

III. British nuclear forces

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As of January 2017 the British nuclear stockpile consisted of approximately 215 warheads (see table 11.4). In its 2015 Strategic Defence and Security Review (SDSR), the British Government reaffirmed plans to cut the size of the nuclear arsenal. The stockpile of operationally available nuclear warheads has already been reduced from 180 to the new limit of 120. The overall size of the nuclear stockpile, including non-deployed warheads, will decrease to no more than 180 by the mid-2020s.¹

The British nuclear deterrent consists exclusively of a sea-based component: four Vanguard class Trident nuclear-powered ballistic missile submarines (SSBNs) that can be armed with up to 16 UGM-133 Trident II D5 submarine-launched ballistic missiles (SLBMs). The UK does not own the missiles, but leases them from a pool of 58 Trident SLBMs shared with the US Navy. Under limits set out in the 2010 SDSR the submarines are armed with no more than 8 operational missiles and a total of 40 nuclear warheads when on patrol.² The missiles are kept on a reduced operational alert status and would require several days' notice to be able to fire.³

The British Government announced in 2015 that it intended to proceed with replacing the four Vanguard class Trident SSBNs with a new class of four Dreadnought submarines, similar to the Vanguard class.⁴ The submarines will carry Trident II D5 SLBMs, but will have a smaller missile compartment that holds eight missile launch tubes. As part of this 'like-for-like' replacement programme, the Royal Navy will maintain for the indefinite future its current posture, known as continuous at-sea deterrence (CASD), whereby one of the four SSBNs is on patrol at all times.⁵

On 18 July 2016 the British Parliament approved, by 472 votes to 117, a motion supporting the government's commitment to the Trident successor programme.⁶ While recognizing that the UK's nuclear deterrent 'will remain essential to the UK's security today as it has for over 60 years' and the 'importance of the [successor submarines] to the UK's defence industrial base', the motion did not give final approval for the new programme. In order

¹ British Government, *National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom*, Cm 9161 (Stationery Office: London, Nov. 2015), para. 4.66.

² British Ministry of Defence, *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review*, Cm 7948 (Stationery Office: London, Oct. 2010), pp. 5, 38.

³ British Ministry of Defence, 'UK nuclear deterrent', Fact sheet, updated 24 Mar. 2016, p. 1.

⁴ British Ministry of Defence, 'New successor submarines named', Press release, 21 Oct. 2016.

⁵ British Government (note 1), para. 4.73.

⁶ BBC News, 'MPs vote to renew Trident weapons system', 19 July 2016. For a summary of views supporting and opposing the programme see Mills, C., *Replacing the UK's 'Trident' Nuclear Deterrent* (House of Commons Library: London, 27 Jan. 2016), pp. 68–77.

Table 11.4. British nuclear forces, January 2017

Type	Designation	No. deployed	Year first deployed	Range (km) ^a	Warheads x yield	No. of warheads
<i>Submarine-launched ballistic missiles^b</i>						
D5	Trident II	48	1994	>7 400	1–3 x 100 kt	215 ^c

kt = kilotons.

^a Range is for illustrative purposes only; actual mission range will vary according to flight profile and weapon loading.

^b The operational nuclear-powered ballistic missile submarines (SSBNs) carry a reduced loading of no more than 8 Trident II missiles and 40 nuclear warheads. One submarine is on patrol at any given time.

^c Of the estimated 215 warheads currently in the stockpile, 120 are operationally available. The process to reduce the stockpile to 180 warheads by the mid-2020s is under way.

Sources: British Ministry of Defence, white papers, press releases and website, <<http://www.mod.uk/>>; British House of Commons, *Hansard*, various issues; 'Nuclear notebook', *Bulletin of the Atomic Scientists*, various issues; and authors' estimates.

to control costs, the government had previously announced that approval for the investment would be given in stages rather than as a single 'main gate' decision.⁷ The 2015 SDSR estimated the cost of the four new submarines to be £31 billion (\$45.2 billion); it set aside a further contingency of £10 billion (\$14.6 billion) to cover possible cost increases.⁸

The Dreadnought submarines were originally expected to begin to enter service by 2028. This date was delayed as part of the extended development and acquisition programme announced in the 2015 SDSR. The retirement of the Vanguard class SSBNs has been put back to the early 2030s. Replacement of the current warhead for the Trident II missiles has been similarly postponed, until at least the late 2030s.⁹ In the meantime, the British Atomic Weapons Establishment (AWE) has reportedly begun a programme to improve the performance and extend the life of the current Trident warhead, which is modelled on the USA's W76 warhead.¹⁰

In January 2017 the Trident programme became the centre of controversy when the *Sunday Times* newspaper revealed that the British Government had not publicly disclosed the failed test launch of a Trident SLBM the previous summer, shortly before the vote in the House of Commons on the Trident successor programme.¹¹ US officials confirmed that a missile test fired in June 2016 from *HMS Vengeance* at a US test range off the Florida coast had deviated from its programmed course and crashed into the sea.¹² The British

⁷ British Government (note 1), para. 4.75.

⁸ British Government (note 1), para. 4.76.

⁹ British Government (note 1), paras 4.72, 4.76.

¹⁰ Nuclear Information Service, *AWE: Past, Present and Possibilities for the Future* (Nuclear Information Service: Reading, June 2016), pp. 26–28.

¹¹ *Sunday Times*, 'Nuclear cover-up', 22 Jan. 2017.

¹² Star, B. and Masters, J., 'US official confirms Trident missile failure', CNN News, 23 Jan. 2017.

Ministry of Defence declined to comment on the cause of the failure, which was its first unsuccessful Trident missile flight test.¹³ The UK had previously conducted such tests in 2000, 2005, 2009 and 2012.

¹³ BBC News, 'Trident: Defence Secretary refuses to give test missile details', 23 Jan. 2017; and MacAskill, E., 'How did the Trident test fail and what did Theresa May know?', *The Guardian*, 23 Jan. 2017.