



National Audit Office

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## **Report**

by the Comptroller  
and Auditor General

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**Ministry of Defence**

# The Defence Nuclear Enterprise: a landscape review

## Key facts

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**49**

number of years the Royal Navy has operated the continuous at sea deterrent

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**£5.2bn**

estimated expected spend on the Nuclear Enterprise (the Enterprise) in 2018-19, 14% of the defence budget

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**10**

number of in-service nuclear submarines as at March 2018

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**£50.9 billion** expected spend on Enterprise equipment and support programmes in the 10 years, 2018 to 2028

**£2.9 billion** gap between the expected spend on equipment and support and the available budget, 2018 to 2028

**97%** percentage of Enterprise contracts, by value, held by four main contractors, 2017-18

**30,000** estimated number of people involved in the Enterprise, March 2018

**337** shortage of skilled military Royal Navy nuclear staff across seven areas, January 2018

**20** number of submarines awaiting disposal, March 2018

**£4.9 billion** initial forecast cost of 52 in-progress estate upgrade programmes over their lifetime

# Summary

**1** The Ministry of Defence (the Department) maintains a submarine-based nuclear deterrent to support the government's national security policy. It currently operates four nuclear-armed deterrent submarines: the Vanguard class. To do this, the Department relies on a network of programmes, equipment and people, often referred to as the Nuclear Enterprise (the Enterprise). Its work includes designing, producing and maintaining submarines and nuclear warheads, and providing the necessary estate, people and support.

**2** In 2008, we reported on the future nuclear deterrent. We concluded that, despite early progress, value-for-money risks relating to costs, decision-making and governance needed to be managed. This landscape report looks at the Enterprise more broadly than our 2008 report. It aims to help Parliament better understand the complexities of the Enterprise by describing how the Department needs to bring together its programmes, including production of the new deterrent submarines, to provide a continuous at sea deterrent. In particular, we describe:

- the component parts of the Enterprise (Part One);
- its governance and accountability (Part Two); and
- the management of specific aspects of the Enterprise (Part Three).

We have not evaluated the value for money of the Enterprise or commented on the overarching policy.

## Key findings

### Components of the Enterprise

**3 The government's policy is to maintain a nuclear deterrent as part of its national security strategy.** Since April 1969 the Department has carried out this policy, which it assesses as one of its highest priorities, through having at least one nuclear-armed submarine on patrol at any given time. This is often termed the 'continuous at sea deterrent'. In 2006, the government announced its intention to maintain the deterrent. Parliament last endorsed this decision in July 2016 when it voted to start constructing new nuclear-armed submarines, the Dreadnought class (paragraphs 1.2 to 1.5).

**4 To maintain the deterrent, the Department coordinates a range of programmes and organisations, often termed the 'Enterprise'.** This includes submarines, the nuclear propulsion systems used to power the submarines, and the missiles and warheads that arm them. It also brings together the design, build, operation, maintenance and support of these elements, which involves numerous partners. The United Kingdom (UK) and the United States (US) cooperate closely including on elements of both the Trident and nuclear propulsion systems (paragraphs 1.7 to 1.19).

**5 In 2018-19, the Department forecasts to spend £5.2 billion across the Enterprise.** This sum represents 14% of its overall budget. It includes £1.8 billion on procuring and supporting submarines, £1.4 billion on the missiles and warheads, £790 million on the propulsion systems, and £220 million on managing the Enterprise (paragraph 1.6).

### Governance and accountability of the Enterprise

**6 The Department is held to account for providing the Enterprise in a number of ways.** It is responsible for delivering the requirements set out by the Prime Minister's policy intent. On occasions, Parliament, the National Audit Office, and the Infrastructure and Projects Authority examine different aspects of the Enterprise. Regulators hold the Department to account for its safe management (paragraphs 2.2 to 2.7).

**7 In the last two years, the Department has reorganised how it manages the Enterprise.** The Strategic Defence and Security Review (SDSR) 2015 set out the Department's commitment to making governance and decision-making for the Enterprise clearer, as this had become fragmented under the Department's devolved model. The Department has implemented most of its commitments by establishing a single point of accountability for the Enterprise and creating two new organisations: the Defence Nuclear Organisation (DNO) and the Submarine Delivery Agency (SDA) (**Figure 1**) (paragraphs 2.8 to 2.13).

**8 After announcing revised arrangements in SDSR 2015, the Department introduced them over an 18-month period, during which time it also had to make key commercial decisions.** Both the DNO and the SDA are now recruiting to fill recognised skills gaps, including to some senior finance and commercial positions. As the Department established these new bodies, it also had to agree critical submarine production contracts. Having made these decisions, the Department has said it will now focus on building up the new organisations (paragraphs 2.14 to 2.16).

**Figure 1****The Department's response to Strategic Defence and Security Review (SDSR) 2015 commitments, March 2018****The Department has implemented most of its commitments**

Commitments	Departmental response
Establish a new Departmental team headed by an experienced commercial specialist to act as the single sponsor for all aspects of the Nuclear Enterprise.	Created the Defence Nuclear Organisation (DNO), a top-level departmental budget to set policy, assign budgets and make decisions.  Appointed a Director General Nuclear in May 2017, who previously worked at HM Treasury and the UK Border Agency.
Strengthen arrangements for the procurement and in-service support of nuclear submarines.	Created the Submarine Delivery Agency (SDA) from April 2018 to manage equipment and support programmes. SDA has the same freedoms to recruit as, and staff have transferred from, Defence Equipment & Support (DE&S).
Establish a new delivery body with the authority and freedom to recruit and retain the best people to manage the submarine enterprise.	
Intensify efforts to improve contractors' performance, including through sustained investment in skills and infrastructure.	Introduced various initiatives to respond to poor contractor performance.
Put in place new industrial and commercial arrangements between government and industry.	Created SDA and industry agreement to work together to produce the Dreadnought-class submarine.

Source: National Audit Office

**Managing the Enterprise**

**9 The Department has had to cut costs, identify efficiency savings and re-programme work to keep the Enterprise affordable.** This includes committing to realising £3 billion of efficiency savings over the next 10 years and delaying by two years the development of an Astute-class submarine replacement. For 2018-19, the Department also agreed with HM Treasury it could access up to £600 million from the £10 billion Dreadnought programme contingency announced in SDSR 2015, to ensure it can deliver the programme within its 2015 cost forecast of £31 billion (paragraphs 3.4, 3.6 to 3.8).

**10 The Department is under continuing cost pressure from the Enterprise.** Looking beyond a £200 million gap in 2018-19, the Department still needs to manage a further £2.7 billion affordability gap across its equipment and support programmes. The Modernising Defence Programme will allow further consideration of programme options and how the £1.1 billion departmental contingency can be used. The Department will need to agree with HM Treasury under what conditions it can access the remaining £9.4 billion of Dreadnought-specific contingency that can be used across the programme lifetime. As we have previously reported, problems with the affordability of the Enterprise could destabilise the Department's overall Equipment Plan given that around a quarter of its planned spend on equipment relates to nuclear programmes (paragraphs 3.8 to 3.10).

**11 The Department uses four main contractors for 97% of its Enterprise-related contracts.** These contractors in turn use hundreds of sub-contractors, many of which are small and specialist. The SDA is now seeking to better understand these relationships. The Department must also meet its own contractual responsibilities for providing, for example, nuclear reactor components to its main submarine production contractor (paragraphs 3.14 to 3.15 and 3.17).

**12 The Department has introduced new ways of working with its contractors to try to address past poor performance.** The Department recognises that contractors' performance has been poor across its nuclear-related contracts. From 1 April 2018, BAE Systems, Rolls-Royce and the SDA will act together on the Dreadnought build to set joint costs and schedules. The Department hopes this will improve performance in delivering Dreadnought through a combination of improved project controls, stronger collaboration and information sharing, and more rigorous oversight (paragraphs 3.16, 3.18 to 3.20).

**13 Delivering and operating programmes across the Enterprise requires a wide range of military and civilian skills that are in short supply nationally.** The Department acknowledges that it does not have enough suitably qualified and experienced personnel, including across seven military nuclear specialisms. This has resulted from the intermittent nature of the nuclear build programme, which led to skills being lost. There is also growing demand for nuclear skills in other parts of the economy, including the civil nuclear industry. In response, the Department has developed skills programmes and is consolidating submarine-related training at its Naval Base in Scotland (paragraphs 3.21 to 3.28).

**14 The complexity of the Enterprise means the Department must coordinate around 75 programmes, and manage knock-on effects between programmes.** For example, the timeframe for bringing into service future submarines could be affected by delays with those currently in production. This will in turn influence the support and maintenance requirements for in-service submarines. Given the limited space available, the Department also needs to coordinate plans for its estate to ensure it has the facilities to maintain its submarines, and also to decommission and dismantle those submarines leaving service (paragraphs 3.29 to 3.35).

## **Concluding remarks**

**15** Our 2008 report on the nuclear deterrent recommended that the Department address significant risks, particularly around costs, skills, commercial relationships and delivery to schedule. Some of these risks remain 10 years later. In the last 18 months, the Department has made some positive changes to the way it manages the Enterprise and has agreed commercial arrangements designed to improve cost and performance. However, the coming years are crucial. As the Department invests heavily in the Dreadnought-class submarines and more widely across the Enterprise, it needs to ensure that the new structures, processes and its workforce operate effectively together to maintain the nuclear deterrent. We plan to review aspects of the Enterprise further as these arrangements evolve.