



Ministry  
of Defence

**THE UNITED KINGDOM'S  
FUTURE NUCLEAR  
DETERRENT:  
THE 2019 UPDATE TO  
PARLIAMENT**



# **The United Kingdom's Future Nuclear Deterrent:** **2019 Update to Parliament**

## **Introduction**

Our nuclear deterrent deters against the most extreme threats to the nation's way of life, both now and in the future, providing the ultimate guarantee to our national security. The nuclear deterrent has formed the cornerstone of this and previous Governments' responsibility to maintain the safety and security of its citizens.

This year saw events recognising the 50 years of our continuous at sea deterrent. During those events tribute was paid to the efforts made by thousands of submariners, past and present, their families, MOD Civilians, Industry Partners and the numerous businesses which have, do and will continue to support the delivery of - keeping our country safe.

The UK's nuclear deterrent capability is currently delivered by the four Vanguard Class Ballistic Missile Submarines that are nearing the ends of their service life. Parliament has voted several times to renew the United Kingdom's (UK) nuclear deterrent, most recently in 2016 with an overwhelming majority in favour of retaining the capability and replacing the Vanguard Class submarines with four new Dreadnought Class submarines. The Dreadnought Class submarines will ensure that the UK has a credible, independent and capable nuclear deterrent out to the 2060s and beyond.

This eighth annual update sets out the progress over the last twelve months of the programme delivering the UK's Future Nuclear Deterrent.

## **Progress on the Dreadnought Programme**

The Dreadnought submarine programme remains within budget and on track for the First of Class, HMS Dreadnought, to enter service in the early 2030s. Staged investments have allowed good progress to continue on the whole boat design and the construction process.

The programme is currently in Delivery Phase 2 (DP2), which will run until March 2021. This year has seen commitments of around £2.5Bn within DP2, supporting the building of facilities at BAE Systems' shipyard in Barrow-in-Furness and the next generation of facilities at Rolls-Royce's Raynesway site in Derby, as well as continued design and construction activity. In September construction work officially started on Valiant, the second in class of the Dreadnought submarines. The third and fourth boats' names were also announced this year; Warspite and King George VI.

The investment allowed us to extend our commitment to Rolls-Royce Submarines by awarding the company a contract worth nearly £480 million for the manufacture and delivery of the nuclear propulsion power plants, the Pressurised Water Reactor 3, for all four Dreadnought submarines. The contract award helps to support over 600 highly skilled UK jobs at Rolls-Royce Submarines based in Derbyshire, enabling the company to make further commitments into the Dreadnought supply chain of Small and Medium Enterprise companies.

As reported previously, there have been technical complications with the manufacturing of the missile tubes to be used in the Common Missile Compartment being developed for our

submarines and the United States' (US) Columbia Class. Welding quality issues on some missile tubes for the Dreadnought Class submarines were identified in 2018. Assessment and repair work continues with the main supplier and their subcontractors, with our world-class UK engineers working alongside their US counterparts to achieve the earliest supply of missile tubes into the Dreadnought programme. We will not compromise on our high standards on safety and quality, and are working with our US counterparts to assess the cost impact to the UK and remain committed to delivering the Dreadnought programme within the allocated budget.

## **Dreadnought Costs**

The 2015 Strategic Defence and Security Review estimated that the programme is likely to cost a total of £31 billion (including inflation over the lifetime of the programme) and set a contingency of £10 billion. MOD was given access to up to £600 million in Financial Year 2018/19 from the contingency to enable opportunities to be taken to drive out cost and risk later in the Dreadnought programme. MOD has also agreed access to the contingency with Her Majesty's Treasury, for similar reasons, in Financial Year 2019/20 and 2020/21. To date £7 billion has been spent so far on the concept, assessment, and early delivery phases - £1.5 billion of which was spent in Financial Year 2018/19.

## **Infrastructure**

We are investing significantly in infrastructure across the Defence Nuclear Enterprise and will continue to work closely with Regulators and Industry partners to sustain this activity. Construction is underway on the Primary Build Facility at the Barrow-in-Furness shipyard, where fabrication of the submarine reactor pipework and the assembly of the reactor will take place, together with supporting office and welfare facilities. These new facilities will help facilitate a more efficient submarine production process for the submarine programme. The facilities completed such as the Central Yard Facility and Blast and Paint Facility are working well.

At the Rolls-Royce site in Raynesway, progress is being made with the facilities where construction and testing of the new nuclear reactor cores will take place. The site manufactures reactor cores for our submarine nuclear propulsion plants in support of the Dreadnought Programme. Work progresses at Babcock Marine's Devonport Dockyard to construct the facilities to defuel decommissioned attack submarines, and activity at Her Majesty's Naval Base Clyde continues to support submarine operations. There are also projects underway at the Atomic Weapons Establishment's sites, replacing the current ageing facilities, built to modern standards and delivering the UK's future capability to manage our nuclear warhead programme.

## **Submarine Dismantling and Disposal**

Good progress is being made with submarine dismantling in Rosyth and initial dismantling of the second submarine, RESOLUTION, continues at pace. Ten months into RESOLUTION's 18 month programme of work, more low level radioactive waste has been removed with demonstrable performance improvements over the first submarine, SWIFTSURE. The sustainment of key skills and nuclear expertise, learning benefit and progress being made by the Submarine Dismantling Project has been enabled by continued Department investment in submarine nuclear decommissioning capability and progressive submarine dismantling with RESOLUTION.

## **Warhead and Missile**

The UK continues to participate with US partners with work to extend the life of the Trident II D5 missiles. These life extension programmes provide sufficient missile packages, including spares, to support the UK's current stock entitlement. Work includes updating missile electronic packages in order to minimise the risk of system obsolescence as well as participating in other US led through-life capability programmes.

Transition of the warhead to Mark 4A is ongoing, addressing obsolescence within the Mark 4 to ensure the UK continues to have a safe, secure and available stockpile. Work also continues to develop the evidence to support a government decision when replacing the warhead.

## **Skills**

The MOD is undertaking work to understand better the skills required by the Defence Nuclear Enterprise, including the requirement for Nuclear Suitably Qualified and Experienced Personnel.

Additionally, the MOD, Royal Navy and defence industry partners are active members of the Nuclear Skills Strategy Group, which works collaboratively across the defence and civil nuclear sectors to optimise nuclear skills for the future. The Group, which leads on the 'people' strand of the Nuclear Sector Deal, published its revised strategic plan in December 2018, aligning its approach against the Deal's key commitments: Enhanced Skills Leadership; Staying at the Cutting Edge; and, Exciting the Next Generation about Nuclear.

## **International Collaboration**

Collaboration with the US remains strong through our cooperation on Strategic Weapon System and reactor technologies under the terms of the 1958 Mutual Defence Agreement and Polaris Sales Agreement. This work includes research on warhead safety, security, and advanced manufacturing technologies taking place under the UK-US Joint Technology Demonstrator project.

We also continue to cooperate with France under the TEUTATES Treaty. Progress is being made with the delivery of the hydrodynamic capability for experiments to be conducted, ensuring our nuclear weapons remain safe and effective. We are working together on the technology associated with nuclear stockpile stewardship in support of our respective independent nuclear deterrent capabilities, in full compliance with our international obligations.

More widely, we are working with international partners to reduce the threat from nuclear terrorism and on research to support arms control and verification.

## **Management and Governance Changes**

The Department continues to deliver on its commitment to strengthen the management of all nuclear programmes. In May 2019, Vanessa Nicholls was appointed Director General Nuclear of Defence Nuclear Organisation, sponsoring the Enterprise which includes responsibility for the management of the defence nuclear portfolio, including providing the Senior Responsible Owners for the main nuclear equipment programmes, and for the delivery of the UK warhead.

The Submarine Delivery Agency (SDA), led by its Chief Executive, Ian Booth, and Chair, Rob Holden, was launched as an Executive Agency of the MOD in April 2018. Within the MOD's Acquisition System, the SDA acts as a 'Delivery Agent' with a primary role in

contracting effectively with the UK's submarine industry. The SDA operates alongside the Defence Equipment and Support organisation to deliver capabilities to the Royal Navy that are essential for the Defence of the UK and its allies.

The Dreadnought Alliance, a joint management team between the SDA, BAE Systems and Rolls-Royce, meets the Government's commitment, to work closely with industry partners with the shared aim of improving delivery performance. The Alliance is chaired by Sir Peter Gershon who provides leadership to improve the transition of design information into production outputs and drive the Alliance programme schedule.

### **Next report**

The Department plans to next report progress to Parliament in late 2020.