

National Nuclear Strategic Plan for Skills

Building Skills for the Nation's Nuclear Capability



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Foreword

The nuclear sector is integral to the UK's national security, energy security and economic prosperity. The recent energy crisis and pressure on household bills has underlined the importance of ensuring that the UK is more energy independent, secure, and resilient. Generating around 6 gigawatts (GW) of power today, nuclear is a reliable and low-carbon electricity source for the UK, providing a resilient power supply to complement renewable energy sources. The UK's recent Civil Nuclear Roadmap to 2050 positions the UK's ambitious nuclear programme as fundamental to make the transition to Net Zero by 2050, achieving up to 24 GW of nuclear capacity by 2050, which would cover up to a quarter of the country's projected electricity demand.

For over half a century, nuclear technology has sustained the UK Continuous At Sea Deterrent, with submariners working around the clock to keep us safe. The recently published Defence Nuclear Enterprise Command Paper sets out the UK's commitment to sustain the nuclear deterrent for as long as it is needed. It reaffirms our commitment to maintaining global stability, working with our allies including NATO. And it represents a commitment to enhance our industrial base, working in closer partnership with academia and business, and maximising economic opportunity and investment in our communities.

The UK has announced a "Plan for Barrow" as a further part of this national endeavour, a new partnership between national and local government, BAE Systems and the local community, that will oversee investment and development in Barrow-in-Furness, the home of submarine building in the UK.

The UK's new strategic AUKUS defence and security partnership with the Australian and US Governments and industry, including to deliver conventionally-armed, nuclear-powered submarines, further strengthens our commitment to defence and will enhance sector growth. The UK has also joined over 20 international partners in endorsing the net zero nuclear declaration, calling for a global tripling of nuclear energy by 2050.

What is clear in a growing sector which is as diverse, innovative, and strategically important as nuclear, is that its success is dependent on the availability of a skilled workforce. We need a broad range of people to work in a wide variety of roles, with the right skills to keep the UK safe and energy secure, over multiple decades.

That is why in August 2023, government set up the Nuclear Skills Taskforce to bring together government, employers and academia to turbo-charge our efforts to meet these nuclear skills growth opportunities. The objective of the Taskforce was to develop a skills strategy to support the significant growth

expected across a range of roles in the civil and defence nuclear sectors in coming years – setting up the UK's nuclear sector for future success.

That work culminated in the announcement in March 2024 that government is partnering with industry, including BAE Systems, Rolls-Royce, EDF and Babcock, to invest at least £763 million by 2030 in skills, jobs and education. The investment will help the sector fill 40,000 new jobs by the end of the decade – and will support plans to double the number of nuclear apprentices and graduates and quadruple the number of specialist science and nuclear fission PhDs.

The nuclear sector's commitment to taking this work forward is evidenced through the signing of a new Nuclear Skills Charter and this Skills Plan. The Plan sets out how we will strengthen collaboration across the sector, deepen the skills base through education and recruitment, optimise the training landscape and improve leadership skills and diversity. Implementation of this Plan marks a step-change in how we grow UK nuclear skills over the coming months, years, and decades.

This is a national challenge that will require sustained focus and commitment beyond the life of the Taskforce. The Taskforce has now been stood down. Work to deliver the plan will be taken forward by the Nuclear Skills Delivery Board on behalf of the Nuclear Skills Delivery Group. The board will be co-chaired by Skills Directors from MoD and DESNZ, with the continuing support and leadership of the Nuclear Skills Executive Council (NSEC) – which brings together CEOs from across key sector organisations – to ensure the sector abides by the commitments within the Nuclear Skills Charter.

Finally, I want to give special thanks to the members of the Taskforce, the NSEC, as well as all signatories to the Nuclear Skills Charter, spanning industry and government. These individuals and organisations have provided leadership, new thinking and a significant commitment of valuable time to address longstanding skills issues and to deliver workable solutions.



SIR SIMON BOLLOM
Chair of the Nuclear Skills Taskforce

Nuclear Sector Demand: The Challenge and Opportunity

The nuclear sector includes all the organisations that play a role in delivering the defence nuclear deterrent and powering the submarine fleet, as well as underpinning the civil nuclear energy programme. This includes programme activity from concept through to disposal (including decommissioning) and covers the workforce in public and private sector organisations. In broad terms, that covers a core workforce of c.83,000 today.¹

The Strategic Importance of the UK's Nuclear Sector

The nuclear sector plays a vital role in the UK, maintaining national security, delivering a resilient future energy system, and boosting economic prosperity:

- **National Security.** For over half a century, nuclear technology has been integral to the UK's security, enabling the UK to protect itself through the maintenance of the Continuous at Sea Deterrent (CASD) and an operational submarine fleet. The Defence Nuclear Enterprise Command Paper (2024) sets out how we will deliver the programmes necessary to strengthen our nuclear deterrent, including an invigorated approach to delivering our submarine and warhead programmes but also to the people and communities that support our deterrent.²
- **Energy Security.** The civil nuclear sector can deliver the critical baseload of our future energy system, ensuring the UK secures a sovereign energy supply. Recent experience has demonstrated the importance of ensuring that the UK is more energy independent, secure, and resilient.

In order to meet demand from the growing nuclear programme and replace people who leave the sector, we will need to fill 40,000 new jobs by 2030. This is a step-change which means we must more than double the current recruitment rate for our sector.

- **Net Zero.** Nuclear technology is recognised as a key part of the UK's policy to deliver reliable, low carbon energy sources to achieve Net Zero by 2050. This has resulted in the British Energy Security Strategy (2022)³ with Civil Nuclear: Roadmap to 2050 (2024)⁴ which sets out the government's ambition for up to 24GW of nuclear capacity by 2050. A variety of programmes have been launched, ranging from Small Modular Reactors (SMRs) under Great British Nuclear (GBN), to gigawatt-scale plants such as Hinkley Point C.
- **Economic Prosperity.** Nuclear brings wider benefits to the UK with jobs and an extensive supply chain, spread across the length and breadth of the UK. The nuclear sector helps to address traditional disparities, with more than half of those jobs in largely rural parts of the Northwest, Southwest, Wales, Scotland and with further significant investment planned in East Anglia via Sizewell C and in Barrow under the "Plan for Barrow".

“Together, we will build the nation's capability for the nuclear sector by growing a diverse and inclusive workforce that is motivated, recognised and inspired – filling 40,000 new jobs by 2030, doubling our current rate of recruitment, in order to deliver the UK's priorities for national security and energy resilience.”⁵

1. Nuclear Workforce Assessment published Dec 23

2. <https://www.gov.uk/government/publications/defence-nuclear-enterprise-command-paper>

3. <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

4. <https://www.gov.uk/government/publications/civil-nuclear-roadmap-to-2050/civil-nuclear-roadmap-to-2050-accessible-webpage>

5. <https://www.gov.uk/government/news/pm-announces-national-endavour-to-strengthen-the-uks-nuclear-deterrent#:~:text=The%20Prime%20Minister%20will%20therefore,and%20build%20a%20nuclear%20career.>

6. This is the mission statement from the Charter agreed by the Nuclear Skills Executive Council



The Nuclear Skills Taskforce (NSTF)

In August 2023, the Minister for Defence Procurement and the Minister for Nuclear and Renewables established a Nuclear Skills Taskforce to turbo-charge existing skills activity in the nuclear sector and to generate new initiatives to tackle challenges. The Taskforce, chaired by Sir Simon Bollom, brought together National Government, employers, and the education sector to deliver a strategic plan to ensure that the nuclear workforce has the people and the skills that it needs to deliver its programmes, today and in the future.

The Taskforce builds on the work that has been undertaken by the Nuclear Skills Strategy Group (NSSG) and has worked closely with the Taskforce, to identify areas where acceleration and expansion of measures are required, recognising that cross-government and industry collaboration is essential for success.

A key focus of the Taskforce has been to drive collaborative action, harnessing the collective power of some of the world leading organisations that exist within the nuclear sector.

The challenges around skills can only be met if the sector works together to deepen and broaden the skills base. Key organisations within the nuclear sector have made a landmark agreement to address the skills challenge collectively, by signing up to commitments recorded in a Nuclear Skills Charter. This commits key organisations from across government, industry and education to a single mission: “Together, we will build the nation's capability for the nuclear sector by growing a diverse and inclusive workforce that is motivated, recognised and inspired – filling 40,000 new jobs by 2030, doubling our current rate of recruitment, in order to deliver the UK's priorities for national security and energy resilience.”⁶

The primary output from the Nuclear Skills Taskforce is the National Nuclear Strategic Plan for Skills (Skills Plan) which captures the specific interventions that will be undertaken by the sector.

The Skills Plan – Key Themes

The Charter and the Skills Plan are both structured around four key themes that target core areas of collaboration and actions to build and retain the workforce.

1. Collaborate across the sector. Strengthening collaboration across the nuclear sector to foster sustainable partnerships and opportunities. This will provide for the current and future nuclear workforce through attraction, retention, and training. This involves both national and regional partnerships, with an emphasis on knowledge sharing and joint regional development, for example via Regional Hubs. It includes sponsoring a national communications campaign to elevate the sector's visibility.

2. Deepen the workforce pool. Increasing employment opportunities through upskilling programmes to attract and develop mid-career entrants, double the number of new entrants through apprenticeships and graduate schemes from 2025/26, increase the number of subject matter experts, and

provide experienced instructor resources to Further Education. This theme also encompasses supporting nuclear bursary and sponsorship schemes to increase STEM careers and social mobility opportunities.

3. Invest in the existing workforce. Celebrating the workforce and their vital role, building a sense of community, and offering more opportunities for career growth and development within the sector by creating mechanisms to motivate, excite and retain talent for the long-term.

4. Lead and steward for the long-term. Ensuring long-term leadership and stewardship in the nuclear sector through new opportunities for future leaders to develop, grow and experience working in different organisations and locations. Additionally, seek to increase equality diversity and inclusion (EDI) in all nuclear sector organisations to champion opportunities on an enduring basis.

Skills Plan – Key Projects

The Skills Plan covers 15 projects across 4 key themes, each with a specific set of objectives.

A. COLLABORATE

As described in the 2023 Integrated Review Refresh² and Civil Nuclear: Roadmap to 2050 (2024)⁴, the Ministry of Defence (MOD) and the Department for Energy Security and Net Zero (DESNZ) will proactively look for opportunities to collaborate. This includes delivery of the civil and defence nuclear enterprises, skills and seeking synergies where appropriate to ensure a coherent demand signal to our industry and academic partners.

Regional Hubs – Establish Regional Hubs to deliver joint actions across civil and defence nuclear organisations and enabling bodies. This will deliver a step-change in the capacity and capability of the deployed workforce. Recognising that regions face different skills challenges, on differing projected timelines, there is an opportunity for national initiatives to be tailored to each region, to maximise our social impact, mobility, STEM outreach, and supply chain relationships.

National Communications Campaign – Attract new talent into the sector through the creation of an enduring national sector-wide communications campaign called 'Destination Nuclear' that raises awareness of the importance of nuclear

to the UK and highlights the wide variety of roles that are available across civil and defence nuclear organisations. This establishes an overarching brand for nuclear, to inspire and to dispel the myths about the sector as well as make clear that the sector has opportunities for the majority of people in the UK.

Destination Nuclear can potentially support redeployment of people with transferable skills from adjacent sectors into nuclear by linking with the National Careers Service and The Careers & Enterprise Company. These organisations help sectors like nuclear disseminate information to career leaders and careers advisers in schools, colleges and in the community.

B. DEEPEN

Career Switchers – Deliver interventions, targeted at mid-career entrants, that successfully tackle the existing shortfall in skills in the most critical professions. Working in tandem with Destination Nuclear to promote the sector and the roles, this project also puts in place accelerated learning and upskilling opportunities so that people joining from other sectors can become effective as quickly as possible.

Apprentices – Double the number of apprentices in the nuclear sector by academic year 2025/2026 by significantly increasing the number of apprenticeships available across all

of the organisations within the sector. This will provide a wide range of opportunities in crafts and trades (such as welding and electricians) as well as engineering, project management and many more.

Graduates – Double the number of graduates entering the nuclear workforce by academic year 2025/2026 by creating more places for people who have recently completed their degrees, on graduate schemes within organisations.

This also includes the implementation of sponsorship and bursary schemes that will support students taking up STEM subjects. The sponsorship schemes will be available for those who may not have previously had the opportunity to go to University.

PhDs – Quadruple the number of specialist science and nuclear fission PhDs to ensure that we have subject-matter experts in the UK defence and civil nuclear sector. Securing the supply of these high-level skills will play a major role in leading the technical delivery of our nuclear programmes and ensure that the UK remains a world leader in nuclear capability. We will explore the opportunity to increase the number of Centres for Doctoral Training to support this.

Sector Experts into Training – Develop a nationally branded programme to attract and retain industry professionals in a variety of teaching and training roles so that people are able to pass on their expert knowledge and experience to students who are coming through Further Education.

C. INVEST

Nuclear Community – Establish a central careers portal where all employees and those looking for roles can go to learn more about the nuclear sector and find out what opportunities are available, and apply for jobs directly with employers.

Interchange – Establish a network of cross-sector arrangements to promote mobility through all types of interchange opportunities. This will enable the movement of

people across the sector who may be looking for opportunities to broaden or develop a fulfilling career in nuclear.

Optimising the Training Landscape – This workstream is concerned with optimising UK training capacity and capability and covers the following three key activities:

1. Increasing the training capacity for the nuclear sector by coordinating resources, contracts and structures (including trainer availability), combined with gaining greater clarity of the services available to employees for their development.
2. Standardising career paths, role profiles and associated qualifications to increase transferability and reduce need to retrain, particularly in critical skills areas.
3. Work at a regional level to understand supply and demand for educational requirements to fill any existing gaps.

D. LEAD

Cross-sector Leadership – Develop a prestigious leadership development programme that provides opportunities for future leaders to network, collaborate and experience working in different organisations and locations.

Future Leaders Scheme – A route for high potential individuals to develop their effective leadership skills and equip them to become senior leaders. The scheme will build an individual's skills, experience and relationships, including through offering opportunities to work in different organisations. It will challenge participants to ensure they meet their potential and progress to senior and priority roles in the UK nuclear sector.

Equality, Diversity & Inclusion – The increase in recruitment provides an opportunity to widen the diversity of the talent pool within the nuclear sector. Additionally, with increased training for the workforce, there will be greater opportunities for further embedding of EDI across the nuclear sector, raising awareness, learning from best practice and initiatives that move the dial.



The Skills Roadmap

This needs to build on existing nuclear sector skills work whilst also introducing new initiatives to de-risk the future and drive growth of the workforce by nearly 50% from current levels. The skills roadmap shows required action across four key themes, underpinned by a set of scoped projects within this plan and their strategic benefits.

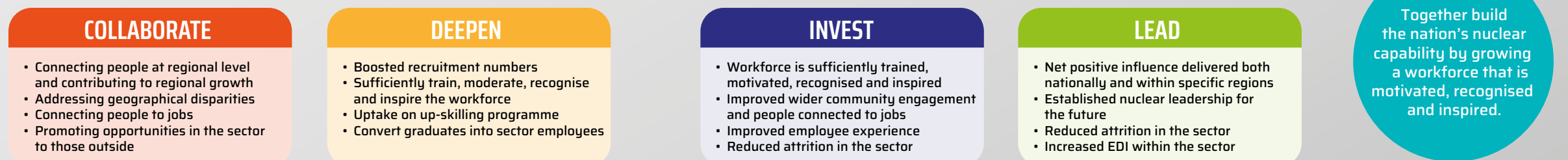
Building on current work and setting the foundations for success



De-risking the future through focused action



Delivering the strategic benefits





Conclusion

This Skills Plan represents the considerable effort of government and industry alike, who together recognise the importance of skills to our national civil and defence programmes. However, this effort cannot stop here. This unprecedented collaboration will deliver the solutions to meet the UK's nuclear skills challenges. This is not a quick fix, it

will take time and sustained commitment, adherence to the commitments and a keen focus on delivery and measuring impact. The sector faces shared challenges and they must share the ownership of the solutions that will address them. Such a monumental change programme must be underpinned by a shared plan.

Delivery Mechanism

The Nuclear Skills Taskforce has fulfilled its mandate to convene the relevant parties and set out a Skills Plan. With their work culminating in the signing of the Nuclear Skills Charter, the Taskforce has now been stood down, and this section outlines the mechanisms that are in place for delivery.

Successful delivery of the Skills Plan relies on effective delivery through government, the employers and the wider stakeholder community.

The government will continue to sponsor the Skills Plan and MOD and DESNZ will put in place senior leaders, and a small Nuclear Sector Skills Team, to ensure effective engagement and support across government for the delivery of the Skills Plan.

The Sponsors will co-chair the Nuclear Skills Executive Council (NSEC) which brings together CEOs from across key sector organisations. The NSEC will continue to provide leadership and ensure the delivery of the Skills Plan by abiding by the commitments that they have signed within the Nuclear Skills Charter.

Skills Directors from DESNZ and MoD will chair the Nuclear Skills Delivery Board (formerly, the Nuclear Skills Strategy Board) to provide overall leadership of the Skills Plan and serve as members of NSEC.



About NSDG

The NSDG describes the group of organisations responsible for the delivery of projects within the plan and for supporting regional collaboration. It represents the 'system' through which the plan is delivered. The NSDG consists of three main

sections - a PMO, the Project Delivery Leads and Regional Hub Leads. These support the Nuclear Skills Delivery Board, and the Nuclear Skills Executive Council in delivering the National Nuclear Strategic Plan for Skills.

The Nuclear Skills Executive Council



www.nuclearskillsdeliverygroup.com