



HM Government

Industrial Strategy

Nuclear Sector Deal



Foreword

The UK's civil nuclear sector is amongst the most advanced in the world, from fuel production, generation, new build, research through to decommissioning, waste management and transportation and our world-class regulatory system – it is an industry which offers much for the future.

Its economic footprint provides tens of thousands of highly skilled jobs, many in the north west and south west of England, driving growth in diverse regions across the UK and there is potential for further growth in other regions of the UK, helping develop a workforce which combines experience, skills and technology.

The existing fleet of nuclear power stations provides more than 20 per cent of the country's electricity: low-carbon, reliable and affordable power for homes, businesses and public services. A combination of low-carbon power sources has helped the UK reduce our carbon emissions and will be important in maintaining that progress as there is greater electrification of heat and transport.

This Sector Deal recognises the potential to build on that record and deliver the objectives set out in the Industrial Strategy. In particular, it shows where greater collaboration by the sector, with the right support

from the government, can help meet our Clean Growth Grand Challenge. It presents an opportunity to radically improve our industrial productivity, while still delivering affordable, reliable and always available nuclear power through:

- ▶ a new approach to building power plants – with a target for a 30 per cent reduction in the cost of new build projects by 2030;
- ▶ a long-term vision of innovation-led growth that delivers successively lower generation costs and a 20 per cent reduction in decommissioning costs to the taxpayer;
- ▶ a more competitive supply chain, with more UK companies using advanced manufacturing methods and entering domestic and export markets for nuclear goods and services.

This deal supports the government's aims for a modern industrial strategy by extending our nuclear excellence into the future, driving improved industrial productivity and making the UK one of the most competitive places to grow a business. It also supports:

- ▶ growth of a highly skilled workforce;
- ▶ a globally unique stock of technology and skills which will benefit other industries and services and which has significant potential in overseas markets;

- ▶ a lasting contribution to the communities that are host to nuclear facilities, both current and future.

This Sector Deal has been developed by the Nuclear Industry Council – whose membership is drawn from across energy, manufacturing, engineering, science and research – in partnership with the government. It is a commitment by the sector to work collectively, with support from government, to deliver on the Industrial Strategy, drive clean growth throughout the economy and make civil nuclear power an integral part of the UK's energy future.



Rt Hon Greg Clark MP

Secretary of State for Business, Energy and Industrial Strategy



Rt Hon Lord Hutton of Furness

Co-chair of the Nuclear Industry Council

Industrial Strategy at a glance

We will create an economy that boosts productivity and earning power throughout the UK

Industrial Strategy is built on 5 foundations



We will set Grand Challenges to put the United Kingdom at the forefront of the industries of the future:



AI & Data Economy

We will put the UK at the forefront of the artificial intelligence and data revolution



Clean Growth

We will maximise the advantages for UK industry from the global shift to clean growth



Future of Mobility

We will become a world leader in the way people, goods and services move



Ageing Society

We will harness the power of innovation to help meet the needs of an ageing society

Key policies include:

Ideas

- ▶ Raise total research and development (R&D) investment to 2.4 per cent of GDP by 2027
- ▶ Increase the rate of R&D tax credit to 12 per cent
- ▶ Invest £725m in new Industrial Strategy Challenge Fund programmes to capture the value of innovation

People

- ▶ Establish a technical education system that rivals the best in the world to stand alongside our world-class higher education system
- ▶ Invest an additional £406m in maths, digital and technical education, helping to address the shortage of science, technology, engineering and maths (STEM) skills
- ▶ Create a new National Retraining Scheme that supports people to re-skill, beginning with a £64m investment for digital and construction training

Infrastructure

- ▶ Increase the National Productivity Investment Fund to £31bn, supporting investments in transport, housing and digital infrastructure
- ▶ Support electric vehicles through £400m charging infrastructure investment and an extra £100m to extend the plug-in car grant
- ▶ Boost our digital infrastructure with over £1bn of public investment, including £176m for 5G and £200m for local areas to encourage roll out of full-fibre networks

Business Environment

- ▶ Launch and roll out Sector Deals - partnerships between government and industry aiming to increase sector productivity. The first Sector Deals are in life sciences, construction, artificial intelligence and the automotive sector
- ▶ Drive over £20bn of investment in innovative and high potential businesses, including through establishing a new £2.5bn Investment Fund, incubated in the British Business Bank
- ▶ Launch a review of the actions that could be most effective in improving the productivity and growth of small and medium-sized businesses, including how to address what has been called the 'long tail' of lower productivity firms

Places

- ▶ Agree Local Industrial Strategies that build on local strengths and deliver on economic opportunities
- ▶ Create a new Transforming Cities fund that will provide £1.7bn for intra-city transport. This will fund projects that drive productivity by improving connections within city regions
- ▶ Provide £42m to pilot a Teacher Development Premium. This will test the impact of a £1,000 budget for high-quality professional development for teachers working in areas that have fallen behind

An independent Industrial Strategy Council will assess our progress and make recommendations to government.

Executive summary

The Nuclear Sector Deal builds on the historical partnership between the government and industry that has helped the UK become one of the leading nuclear countries in the world.

The future success of the industry is central to achieving the Clean Growth Grand Challenge set out in the Industrial Strategy; to maximise the advantages for UK industries of the global shift to cleaner forms of economic growth. The UK nuclear sector, with its historical strength and skilled workforce across the country, is well-placed to capture that opportunity.

The UK opened the world's first civil nuclear power station in 1956. Since then, nuclear power has provided a reliable source of low-carbon, baseload electricity for our economy. In 2016, nuclear provided 20 per cent of our electricity. The UK is one of only a few countries with a nuclear industry covering the full life cycle of fuel production, generation, decommissioning, waste management and research. The industry consists of major engineering companies supported by a strong supply chain and skills network, a vibrant research capability and a regulatory framework that is respected across the world. The UK nuclear industry is concentrated into clusters around the country, such as the world-leading decommissioning hub in Cumbria and the innovative fusion research centre at Culham in Oxfordshire. With 15 operating reactors spread across the UK, supported by

expert nuclear services companies, the industry benefits both local communities and the country as a whole. The sector contributes £12.4bn to the UK economy¹ and provides long-term employment for 87,000 people across the civil and defence sectors².

In 2016, the government gave the go-ahead for the first new nuclear power station in a generation at Hinkley Point C in Somerset which will create 25,000 employment opportunities, including up to 1,000 apprenticeships during construction and operation, providing 3.2GW of reliable, low-carbon power³. This power station marks the resurgence of nuclear new build in the UK and reflects the joint work between the government and industry, supported by the Nuclear Industry Council. Industry has set out proposals for several new reactors to follow Hinkley as our older stations retire from the system, and we meet greater demand for electricity from technologies like heat pumps and electric vehicles.

To achieve this pipeline and meet our Clean Growth ambitions, the nuclear sector faces a considerable challenge to reduce its costs across the life cycle, from new build to decommissioning and disposal of waste. This Sector Deal builds on the Nuclear Industry

Council Proposals to Government for a Sector Deal published in December 2017⁴, which outlined a shared vision for a UK nuclear sector that generates reliable, secure, low-carbon power, but that also targets significant cost reduction to ensure it remains cost competitive with other sources of low-carbon technology. If we are successful in working together to meet that cost reduction challenge, it will provide significant opportunities for the sector and help support growth and highly productive jobs across the country.

New ideas and innovation will be crucial to meeting that challenge. In particular, we want the UK to build on its strength in advanced manufacturing techniques to demonstrate best-in-class construction, operation, support and decommissioning of nuclear facilities. This capability will not only help reduce costs in new build and decommissioning and waste management, but ensure the UK capitalises on a domestic market worth an estimated £75bn and global markets estimated at £100bn (waste and decommissioning) and £1.2tn (new build) up to 2035⁵. Support and investment in innovative new technologies can also help position the UK at the forefront of the nuclear technologies of the future.

Strengthened collaboration and leadership from industry will underpin the successful delivery of the deal. The initial focus of the Sector Deal

is on a vision up to 2030, but it has the potential to be the foundation for much longer term progress and activity, setting out an ambition for the nuclear sector to deliver:

- ▶ 30 per cent reduction in the cost of new build projects by 2030
- ▶ Savings of 20 per cent in the cost of decommissioning compared with current estimates by 2030
- ▶ 40 per cent women in nuclear by 2030
- ▶ Up to £2bn domestic and international contract wins by 2030

The proposals contained within this Sector Deal are designed to complement this ambitious set of goals and are aligned to the foundations set out in the Industrial Strategy - ideas, people, infrastructure, business environment and places. They support its vision for the UK to be the world's most innovative economy; for good jobs and greater earning power for all; for a major upgrade to the UK's infrastructure; to be the best place to start and grow a business; and for prosperous communities across the UK. The actions we are taking apply throughout the UK and the challenges facing the nuclear sector are shared with our partners in the devolved administrations. As we deliver this Sector Deal we will look for opportunities to collaborate.

The government aims to secure a close association with Euratom in future and is putting in place appropriate measures to ensure uninterrupted cooperation and trade in the civil nuclear sector. To achieve this, we have signed new international safeguards agreements with the International Atomic Energy Agency and we are putting in place arrangements for continued nuclear cooperation with key trading partners. The Nuclear Safeguards Act 2018 provides the legal framework for a domestic nuclear safeguards regime. This future domestic safeguards regime will be operated by the Office for Nuclear Regulation (ONR) and we are working closely with the ONR to put in place the measures needed to continue to meet our international commitments from day one of EU exit.

Ideas

The government committed in the Industrial Strategy White Paper to raising the total public investment in research and development (R&D) from around £9.5bn in 2016/17 to £12.5bn in 2021/22, as well as a commitment to work with industry to boost spending on R&D to 2.4 per cent of GDP by 2027. This will increase to three per cent over the longer term.

The Sector Deal sets out how the nuclear sector will be part of this new wave of innovation, including through the design of an innovative programme of advanced manufacturing to drive advances in UK capability to reduce costs (see Business Environment section).

In addition, the government is setting out a new framework to support development and deployment of small modular reactors (SMRs) and the innovative technologies that support them. This support is designed to challenge the industry to bring forward technically and commercially viable propositions that would lead to deployment of new reactors that would be investable and cost competitive in the energy system.

This builds on the government's commitment of up to £56m to support the design of advanced nuclear technologies⁶ and £86m to create a new National Fusion Technology Platform at Culham in Oxfordshire⁷. The government is also working in partnership with the Welsh Government to develop a £40m thermal hydraulics facility in the north of Wales as part of the Nuclear Innovation Programme. This will ensure the UK remains attractive to nuclear innovators and investors from across the world, building on our historic strengths and support the Clean Growth Grand Challenge. These additional investments will augment existing nuclear capability, and is focused on generating innovative ideas that can be found in our National Laboratories, Universities and our Industry. Specialist nuclear R&D infrastructure will be key to enabling these investments, using organisations such as the National Nuclear Laboratory.

People

The government set out its vision for generating good jobs and greater earning power for all in the Industrial Strategy.

The Sector Deal proposes action, with industry working in partnership with the government, to ensure the nuclear industry benefits from a diverse workforce of nuclear skills as well as the more generic 'skills for nuclear'. The interventions targeted in specific locations throughout the UK will be delivered through involvement in England of the Local Enterprise Partnerships and the devolved administrations elsewhere, and seek to drive a step-change in the involvement of women in nuclear to achieve 40 per cent of the total workforce (up from 22 per cent now) by 2030.

The nuclear sector has a proud history of developing apprentices, which we want to build on. The industry is committed to maximising use of the Apprenticeship Levy to deliver additional apprenticeship starts in the supply chain, particularly across the north west and south west of England. It has also committed to a target of 50 per cent female participation in apprenticeships by 2021. The UK has some of the brightest nuclear minds in the world; to ensure we continue to benefit from this expertise, the government will work with the sector to explore options to increase the number of nuclear-related PhDs by looking at routes to provide additional investment via Centres for Doctoral training or similar approaches delivered by the newly created UK Research & Innovation. The industry's civil and defence employers will work with the Institute for Apprentices to develop a proposal for a Level 8 Subject Matter Expert trailblazer

standard for nuclear experts.

Despite its complexities, the nuclear industry will do more to attract talent from other sectors and consider supporting the expansion of the National College for Nuclear to support this objective. In order to maximise visibility of the sector to young people and ensure nuclear is an attractive destination for science, technology, engineering and maths (STEM) students, the government will provide dedicated career champions to work with the sector to understand the unique challenges of safety and security in nuclear to ensure the sector is able to deliver work experience placements for students in schools, further education and higher education.

These actions taken together will seek to sustain an estimated 100,000 well paid jobs throughout England, Scotland and Wales by 2021⁸.

Infrastructure

The government is committed to delivering a major upgrade to the UK's infrastructure. The Sector Deal focuses on ambitious cost reductions across both new nuclear and waste and decommissioning to ensure the nuclear sector remains competitive with other low-carbon generation technologies. This will be underpinned by research into advanced construction, reduction of construction costs and supply chain development. The measures will target a 30 per cent reduction in the cost of new build for projects by 2030 and the sector will work closely with the

Energy Technologies Institute (ETI) to ensure that its recent study on cost reduction is exploited in meeting that target. The cost of manufacturing components, in particular, can be reduced by innovation and the adoption of advanced methods of production and economies of scale across the sector, enabling the supply chain to work on volume opportunities in a way that other sectors have embraced.

The government recognises the strategic national importance of maintaining its fuel capabilities and will work with UK nuclear fuel industry to ensure continued, commercial operation of these facilities to deliver future energy security as well as ensuring the UK nuclear fuel industry continues to deliver long-term UK economic benefit.

The government and the sector will conduct a joint review into the decommissioning pipeline and waste management arrangements to target savings of 20 per cent in the cost of decommissioning compared with current estimates. The review will look at improving the way we do decommissioning in the UK to minimise cost and drive best value, whilst also exploring opportunities to support UK businesses to leverage our world-leading expertise in decommissioning and waste management to increase exports.

Business Environment

The government wants the UK to be the best place in the world to start or grow a business and for the business environment to support firms to innovate, invest and expand.

In addition to the support for Innovation set out under Ideas, this Sector Deal also sets out an innovative programme to support the greater use of advanced construction techniques in nuclear.

The government and the sector will design and fund a programme to demonstrate how advanced manufacturing and construction can reduce costs in a range of products and services across the nuclear industry, including for future technologies. The programme will harness techniques such as digital engineering execution and assurance and modular construction to help cut the cost of new build and decommissioning. This will help to ensure UK suppliers are competitive in the supply chain, leading to more contract wins and greater export potential.

The Sector Deal also aims to improve the productivity and competitiveness of the UK nuclear supply chain, reduce barriers to entry and encourage disruptive, innovative businesses and SMEs to enter the sector. The government and industry will explore co-funding a £30m national supply chain and productivity improvement programme, including for regional applications of the programme, building on Civil Nuclear Sharing in Growth and Fit4Nuclear to equip UK companies to secure up to £2bn of new contracts in domestic and export markets by 2030.

The government and sector will also work together to develop a coordinated global campaign for promoting the UK's nuclear expertise overseas to maximise future export orders across the nuclear



life cycle. This includes ensuring that future government policies on civil nuclear consider the likely impact on either future UK export capability or UK export orders, drawing in expert partner organisations like the Nuclear Decommissioning Authority, where necessary.

Places

Local communities across England, Scotland and Wales are at the heart of the nuclear sector. They play a vital role in building, operating, maintaining and decommissioning our nuclear assets and are often located in some of the most remote and disadvantaged areas of the UK. Investment in the sector has the potential to transform the prosperity of regions and communities, by providing high-value and skilled employment chances, unlocking investment to support infrastructure and capital

projects and growing manufacturing and industrial capabilities.

The Sector Deal seeks to build on the existing regional strength of the sector through exploring how the advanced manufacturing programme could unlock investment and increase opportunities for local suppliers; how skills strategies can embrace greater diversity and better opportunities for people across the country; and how the development of nuclear supply chain clusters (to be delivered by Local Enterprise Partnerships in England and through collaboration with the Welsh Government), could unlock further growth, investment and jobs by providing greater opportunities for local businesses. The emerging North West Nuclear Arc Consortium⁹ linking Anglesey in Wales to the north west of England underlines the capabilities the UK has in its regional clusters.

Nuclear Sector Deal

Key commitments



Ideas

To be the world’s most innovative economy.

Government action to support nuclear

Developing and deploying advanced nuclear technologies

- ▶ We will provide up to £56m for R&D for advanced modular reactors
- ▶ Setting out a new framework to support the development and deployment of small modular reactors (SMRs) and the innovative technologies that support them

Nuclear Research & Development

- ▶ We are providing £86m for a National Fusion Technology Platform at Culham in Oxfordshire
- ▶ We will work in partnership with the Welsh Government to develop a £40m thermal hydraulics facility in the north of Wales as part of the Nuclear Innovation Programme developing and deploying advanced nuclear technologies

Sector action to support nuclear

Developing and deploying advanced nuclear technologies

- ▶ Bring forward technically and commercially viable propositions that would lead to deployment of new reactors that would be investable and cost competitive in the energy system

People

To generate good jobs and greater earning power for all.

Government action to support nuclear

Enhanced skills leadership

- ▶ The government recognises and will continue to support the activities of the Nuclear Skills Strategy Group (NSSG) as the lead on skills for the sector

Exciting the next generation about nuclear

- ▶ Provide dedicated career champions to work with the sector to understand the unique challenges of safety and security in nuclear to ensure the sector is able to offer work experience placements for students in schools, further education and higher education

Staying at the cutting edge

- ▶ We will work with the sector to explore options to increase the number of nuclear-related PhDs by looking at routes to provide additional investment via Centres for Doctoral training or similar

Joint action to support nuclear

Sector transferability

- ▶ The government will work with the sector to enable bespoke programmes that support the transitioning between sectors, including civil and defence, and consider expansion of the National College for Nuclear

Sector action to support nuclear

Enhanced skills leadership

- ▶ Improve diversity across the sector in order to achieve 40 per cent female participation in nuclear (up from 22 per cent now) by 2030
- ▶ Support the NSSG to deliver its Strategic Plan and provide reliable data for the annual Nuclear Workforce Assessment

Local apprenticeships

- ▶ Maximise the use of the Apprenticeship Levy to deliver additional apprenticeship starts at a local level

Staying at the cutting edge

- ▶ Work with the Institute for Apprenticeships to develop a Level 8 Subject Matter Expert trailblazer standard and explore bespoke programmes to accelerate Subject Matter Expert development

Exciting the next generation about nuclear

- ▶ Develop a business case for simulation facilities to improve STEM skills, technical training, engagement with local schools and improve the visibility of a career in nuclear

Infrastructure

A major upgrade to the UK's Infrastructure.

Government action to support nuclear

New build

- ▶ In line with the Public Accounts Committee's recommendations with respect to Hinkley Point C, the government will keep under consideration a range of financing options when deciding how to proceed with future new nuclear projects. For example, we will be considering direct investment in the Wylfa project and will be reviewing the viability of a regulated asset base model for future projects

Securing fuel capabilities

- ▶ We will work with the UK nuclear

fuel industry to ensure continued, commercial operation of their facilities and secure the long-term future of these important UK strategic national assets to deliver future energy security as well as ensuring the UK nuclear fuel industry continues to deliver long-term UK economic benefit

Improved taxpayer value from nuclear decommissioning

- ▶ Launch a public consultation on proposals for a more up to date approach to regulation of nuclear sites in the final stages of decommissioning

Sector action to support nuclear

New build

- ▶ Target 30 per cent reduction in the cost of new build projects by 2030
- ▶ Maximise UK content in projects, including by publishing Supply Chain Plans

Improved taxpayer value from nuclear decommissioning

- ▶ Sector will achieve savings of 20 per cent in the cost of decommissioning by 2030 compared with current estimates

Joint action to support nuclear

Joint review of decommissioning pipeline

- ▶ The government and the sector will conduct a review into decommissioning and waste management arrangements to develop a National Decommissioning and Waste Management Pipeline, supporting accelerated decommissioning and clean-up to reduce risk and cost to the public

Business Environment

To be the best place to start and grow a business.

Government action to support nuclear

Advanced manufacturing and construction programme

- ▶ We will provide up to £20m to demonstrate how advanced manufacturing and construction can increase UK competitiveness and reduce costs in a range of products and services across the sector, such as:

- digital engineering execution and assurance
- modular and advanced construction

Winning new business

- ▶ We will provide up to £10m for a new national supply chain and productivity improvement programme, including for regional applications of the programme

Sector action to support nuclear

Advanced manufacturing and construction programme

- ▶ Make a £12m initial commitment to demonstrate and embed new advanced capabilities in the UK supply chain, leading to increased contract wins and scope in export markets
- ▶ Leverage further funding (e.g. from local and International sources) to support the creation or extension of current research infrastructure to demonstrate new construction, qualification, control & instrumentation and modular build techniques
- ▶ The industry will continue to develop ideas for research

& commercialisation of innovation proposals, including through bids to the Industrial Strategy Challenge Fund

Winning new business

- ▶ Provide £20m (£10m funding and £10m contribution-in-kind) for a national supply chain and productivity improvement programme
- ▶ Deliver a programme that:
 - increases market competition
 - identifies growth opportunities
 - strengthens UK competitiveness (e.g. by embedding advanced manufacturing techniques)

Joint action to support nuclear

Nuclear export campaign

- ▶ The government will work with the UK civil nuclear sector to develop a coordinated global campaign for promoting the UK's nuclear expertise overseas to maximise future export orders across the nuclear life cycle

Places

To have prosperous places throughout the UK.

Joint action to support nuclear

Creating clusters of nuclear expertise

- ▶ To maximise the impact of the national supply chain and productivity improvement programme, at a regional level, the government and the sector will consider the development of a network of nuclear supply chain clusters to be delivered by Local Enterprise Partnerships in England and, working with the Welsh Government, to unlock further growth, investment and jobs by providing greater opportunities for local businesses

Ideas

New ideas and innovation will be needed if the nuclear sector is to reduce the cost of new build and decommissioning. In meeting that cost reduction challenge there will be significant opportunities for the sector to support growth across the country and contribute to the Clean Growth Grand Challenge.

Developing and deploying advanced nuclear technologies

The UK has consistently been a world leader in nuclear technology and has been at the forefront of many new developments. We have a wealth of expertise and experience in our national laboratories, Catapults and research centres, and in the wider UK nuclear industry and supply chain. This has contributed both to the economic prosperity and security of the nation, and to the wider international community. Nuclear technology continues to develop rapidly, with significant programmes of research in new build and decommissioning across the global industry. To ensure that the UK is leading this innovation, we intend to build on recent announcements and set out a clear direction for advanced nuclear technologies in the UK.

In December 2017, we announced a package of up to £44m for R&D funding (£4m in phase 1 and, subject to government approval, up to £40m for phase 2) for ‘advanced’ modular reactors, and bids were invited for Phase 1 feasibility studies¹⁰.

The following companies have made credible propositions from a range of UK and international concepts and will receive grant funding to undertake detailed studies:

Advanced Reactor Concepts LLC; DBD Limited; LeadCold; Moltex Energy Limited; Tokamak Energy Ltd; U-Battery Developments Ltd; Ultra Safe Nuclear Corporation; Westinghouse Electric Company UK Limited.

Analysis of these studies later this year will ensure that the UK has a rounded picture of advanced nuclear technologies to inform future policy decisions.

The government believes that innovation can also improve existing technologies. The use of advanced manufacturing techniques, systems and processes, modularisation and small modular reactor (SMR) technology - pioneered by UK companies such as Rolls Royce - have the potential to bring down costs. As part of this, together with industry, we are setting out a new framework to support the development and deployment of SMRs and the innovative technologies that support them.



The framework incorporates the Nuclear Regulators (ONR and Environment Agency (EA)) further improving their Generic Design Assessment (GDA) process.

This includes taking account of learning from previous assessments and by introducing greater flexibility in the process. For SMRs, the aim is that more mature designs could enter the GDA process in the near-term, around the end of 2018.

In December 2017 the government announced it was setting up an independent Expert Finance Working Group (EFWG) to explore innovative financing for SMRs.

The work of the EFWG is nearing completion and its report will be presented to Ministers in the summer. The emerging findings and recommendations of the EFWG based on the evidence submitted by industry and the analysis of the independent group suggests that the UK could be well placed to develop first of a kind (FOAK) small reactor projects and that the characteristics of small nuclear reactors, employing innovations in design, manufacture and site construction could potentially generate positive economic cases.

Building on this, government will shortly bring together vendors, utilities, energy intensive users and the finance sector to further develop credible commercial propositions that could be financed by the private sector.

This includes discussions with the UK finance sector over the viability of creating suitable private investment vehicles for clean energy infrastructure projects using advanced nuclear technologies. The government looks forward to receiving the report and considering its findings.

The government also recognises growing local and regional interest in a number of sites, such as Trawsfynydd, for further nuclear development. In principle, it notes the arguments of developers that new, smaller power plants should (re)use existing, licensed sites to take advantage of past investment in infrastructure and grid connections, and the skilled workforces around them. The government will therefore be actively considering the question of siting for SMRs.

Taken together, the government believe that this framework will create a fertile environment for the development and deployment of advanced nuclear technologies in the UK. The challenge for the industry is to bring forward technically and commercially viable propositions that would lead to the deployment of new reactors that would be investable and cost competitive in the energy system.

Nuclear Research and Development

The government and the sector also recognise there is a huge opportunity from nuclear fusion technologies to build on the UK's existing scientific strengths in that area and ensure UK expertise leads the way in pioneering research that has genuine global impact. Therefore, the government is providing £86m to set up a national fusion technology platform at the UK Atomic Energy Authority's Science Centre at Culham in Oxfordshire¹¹. The new investment will reinforce the UK's world-leading fusion R&D capability, underline our commitment to international collaboration and allow UK firms to compete for up to £1bn of international contracts for fusion technologies, including for the International Thermonuclear Experimental Reactor (ITER), which will continue efforts to develop a clean, safe and virtually limitless energy source. The government is also exploring with UKAEA the scope for further developing the Culham site as a hub for advanced nuclear technologies.

Elsewhere, the government is working in partnership with the Welsh Government to develop a £40m thermal hydraulics facility in the north of Wales as part of the Nuclear Innovation Programme.

The facility is intended to be the most modern of its kind in the world and will support the design and development of advanced nuclear technologies, as well as having wider spill-over in the field of non-nuclear thermal hydraulics.

The government is also actively exploring the potential scope for collaboration with international partners in key areas of nuclear research. The government's accession to the Framework Agreement of the Generation IV Forum has recently completed the UK Parliamentary process. It is currently progressing through relevant OECD procedures which should be completed by Autumn 2018. Ratification of the Framework Agreement will allow the UK to be an active member of the Forum, ensuring the UK can explore areas of mutual interest and international collaboration in the development of the next generation of nuclear reactors. The UK will also have access to Forum research and this will allow UK nuclear R&D to make a significant contribution to the Clean Growth Strategy which aims to contribute to the UK's carbon reduction targets.

Additionally, the UK has formally joined the Nuclear Innovation: Clean Energy Future initiative under the auspices of the Clean Energy Ministerial. The initiative starts an important dialogue amongst the CEM member countries on the role of nuclear in the energy systems of the future. With a particular focus on innovative applications of advanced nuclear technologies it is an opportunity to convene global discussion on the contribution of the nuclear sector to tackling the clean growth challenge. The government welcomes the leadership of Canada, Japan and the USA in sponsoring this initiative.

People

The Nuclear Skills Strategy Group's (NSSG) Strategic Plan highlights the importance of developing the right skills in the right place through a partnership between the government and industry.

By 2021 the UK is expected to need more than 100,000 workers in the civil and defence sectors, up from 87,000¹², covering generic skills ('skills for nuclear'), nuclear skills and Subject Matter Expert skills. Many of these jobs will be in more remote regions, providing significant local economic benefits. Due to the attrition rate of the sector there is a requirement for around 7,000 entrants each year to join the sector. In addition to increasing the number of new workers, the nature and diversity of these skills needs to be enhanced to encourage innovative approaches that will result in improved productivity and cost savings. The trades unions and their membership have a productive relationship at UK nuclear sites, contributing to a high productivity environment. Unions will have a vital role to play in the future of the sector and their strong base of members within the nuclear workforce places them in an ideal position to help shape workforce priorities and development. High levels of engagement between unions and industry, both at the centre and at each site, help underpin the relationship and the workforce contribution to productivity, innovation and the maximisation of socio-economic benefits.

Enhanced skills leadership

The government and the sector will support the activities of the NSSG - recognising it as the lead organisation for sector skills that brings together industry, government, regulators and trades unions to collaboratively address skills challenges facing the sector - in the delivery of its Nuclear Skills Strategic Plan, published in December 2016¹³. The plan includes a sectoral diversity strategy which commits the sector to meeting its skills requirements by drawing from a more diverse talent pool. The sector will implement The Future Boards Scheme¹⁴, which aims to give talented female executives direct access to board-level experience to help prepare them for future Executive and Non-Executive board opportunities. This will support the sector's target of achieving 40 per cent female representation by 2030 (up from 22 per cent now), underpinned by continued provision by the sector of reliable data on skills supply and demand. The government and the sector have agreed that, via the NSSG, they will ensure the new Skills Advisory Panels' national framework for analysis of this data aligns with the annual Nuclear Workforce Assessment.



Local apprenticeships

From April 2018, employers who pay the Apprenticeship Levy are able to transfer funds to other employers, including Apprenticeship Training Agencies¹⁵. The sector will work to maximise use of the Levy to enable the supply chain to increase the number of apprentices at a local level and ahead of demand. This could potentially deliver additional apprenticeship starts beyond the 2,000 already planned and target 50 per cent female participation by 2021. The government will work with the sector to maximise their use of the Levy within its framework.

Staying at the cutting edge

The UK has some of the brightest nuclear minds in the world and investments like the Nuclear Futures Institute¹⁶, opened in November 2017,

is helping to attract world-leading researchers to Wales building a platform of nuclear expertise in the UK. However the government and the sector recognise that more needs to be done to replace those Subject Matter Experts who will be lost as the older generation of nuclear scientists and engineers retire. The government will work with the sector to explore options to increase the number of nuclear-related PhDs by looking at routes to provide additional investment via Centres for Doctoral training or similar approaches delivered by the newly created UK Research & Innovation. The industry's civil and defence employers will work with the Institute for Apprentices to develop a proposal for a Level 8 Subject Matter Expert trailblazer standard for nuclear experts.

Sector transferability

Despite the complexities and challenges in nuclear, there are many synergies with other sectors and simplifying the process to bring in these skills is essential to support the future ambitions of the nuclear industry. The government will work with the sector to enable bespoke programmes that support the transitioning and transfer of capability between civil and defence. The sector aims to establish a pilot scheme that enables the transfer of skills between sectors, focussed initially on oil and gas, the armed forces and manufacturing and aligned to regional skills priorities. The value of the National College for Nuclear is recognised in supporting nuclear-specific development in this context and the sector will consider supporting the expansion of the National College for Nuclear to other regions to reflect the geography of demand, for example in the east of England and Wales.

Exciting the next generation about nuclear

The importance of employer engagement with young people through careers and education was set out in the government's Post-16 Skills Plan¹⁷ and Careers strategy: making the most of everyone's skills and talents¹⁸. The sector (civil and defence) is committed to engaging with young people despite

the challenges that nuclear faces in terms of safety and security regulation. The government will provide dedicated career champions who will work with nuclear employers to implement work experience placements across the sector for students in schools, further education and higher education. This role will provide support and guidance to businesses delivering work experience placements, act as the main point of contact for queries and provide targeted communications to businesses. This will enable the sector to develop collective power to support the implementation of work placements sector-wide, including as part of the T level reform programme. The sector will also develop a business case to create state-of-the-art, bespoke simulation facilities to provide a nuclear offering to STEM students through T level education (engineering and manufacturing route) and technical assessment as part of the Sector Deal.

The industry is also keen to improve the visibility in schools for the great career choices that the nuclear industry can offer, especially in STEM areas. The sector will take a co-ordinated approach to schools and colleges, facilitated by EngineeringUK and the Year of Engineering 2018 campaign, to improve early engagement with young people.

Infrastructure

New build

The UK has embarked on its first new build project in a generation, with Hinkley Point C expected to offset nine million tonnes of carbon dioxide emissions per annum over its expected sixty year lifespan and supply up to seven per cent of current UK electricity demand. Its construction and operation will create 25,000 employment opportunities, including up to 1,000 apprenticeships - while 64 per cent of the project's construction value is set to go to UK companies¹⁹. This has been possible through a strong partnership between the government and industry, and our ambition is that this approach will endure. Going forwards new build developers will be required to publish Supply Chain Plans²⁰ to ensure the UK supply chain has better visibility of future opportunities, enabling them to build the capacity and capability to compete for a greater share of work.

Both the government and the sector want to see the costs of nuclear new build come down. This is necessary for the sector's ongoing competitiveness and to benefit consumers. In this Sector Deal the industry has set a target of 30 per cent reduction in the cost of new build projects by 2030 and identified the potential for further reductions thereafter.

Achieving this will depend on joint action on several fronts, such as exploring financing models and steps to address the main drivers of construction costs (i.e. overnight capital costs), including through advanced construction techniques.

In line with the Public Accounts Committee's recommendations with respect to Hinkley Point C, the government will keep under consideration a range of financing options when deciding how to proceed with future new nuclear projects²¹. The government has announced that it is entering negotiations in relation to the proposed Wylfa Newydd project, which will consider direct government investment. The government is continuing discussions with other developers on their plans for further projects: EDF at Sizewell, CGN at Bradwell, Toshiba regarding their plans for the NuGen project at Moorside and Hitachi over potential further units at Wylfa and Oldbury. Alongside these discussions the government will review the viability of a regulated asset base model as a sustainable funding model, based on private finance for future projects beyond Wylfa²².

Beyond this commitment on financing, the Sector Deal will focus on potential savings from the application of

advanced manufacturing techniques as set out in the Ideas section. Experience in industry, confirmed by the Technology Needs Assessment report 2016, is that innovation (such as in manufacturing processes and using digital models and virtual reality to improve construction methods) can deliver significant reductions in costs and programme schedule.

Furthermore, the Energy Technologies Institute (ETI) Nuclear Cost Drivers Project sets out how engaging in the right kind of collective action and demonstrating risk reduction by all project stakeholders can bring down electricity costs for the consumer.

The evidence supports the government's view that the levels of cost reduction achieved outside of Europe and North America can be replicated in the UK. The sector will work closely with the ETI through the implementation phase of this Sector Deal to ensure its study is fully exploited in the pursuit of cost reductions and that the UK can maximise the benefits of new nuclear power stations.

Securing fuel capabilities

The government recognises that the UK has vital front-end fuel facilities located in the north west of England which have been supplying enrichment and fuel fabrication services safely

and reliably to UK and overseas customers for decades. These facilities, with their highly skilled workforce, are strategic national assets providing UK energy security and direct and indirect employment for around 4,000 people. Together, they make a strong contribution to the UK economy spending over £240m with the UK supply chain. In addition, these facilities have a long-established export business and provide significant support to nuclear innovation, research and development in the UK.

The UK nuclear fuel industry is committed to continue the safe operation and maintenance of these facilities, developing and investing in them to provide long-term cost-effective enrichment and fuel fabrication with a skilled workforce, and leading apprenticeship programmes to meet future UK energy requirements. The UK nuclear fuel industry will continue to develop and promote the UK's nuclear expertise and capability overseas to maximise future export orders across enrichment services, fuel supply, reactor services and decommissioning.

The government is committed to work with the UK nuclear fuel industry to ensure continued, commercial operation of these facilities and secure the long-term future of these important UK strategic national assets



to deliver future energy security as well as ensuring the UK nuclear fuel industry continues to deliver long-term UK economic benefit.

Improved taxpayer value from nuclear decommissioning

The current estimate of the undiscounted total cost of cleaning up the UK's nuclear liabilities is £119bn for the Nuclear Decommissioning Authority (NDA) estate²³; £7.5bn for the Ministry of Defence²⁴; and £19.5bn for EDF's Advanced Gas Cooled Reactor fleet²⁵ and Sizewell B and the government and sector recognise there is an opportunity to improve taxpayer value from this significant spend.

This Sector Deal will set in train actions to achieve a 20 per cent reduction in the cost of decommissioning compared with current estimates.

The NDA has a clear mission: to clean up the UK's nuclear legacy in a safe, secure and cost-effective way. In support of this the government has launched a public consultation on proposals for a more up to date approach to regulation of nuclear sites in the final stages of decommissioning.

The NDA manages an integrated waste management strategy for its estate and will refresh its current strategy and approach, working with the sector to consider the implications for

related sectors, such as defence, oil and gas and pharmaceuticals. Further development of this strategy will give the supply chain more opportunities and confidence in the waste management pipeline, providing greater resilience in the UK infrastructure and enhancing opportunities for inward investment and growth.

Joint review of decommissioning pipeline

The government and the sector - engaging with UK regulators - will conduct a comprehensive six-month review of decommissioning and waste management to develop a National Decommissioning and Waste Management Pipeline. The review will identify optimum work programmes, methods, operating and procurement approaches to minimise cost and drive best value. The scope of the review will include all significant future decommissioning and waste management projects, covering civil, defence, medical, research facilities and Naturally Occurring Radioactive Material (NORM) from sectors such as oil and gas. By establishing a national pipeline of decommissioning programmes in this way the government and sector will unlock significant opportunities for the UK economy, reducing barriers to entry for the supply chain, creating jobs and driving focused innovation.

Examples of the benefits include increased opportunities for the supply chain to participate in the ongoing work to deliver a Geological Disposal Facility, as set out in the 2014 White Paper Implementing Geological Disposal²⁶, and the opportunity to prioritise innovation and technology development funding to optimise decommissioning and waste management programmes.

The joint review will also explore opportunities to develop the sector's ability to leverage its world leading capabilities in decommissioning and waste management to drive exports. Building on the nuclear exports proposal, set out in the Business Environment section, the review will look at how the NDA can help to equip UK companies to export without compromising its mission to decommission and clean-up the UK's nuclear legacy in a safe, secure and cost-effective way while minimising environmental impact.

Business Environment

Advanced manufacturing and construction programme

The government and the sector will work together to establish a programme of work to demonstrate new ways of making key, high-value nuclear components, or designing systems or processes. Demonstration will involve trial builds (or equivalent) using advanced methods, such as factory-build; modular and advanced construction and digital engineering execution and assurance. These techniques could then be applied to the build, decommissioning or maintenance of a nuclear power plant, helping to drive down costs. The government will provide up to £20m (subject to a rigorous business case) to leverage significant sector investment; that investment will start with a £12m commitment, but will increase as the programme takes shape. The sector will leverage further funds from local (e.g. Local Enterprise Partnerships) and International sources, as well as a potential bid into the Industrial Strategy Challenge Fund (ISCF). This would build on last year's ISCF Wave 1 which included investment for artificial intelligence and robotic systems for extreme environments like the core of a nuclear reactor and space.

The programme will be applicable to a range of nuclear technologies from conventional new build reactors to future advanced reactors, as well as in waste and decommissioning.

For example, one project that could be brought forward is the application of advanced manufacturing techniques to the production of containers for radioactive waste. Combined with smarter procurement, this could save an estimated £300m in the UK in addition to the potential export opportunities from the manufacturing expertise. Industry estimates that the potential savings could be up to £1.1bn if new and innovative procurement approaches considered during the joint review of decommissioning pipeline, set out in the Infrastructure section, are adopted. Proving UK capability in manufacturing by using innovative and advanced techniques is one of the ways to help meet the cost reduction targets set by the sector for new build and waste and decommissioning by 2030. In the new build market, for example, establishing replicable methods of production for components common to the different reactor types slated for deployment in the UK could reduce risk and therefore cost, helping to position UK suppliers as credible and competitive players in the new build supply chain, leading to more contract wins and greater exports to the value of up to £2bn by 2030.

The programme will draw on the expertise and skills base that the UK has in other relevant manufacturing sectors such as oil and gas, aerospace, automotive, marine and rail. This recognises and incorporates some of the ideas put forward in Professor Juergen Maier's independent review of industrial digitalisation, Made Smarter²⁷. Utilising cross-sector technologies and learning will result in significant productivity and quality improvements, such as electron beam welding which reduces 'cycle time' from days to hours, thereby reducing costs. The programme will be supported by the UK Regulators who will consider the appropriateness of their existing regulatory framework when applied to the advanced manufacturing trials. ONR will adopt an enabling approach and engage with organisations supporting the trial to ensure the development of manufacturing arrangements that meet regulatory requirements.

Winning new business

In line with the government's ambition to make the UK the best place to start and grow a business, this Sector Deal aims to give UK companies the support they need to maximise contract wins in new build, waste and decommissioning and future reactor technologies.

The government will provide up to £10m (subject to business case) to support the sector's development of a national supply chain competitiveness and productivity improvement programme. Some of this funding may also be made available to regional applications of the programme, in the form of a Nuclear Clusters Development programme based in the south west of England, details of which are set out in the Places section. In response the sector will match up to £20m (£10m from reactor vendors, UK supply chain companies and overseas markets; and £10m as contributions-in-kind). The programme would look to offer targeted support to companies who want to expand their capabilities in nuclear or enter the sector from related markets.

Targeted support for ambitious and innovative companies will help realise the objectives of programmes like the advanced manufacturing initiative set out in this deal and thereby help to achieve the sector's cost reduction targets through embedding new advanced manufacturing techniques. It will also help to increase the UK's export capabilities, especially in areas of proven expertise like waste and decommissioning, where the global market opportunity is estimated to be £100bn up to 2035²⁸.



The Nuclear Advanced Manufacturing Research Centre (Nuclear AMRC) has estimated that a successful national programme would – in conjunction with the advanced manufacturing and construction programme set out in this deal – create or sustain up to 12,500 jobs and up to £2bn domestic and international contract wins by 2030. This builds on previous and current business support programmes sponsored by Nuclear AMRC (Fit for Nuclear and Civil Nuclear Sharing in Growth) which together are estimated to have delivered over £1.4bn of new contracts and created or sustained over 7,500 jobs in the UK.

Nuclear exports

Significant international investment is planned in the global civil nuclear sector. Up to 2035, the World Nuclear Association forecasts around £1.2tn will be spent building new plant, £3.5bn a year on long-term operations, and £100bn on waste management and decommissioning. There will also be significant spend on associated professional, legal and financial services, in addition to global research and development projects including the International Thermonuclear Experimental Reactor.

Many UK companies already play a strong and active role in the internationally competitive segment of the market. However, ongoing international investment presents significant short-, medium- and long-term opportunities for UK industry to use its experience and capability to increase its share of international exports, as it continues to integrate itself as a trusted partner in global nuclear supply chains.

The government will work with the civil nuclear sector to develop a co-ordinated global campaign for promoting the UK's nuclear expertise and capability overseas to maximise future export orders across the nuclear life cycle. This work, which will be led by the Department for International Trade, building on its 2018 nuclear toolkit - 'UK Nuclear: A trusted partner for safe, clean, long-term energy' - will include the government and sector working together to assess the global market and identify accessible value for the UK. It will also consider areas where strategic and operational support from government could be of most benefit to help the sector's ambitions to secure up to £2bn of new contracts in domestic and export markets by 2030. The initial focus will be to agree a forward plan of co-ordinated interventions to maximise exports for the UK order book.

Other specific areas of work will include agreeing where UK Export Finance is most likely to be required to ensure government has resource in place for key markets; and utilising sector feedback on international market access to inform emerging Free Trade Agreements.

This work will build on areas where government and industry have already worked effectively in partnership, for example the 'campaign groups' on Japan, China, Germany and Sweden which convene UK industry to ensure co-ordinated propositions and consortia are put forward for specific opportunities, and the annual Civil Nuclear Showcase shaped by an industry steering group.

The Government will also commit to taking a 'whole of Government' approach to supporting exports from the civil nuclear sector. This includes ensuring that future government policies on civil nuclear consider the likely impact on either future UK export capability or UK export orders, drawing in expert partner organisations like the Nuclear Decommissioning Authority, where necessary.

Places

The importance of the nuclear sector often goes unnoticed by most of society. From the nuclear reactors which quietly provide our homes with reliable, clean electricity, to nuclear submarines which keep us safe, the value of the nuclear sector's local contribution cannot be understated.

A recent study by the Nuclear Industry Association and Oxford Economics²⁹ estimated that each UK civil nuclear worker adds an average £96,600 GVA to the economy.

Regional benefits in the north west of England, for example, are worth over £4bn in GVA, most of which is focused in Cumbria, where over 27,000 people are employed in the sector, including decommissioning experts at Sellafield and the workers at Barrow responsible for building our new Dreadnaught submarines. In the south west of England a growing workforce of 3,500¹ is building the UK's first new nuclear plant in a generation. The construction of Hinkley Point C is expected to add over £200m per year to the regional economy - potentially transformative for productivity and wider investment in the supply chain, skills and infrastructure, thereby securing significant regional economic growth. Future new build projects would expect to see similar benefits to the local communities.

Operational plants provide jobs for life, as is the case for the eight existing stations around the country,

from Dungeness in the south of England to Torness in Scotland. Once into the decommissioning phase power stations continue to provide major business opportunities and local benefits for decades, meaning these sites often support well paid jobs which span generations.

The success of the UK nuclear sector owes much to partnerships between the government, industry and communities, and this Sector Deal seeks to build on this partnership.

Boosting Capability and Regional Expertise

Building on the excellent nuclear services cluster across the north of England, the proposed advanced manufacturing and construction programme in this deal will be delivered through a factory hub and existing facilities around the country, bringing investment and boosting the UK's manufacturing base. Not only will this initiative help reduce costs across the sector, but it will give local suppliers the opportunity to expand their capabilities and access new markets. For example, in Birkenhead,

Nuclear AMRC alongside industry partners and local stakeholders are developing proposals for a development centre which could act as a centre for collaboration and demonstration of modular construction and its potential benefits. This investment supports the emergence of a North West Nuclear Arc Consortium linking Anglesey in Wales to the north west of England and underlines the capabilities the UK has in its regional clusters.

Creating World Leading Research Centres

The UK is already blessed with world leading nuclear research centres. In particular the National Nuclear Laboratory which operates unique R&D infrastructure capable of handling nuclear inventories and programmes across the entire nuclear fuel cycle and UKAEA which operates world leading fusion devices. The creation of these world-class research facilities will attract inward investment and support hundreds of highly skilled science and engineering roles. The government is investing in innovation to ensure the UK remains at the forefront of nuclear technology, including £86m to set up a national fusion technology platform at the UKAEA's Science Centre at Culham in Oxfordshire, and working in partnership with the Welsh Government to develop a £40m thermal hydraulics facility in the north of Wales as part of the Nuclear Innovation Programme.

Delivering high-value jobs for local people

Many jobs in the nuclear sector pay higher-than-average wages owing to the skilled nature of the work. This has a trickle-down benefit to the regions and communities where these people live and work, as well as benefitting the national economy. By implementing the NSSG's Nuclear Skills Strategic Plan and supporting a range of schemes to expand the skills base of the sector, the Sector Deal will give more people the opportunity to benefit from high-value, technical jobs in nuclear. This is already starting to take shape, with the recent opening of the National College for Nuclear campuses in Cumbria and Somerset which will train the UK's next generation of nuclear experts.

In addition to the proposals already set out, an alliance of Local Enterprise Partnerships across nuclear regions in Somerset, Cumbria and East Anglia have come together to drive further initiatives to benefit nuclear communities. Through working with the LEP Network Company in England and extending an invitation to Welsh authorities, the three regions will help implement the following initiatives elsewhere.

¹ At the time of publication.

Sharing lessons learned to unlock the benefits of infrastructure investment

Heart of the South West LEP will provide Nuclear New Build Local Authorities in England and Wales a toolkit to learn from and understand what is potentially deliverable as part of the Development Consent Order planning process for nuclear projects, as well as what can and needs to be identified to support delivery within the nuclear geographies. Of particular value to future new build communities is an understanding of lead-in times and early priorities, drawing on learning from the initial stages of the Hinkley Point C project, including on issues such as: housing; transport; skills and training; and the supply chain. Additionally, the toolkit will be expanded to provide examples of how local communities can be empowered to become involved in and to benefit from the developments.

Creating clusters of nuclear expertise

To maximise the impact of the national supply chain and productivity improvement programme, set out in the Business Support section, at a regional level, the government and the sector will consider the development of a network of nuclear supply chain clusters to unlock further growth, investment and jobs by providing greater opportunities for local businesses.

A Nuclear Clusters Development Programme would support SMEs within nuclear regions, providing greater exposure to contract opportunities in new build, waste and decommissioning, and advanced technologies, whilst supporting the reduction in long-term costs for project development.

This initiative would complement investments in the supply chain already being made by the Local Enterprise Partnerships and would seek to roll-out the model developed in the south west of England for Hinkley Point C to other nuclear regions, starting in Cumbria and the east of England. Focussing on improving supply chain competitiveness and productivity and providing enhanced local access to nuclear innovation, the programme could boost regional capability, grow productivity within the regions and help to re-balance the UK economy by investing in more deprived regions.

Implementation plan

Key deal activities

Date	Milestone
Dec 2017	Publication of the Nuclear Industry Council's proposals to Government for a Sector Deal
May 2018	Public consultation launched on proposals for a more up to date approach to regulation of nuclear sites in the final stages of decommissioning
June 2018	Nuclear Sector Deal launched
Autumn 2018	National supply chain competitiveness and productivity improvement programme business case submitted
Winter 2018	Publish update to Nuclear Skills Strategy Group's strategic plan
Spring 2019	Completion of joint review of decommissioning pipeline
June 2019	Annual review of the Nuclear Sector Deal

Governance

While the Nuclear Industry Council (NIC) has overseen and developed the Sector Deal, its detailed implementation will be led by the Nuclear Industry Association's 'Delivery Group' with relevant sub-groups focussing on the implementation of different elements of the deal.

Where there are already relevant groups in existence, such as the Nuclear Skills Strategy Group, Nuclear Innovation and Research Advisory Board and Nuclear Innovation and Research Office, they are envisaged as being part of the governance structure. Membership of the Delivery Group and sub-groups will be flexible to incorporate relevant individuals.

The sector will provide dedicated resource to assist in the implementation of Sector Deal actions, and work closely with relevant government officials on the elements of the deal where the government has lead responsibility.

The Delivery Group will ensure that the NIC is provided with updated information on the implementation of the Sector Deal at each of its meetings, with the Delivery Group and its sub-groups working to an agreed set of implementation actions.

Sector governance will be kept under review to ensure effective working across the sector, including between civil and defence, and informed, as necessary, by discussion with Ministers.

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- P22 Engineers upgrading UKAEA's innovative MAST fusion experiment. Credit: SMD Photography
- P26 Nicole Williams apprentice at Hinkley Point C. Credit: EDF Energy
- P30 Sellafield aerial 2014. Credit: Sellafield Ltd
- P34 VR glovebox. Credit: Nuclear AMRC



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