

The United Kingdom's Future Nuclear Deterrent: The Dreadnought Programme **2017 Update to Parliament**

Introduction

The United Kingdom's (UK) nuclear deterrent deters against the most extreme threats to our way of life, both now and in the future. It provides the ultimate guarantee of our national security, and is a major part of this Government's commitment to ensure the safety and security of its citizens. In 2016, Parliament voted overwhelmingly in favour of retaining the UK's nuclear deterrent, and replacing the current Vanguard Class submarines with four new ballistic missile submarines, now known as the Dreadnought Class. This will ensure that the UK has a credible, independent and capable nuclear deterrent out to the 2060s and beyond. This is the sixth annual update to Parliament on the replacement submarine programme.

Progress on the Dreadnought Programme

Overview

Progress continues on the whole boat design, which is now 84% complete. Further design activities will mature during the build programme to ensure the most advanced systems and sub-systems are considered.

Over the last 12 months Rolls-Royce has made good progress on the submarine's power plant, known as the Pressurised Water Reactor 3, by developing new manufacturing processes and methods. As a result, the design and manufacture of the reactor remains on track for delivery to BAE Systems' shipyard at Barrow-in-Furness. BAE Systems are completing the integration of this new power plant into the overall submarine design. Early phase secondary propulsion steelwork is being manufactured in the New Assembly Shop at Barrow and the fabrication of all the major propulsion equipment is now underway.

By early 2018, all components for the nuclear steam production system for the first Dreadnought submarine will have been delivered to Barrow.

Dreadnought Costs

The 2015 Strategic Defence and Security Review estimated that the manufacture of the four Dreadnought submarines is likely to cost a total of £31Bn (including inflation over the lifetime of the programme), with a contingency of £10Bn. The programme remains within its £31Bn budget, with £4.3Bn spent so far on the design and early manufacture phase; £900M of which was spent in Financial Year 2016/17.

Supply Chain

The total number of Ministry of Defence (MOD), BAE Systems, Rolls-Royce and Babcock International employees directly working on the programme has increased to around 3,000.

With the manufacture of Dreadnought Boat 1 now underway, BAE Systems, Rolls-Royce and Babcock International continue to increase their engagement with the supply chain. The programme now provides sub-contract opportunities for suppliers across the UK. Increased supply chain engagement has led to commitments across a range of industrial sectors. These include orders for further elements of the propulsion system, steering, heat exchangers, as well as tooling, fixtures and commodities. The programme is expected to place contracts with hundreds of companies across the UK during its life, demonstrating this is a truly national endeavour.

Wider Programmes

Infrastructure

Investment in infrastructure facilities for the replacement submarines are creating a world class production and support environment for the programme. The Dreadnought Class submarines have been designed to operate from the existing waterfront infrastructure currently used for the operation and maintenance of Vanguard Class submarines. MOD is however, investing £1.3Bn over the next 10 years in Her Majesty's Naval Base Clyde's waterfront, engineering support, accommodation and physical security to comply with new legislation affecting all our operational submarines.

The Barrow facilities programme, which includes several new structures along with the refurbishment of existing infrastructure, has progressed significantly over the last 12 months. An upgrade of the New Assembly Shop was successfully completed in July 2017. A new Central Yard Facility, which will soon be operating, is where the installation of pipework and cabling for the new submarines will take place, as well as early test and commissioning of the platform systems, has also been finished.

Redevelopment work at the Rolls-Royce facility in Raynesway is underway to deliver modern standards of manufacturing capability for new reactor cores. This includes the phased construction of a new core fabrication and fuel manufacture facilities.

International Collaboration

The missile tubes for the Dreadnought Programme are part of the UK-US Common Missile Compartment project. The equipment necessary to weld the missile tubes has been procured from the US, and installation at Barrow commenced in April 2017.

Approval was given in 2017 to extend the planned life of the Trident II D5 missile electronic packages. This decision led to an increased total project cost to around £350M. The UK also continues to participate in other US led through-life capability programmes. These life extension programmes provide sufficient Trident II D5 missile packages, including spares, to support the UK's current stock entitlement.

Warhead

The UK is updating the Mark 4 warhead by introducing the new Mark 4A non-nuclear Arming, Fusing and Firing system to the warhead. This replacement is required as the older unit becomes obsolete.

In parallel, the programme of investment in the Atomic Weapons Establishment continues under the Nuclear Warhead Capability Sustainment Programme in order to ensure the UK maintains the facilities and skills required to support the nuclear deterrent in future.

A decision on replacing the warhead will be required in this Parliament and work continues on developing replacement options. An important part of this work is UK-US collaboration on warhead safety, security, and advanced manufacturing technologies taking place under the UK-US Joint Technology Demonstrator project. The project will help sustain skills, develop capabilities, processes and technology, and reduce technical, cost and schedule risks for future programmes.

Skills

Following the publication of the Nuclear Skills Strategy in 2016, the Nuclear Skills Strategy Group has established a delivery plan for a range of skills interventions to ensure the demand identified in the Nuclear Workforce Assessment 2017 will be met. A particular example is the recent launch of the Talent Retention Solution Nuclear Portal, which will provide improved access to the skills talent across the Defence nuclear enterprise and the wider nuclear industrial sector.

Management and Governance Changes

Organisational Change

The Government continues to deliver on its commitment to strengthen the management of all nuclear programmes. In May 2017, Julian Kelly was appointed Director General Nuclear. As a part of a phased transfer of responsibilities, his organisation took over the management of the submarine programmes in August, and in November it completed the transfer of the Customer and Delivery function for the Warhead Programme. The Director General Nuclear organisation now acts as the Departmental Sponsor for the newly established Submarine Delivery Agency, ensuring that a strong governance model is in place to oversee the continued development and improvement in the corporate performance of the new delivery body. It will develop its capability as the principal advisor and focal point for the defence nuclear enterprise during 2018.

The Submarine Delivery Agency stood up on 3 April 2017, within the Defence Equipment and Support (DE&S) organisation, to strengthen arrangements for the procurement, in-service support and decommissioning of the UK's nuclear submarines. Work has taken place throughout 2017 to allow this new delivery body to achieve full Executive Agency status, alongside DE&S, from April 2018.

MOD has appointed Rob Holden as the Chair and Ian Booth as Chief Executive of the Submarine Delivery Agency. The Chief Executive will be responsible for leading what will become a world-class delivery organisation: establishing its structure; shaping the team to deliver; and, transforming its capabilities for the long-term. It is in the process of strengthening the Board by appointing several Non-Executive Directors by the end of the financial year.

Next report

MOD plans to next report progress to Parliament in late 2018.