way to satisfy



QUICK-FIRE QUESTIONS

Q: Who is, or has been, your professional mentor?

A: I've been fortunate to have been helped by many people over the years, but Dame Sue Ion has mentored and supported me at various stages of my career. I wouldn't be where I am now without her.

Q: What has your nuclear career highlight been to date?

A: That has to be the final go-ahead announcement for building Hinkley Point C, after I'd been making the case for new nuclear for about 15 years at that point.

Q: If there's one thing you wish more people knew about nuclear, what would it be?

A: That it's been quietly and safely making a big slice of their electricity since they were born (unless they're significantly older than I am)!

Q: What advice would you give to young people seeking a career in this field?

A: Do it! You'll have the opportunities to take your career in all sorts of interesting directions – and you'll be supporting some of the country's key national missions too.

Tony Blair talked about nuclear being 'back on the agenda with a vengeance'. That was great – although you do wonder whether the pace we've seen since has quite met that rhetoric!"



that trilemma is with a blend of options. The problem is, when it comes to building the energy jigsaw, nuclear is still often the piece that is missing from the box. "Everything fits as part of a bigger landscape," Bull concludes. "You can't just look at one piece of a jigsaw in isolation and say 'I really like this piece, let's have more pieces like this one', because everything has to fit in with everything else."

THE FUTURE OF NUCLEAR

Bull believes that nuclear is now finally on the right path to finding its place within the energy mix and he sees its future being defined by two core factors: the way new technologies will change the business case and the way people in the industry choose to talk about it. He anticipates that the move from large-scale plants to smaller-scale modular ones will be a huge catalyst for change, explaining: "Hinkley Point C is five times the scale and cost of the London Olympics. It's so big the British government didn't have the infrastructure and governance to do it, and even EDF couldn't build it without getting the Chinese onboard. When things are so expensive that some of the biggest countries can't afford to build them, you haven't really got a product.

"Smaller-scale nuclear will alter the industry completely, because it makes the quantum of money smaller and it speeds up the delivery timescale because of predictability. It's like building a piece of IKEA furniture – if you build two identical chests of drawers, the first takes you an hour and a half because you put in long dowels instead of short ones; you put the runners on

the other way up; and you didn't realise there was a little hole at the top that's now on the wrong side. When you've sworn a bit and had a cup of tea, you do the next one in half the time. That's why the government is looking to get the first three Rolls-Royce SMRs built, so that, by the time we get to the third, it's running smoothly."

In tandem with the government-led SMR project, the development of independent SMRs and AMRs, in partnership with direct end users such as Amazon and Google, will probably lead to plants being built in places that have not previously had nuclear, putting it closer to the public in more places – and more in the public eye – than ever before. That, says Bull, will require a whole new approach to communication. "The last time we built a nuclear plant on a site that hadn't had one already was Torness," he begins. "That site was chosen in the 1970s, before Three Mile Island nevermind Chernobyl and Fukushima, and it was developed in a world where information came from a newspaper or a TV broadcast and, if you missed it, you didn't find out what was happening.

"You engaged the public by putting a poster on the church noticeboard saying you would be in the village in two weeks' time for people to come and talk to you. Now, it would be on your village WhatsApp group within 30 seconds of someone announcing it and, if the industry, the developers and the advocates aren't engaged in those conversations at the start, you'll get a tsunami of negativity like you get with any development. We need to make sure we are open and transparent, and we need to stop applying nuclear safety-case thinking

processes to communication, so we can become more of an instant responder, talking in a language people understand at the time when they are speaking about it.”

That will require businesses and individuals in the industry to make a concerted effort to shed what Bull refers to as their “cloak of secrecy and confidentiality” – which is something he worked hard on during his time at UKNNL. “When I joined the company, Sellafield Limited didn’t allow its employees to put its name on their LinkedIn profile,” he recalls. “As a result, there were lots of anonymously employed chemical and process engineers and designers working in the energy sector in West Cumbria – so it wasn’t really a secret! Instead, we consciously encouraged our employees at UKNNL to be ambassadors and talk with pride about their job, the firm, and the impact that the company and nuclear was having on the world.

“Nuclear is polarising. If you get in a taxi and tell the driver you work in food or retail, there probably won’t be much of a response. If you say you work in nuclear, I guarantee you will have a conversation about it. Everyone in nuclear makes a conscious decision when we are asked what we do. Do we say ‘I work in the energy industry’ or ‘I work in comms’ or do we put the ‘N word’ in that conversation? People need to feel comfortable and empowered to say the word nuclear and have that conversation. We should be proud of the sector we work in. If you work in schools, you’re proud of the fact you’re educating kids; if you work in healthcare, you’re saving lives; if you work in nuclear, we’re doing a lot of good, but often people just don’t think they can say that.”

TAKING THE INSTITUTE FORWARD

Growing the nuclear industry’s confidence to talk about itself is a big part of what Bull hopes to achieve at the Nuclear Institute during his Presidency. He sees it as a different kind of member organisation, one led by a central team of membership experts who know what it takes to deliver value, backed by its Trustees, Branch Chairs, Special Interest Group Chairs and YGN leaders, who all live and breathe the nuclear industry and provide that input into what the Institute does. He believes that unique combination provides it with a great opportunity to become a driving force for all those in the industry – and with the potential for tens of thousands of new recruits into the sector by 2030, that’s a lot of new nuclear advocates.

“Sometimes, being a member of an

organisation is a bit like wearing a poppy for Remembrance Day – you want to show your allegiance, but you don’t expect any practical benefit back from it,” he says. “I want our membership to give people something that is valuable to them – such as professional development, mentoring, networking, skills, opportunities – and to encourage them to show their allegiance by guiding them on the right ways to talk about nuclear, and encouraging them to go out and do it. People often say they don’t like to talk about work because they don’t know what they can and can’t say, so they just clam up. We have thousands of potential ambassadors out there essentially putting duct tape over their own mouths, because they don’t feel properly empowered to speak about the work they do.

“If I can do anything in my time as President, I’d love to get companies and individuals to think about what I call the ‘four by four’ – which is a concept based on a brochure we developed at Westinghouse. We should all be able to say four things about the role of nuclear in our country; four things about what our company is doing and how it’s contributing to the wider role of nuclear in their country; four things about the team we work in and how we’re contributing to the company; and four things about our own job and how our work is contributing to the team. If we can all do that, it gives people that empowerment to go out and talk about it.”

Having spent most of his career talking

about nuclear, Bull is perfectly placed to provide guidance on how best to do it. One of the challenges, he says, is that the polarising effect of nuclear often forces advocates to focus on defending it – and he believes that if the industry moves onto the front foot, as it has done by becoming more present in conversations about climate change and energy security, the opportunities could be immense. “Right now, we often talk about how safe reactors are, or how nuclear waste isn’t going to harm you as much as you think it is, when actually the person you’re talking to might just want to know how their nephew can get a job in the industry,” he explains.

“We should try never to second guess what other people want to know; we should find out what they are interested in before we start talking. It’s only when the power goes off, for example, that people start to realise the importance of electricity. If they can’t do their job because the Wi-Fi’s down, that’s when it starts to hit – but then they won’t form any connection to the generation side. They won’t think ‘let’s make sure some of our electricity in the country is nuclear to give us 24/7 electricity’, and that’s where the education side comes in. We often take those points of contact for granted – doing a talk, chatting to someone at a careers fair, or just having a conversation in a taxi – but it can be surprising how life-changing those micro-interactions can be for people on the other end.”

ADRIAN BULL CV

Adrian took a natural path into the nuclear industry, following in his father’s footsteps after graduating with a BA in engineering from the University of Cambridge. His career spans more than 40 years across technical, communications and policy roles.

- 1983** Joined British Nuclear Fuels Limited (BNFL), holding a series of technical roles before moving into the areas of strategy and energy policy.
- 2006** Joined Westinghouse as Stakeholder Relations Manager for the UK then EMEA (Europe, Middle East and Africa)
- 2012** Joined UK National Nuclear Laboratory as External Relations Director (to 2022)
- 2021** Joined the University of Manchester as part-time Associate Director and BNFL Chair in Nuclear Energy and Society at the Dalton Nuclear Institute

ADDITIONAL ROLES

Senior Advisor at US-based nuclear comms consultancy Full On Communications

UK Government’s representative on the OECD-Nuclear Energy Agency High-level Group on Stakeholder Engagement, Trust, Transparency and Social Sciences.

President, Nuclear Institute