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UK Trident Replacement: The Facts

This fact sheet outlines the main facets of the debate on the renewal of UK's Trident nuclear weapon system.

Replacement of the submarines is already underway in several respects, and the 'Main Gate' investment decision immediately prior to the start of construction of the submarines, due in 2016, is quickly approaching.

Acronyms

CMC	Common Missile Compartment
SSBN	Ship Submersible Ballistic Nuclear (Ballistic Missile Submarine)
SDSR	Strategic Defence and Security Review
AWE	Atomic Weapons Establishment
CASD	Continuous at sea deterrence
TAR	Trident Alternatives Review
NATO	North Atlantic Treaty Organisation
NPT	Nuclear Non-Proliferation Treaty
SNP	Scottish National Party

HISTORY AND DEVELOPMENT

The UK was involved in partnership with the US on the development of nuclear weapons in the Manhattan Project during World War II. It then acquired its own nuclear weapons in 1952 in the context of the Cold War with the Soviet Union.

An important factor in the early development of Britain's nuclear weapons programme was the power and prestige associated with them. In particular, nuclear weapons were seen to ensure the UK commanded respect from the US within a special relationship; the UK became America's first and most reliable ally both politically and militarily.[1]

UK and US partnership grew as the countries agreed on the Mutual Defence Agreement of 1958, Nassau Agreement 1962, and the Polaris Sales Agreement 1963. These agreements shape the nuclear weapons relationships between the two.

The final first generation Trident decision, involving the lease of 58 US Trident II-D5 missiles from a common pool, was made by Margaret Thatcher in the early 1980s, for deployment on four Vanguard ballistic missile submarines in the 1990s.[2]

In 1993 the UK decided not to replace the WE177 free-fall bomb. These left service in 1998, making the UK the only nuclear weapon state to deploy a single type of system.[3]

WHY ARE WE TALKING ABOUT TRIDENT NOW?

The 'successor' programme is the replacement for the current Vanguard class submarines with a new SSBN fleet before they become unreliable or too expensive to maintain. The government announced the start of the process on 4 December 2006 and approved 'initial gate' in May 2011.

The Vanguards are not expected to last beyond 2030, and it is claimed that construction of the first replacement submarine needs to start soon after 2016 to be available when the first Vanguard submarine is withdrawn from service. If the policy of continuous-at-sea patrolling were relaxed it could enable a further delay on spend.

Plans for renewing Trident overlaps with US plans, and both countries are developing a Common Missile Compartment (CMC) for both successor submarine types.

Estimates of the cost of capital replacement range from £20bn to £34bn.[4] The current plans to construct and deploy four replacement SSBN submarines with missiles and warheads over the period 2028 to 2062 amounts to an equivalent annual cost of £2.9bn in 2012 figures, or 9.4% of the defence budget.[5]

[1] Ritchie, Nick, 'Trident and British Identity', University of Bradford, 2008, http://www.york.ac.uk/media/politics/documents/research/Trident_and_British_Identity.pdf

[2] 'Trident Replacement', BBC, 2013, http://www.bbc.co.uk/news/uk-politics-13442735

[3] Nuclear Information Service, 'The History of the UK Nuclear Weapons Programme', Tiki-Toki, N,d, http://www.tiki-toki.com/timeline/entry/59244/The-History-of-the-UK-Nuclear-Weapons-Programme/#vars!date=1940-01-01_00:00:00!

[4] 'Trident Replacement', BBC, 2013, http://www.bbc.co.uk/news/uk-politics-13442735

[5] Trident Commission background paper no. 3, July 2014

Timeline

1952	United Kingdom acquires nuclear weapons
1958	UK-US sign Mutual Defence Agreement
1962	Nassau Agreement
1963	Polaris Sales Agreement
1970	NPT enters into force
1994	First Trident submarine patrol
1998	WE177 leaves service
2007	Parliament votes to replace Trident
2010	SDSR announces reduction of warhead stockpile and deferral of main decision to build submarines until 2016
2011	Initial Gate decision announcement to spend £3bn on new submarine design
2013	Trident Alternatives Review released
2014	BASIC Trident Commission Final Report released
2014	Scottish referendum
2015	General Election
2016	Main Gate decision

THE SUCCESSOR PROGRAMME

The new successor SSBNs currently in development are expected to be finalised by 2028. The submarines will be operated by a 'third-generation nuclear propulsion system developed in collaboration with US Navy, and will feature leading-edge hull design from BAE Systems, superior missile capability and enhanced electrical systems'. [6]

THE THREATS

The 2010 National Security Risk Assessment identified wider security risks that the UK should give greatest priority to, including:

- Terrorism
- Instability and conflict overseas
- Cyber security
- Civil emergencies
- Energy security
- Organised crime
- Border security
- Counter proliferation and arms control

The 2010 SDSR suggested that '[T]here are a number of capabilities – weapons of mass destruction, emerging technologies with potential military application, and the systems used to deploy them – which could dramatically increase these risks should they reach the wrong hands'.[7] The 2010 SDSR identified direct threats to the UK to include:

- An attack by a terrorist group,
- Or a state, using chemical, biological, radiological or nuclear (CBRN) weapons.

Further to these: 'the proliferation of these capabilities can create instability overseas and increase regional tensions, with potentially serious consequences for UK national security'.[8]

THE CURRENT SYSTEM: TRIDENT

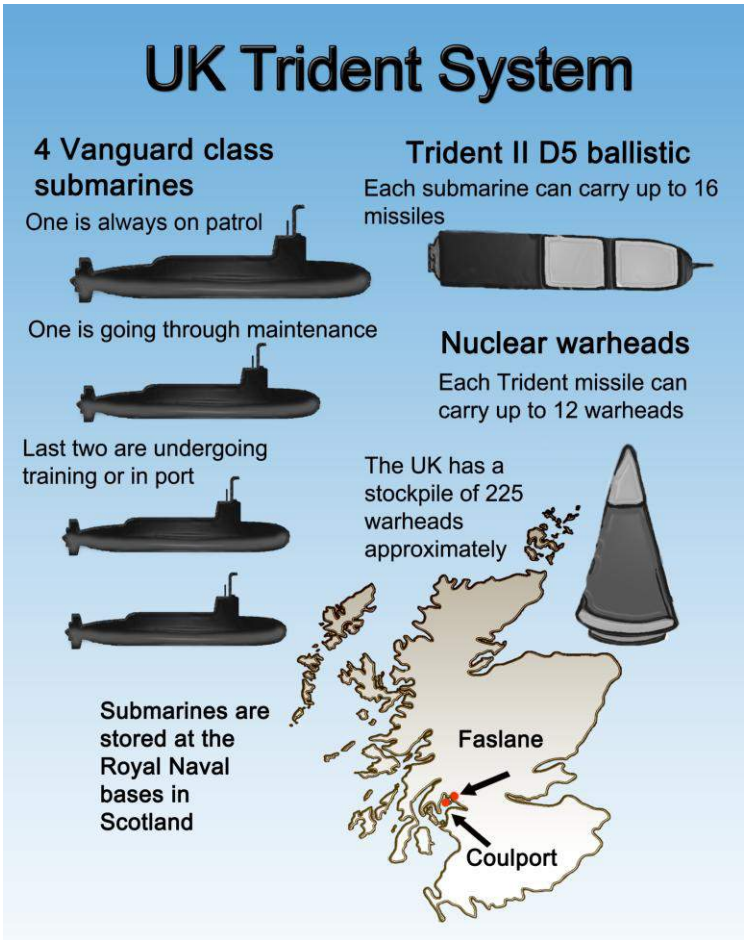
The Trident system consists of four Vanguard-class submarines, that can carry up to 16 Trident II D5 missiles but which are now limited by policy to 8 carrying a total of 40 warheads. The submarines are based and loaded at the Royal Naval bases in Faslane and Coulport in Scotland. Nuclear weapons research, development and maintenance takes place at the Atomic Weapons Establishment (AWE) Aldermaston and Burghfield in Berkshire. Submarines maintenance facilities are located in Devonport.

Submarine commanders are under orders to be ready to fire their missiles on several days' notice, though they are often capable of firing well within an hour.

[6] Turner, Julian, 'Deep impact: inside the UK's new Successor-Class nuclear submarine', Naval-technology, July 2013, http://www.naval-technology.com/features/feature-nuclear-submarine-successor-uk-royal-navy/

[7] 'Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review', HM Government, p. 55, 2010, http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191634.pdf

[8] Ibid



The UK retains an estimated stockpile of 225 warheads and is working towards reducing to a total stockpile of 180 by the mid 2020s, as set out by the 2010 SDSR.[9] The 160 operationally available warheads are set to reduce to 120. The current Trident warheads are expected to last well into the late 2030s and possibly beyond. [10]

The UK maintains a policy of continuous-at-sea-deterrence (CASD), meaning that one of the Navy's four nuclear armed strategic submarines is always on patrol with others involved in patrol hand-overs, training, or maintenance. It is thought they have not missed a single day on patrol since April 1969.[11]

WHO IS SAYING WHAT ABOUT TRIDENT?

Political Perceptions:

UK Prime Minister David Cameron has stated his support for full replacement of the fleet. He said in 2013: 'How can anyone be confident that the global security environment will not change in the next 10 years? This is not the time to be letting our guard down'.[12]

The country's major political parties have varying views on the subject of Trident replacement:

Labour
- Leadership supports Trident renewal and maintaining CASD, though may be open to reviewing this policy were substantial evidence to merit it.

Conservatives
- Supports a like-for-like replacement of Trident and a continuation for CASD

Liberal Democrats
- In September 2013 the party adopted a policy to replace the Trident system at a lower level, though much of the party advocates for not replacing Trident.

SNP
- Advocates for the removal of Trident from Scotland.

Green Party
- Advocates the immediate disbandment of the nuclear weapons system and abandoning plans to replace it.

[9] 'Securing Britain in an Age of Uncertainty: the Strategic Defence and Security Review', HM Government, p. 38, 2010 http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191634.pdf

[10] Chalmers, Hugh, 'The Bang Behind the Buck', RUSI, 2014, https://www.rusi.org/downloads/assets/201403_OP_Bang_Behind_the_Buck.pdf

[11] 'Continuous at Sea Deterrent', Royal Navy, N,d, http://www.royalnavy.mod.uk/news-and-latest-activity/operations/global/continuous-at-sea-deterrent

[12] Swinford, Steven, 'Trident should not be cut at a time of 'growing threats' David Cameron warns', *The Telegraph*, July 2013, http://www.telegraph.co.uk/news/uknews/defence/10180062/Trident-should-not-be-cut-at-time-of-growing-threats-David-Cameron-warns.html

Cabinet Office Review:

In July 2013, the Cabinet Office released the final report from its Trident Alternatives Review (TAR). The TAR considered over 700 alternatives to the current system including: fast jets, surface ships, three different submarines, and large aircraft. However, the report concluded that the alternatives could end up being more costly without providing the same level of credible deterrence. In order to ensure credible deterrence, the TAR focussed on five main tenants: reach, resolve, readiness, survivability/invulnerability, and destructive power.

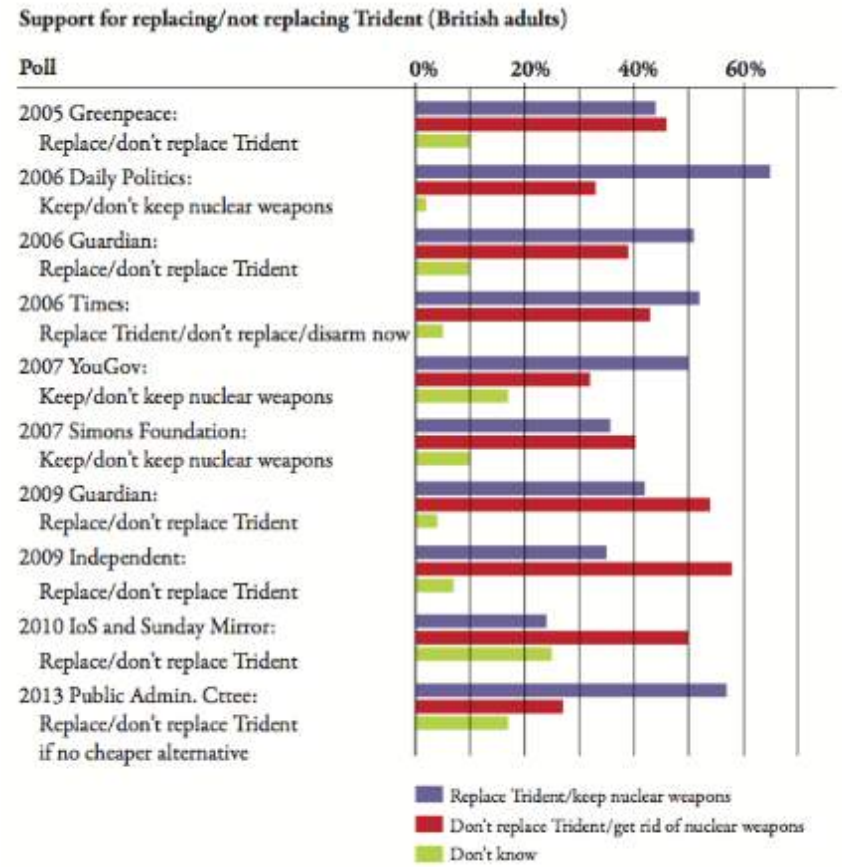
The TAR did not include non-nuclear weapon options nor did it factor in 'costs and impacts on economic security of replacing and maintaining a new generation of nuclear weapons, delivery systems and platforms. These are particularly acute at a time of austerity'. [13] The TAR lacked the emphasis on non-proliferation and the role that the UK could play by influencing other states towards this path, in order to attain success in the non-proliferation regime. [14]

Public Opinion:

Public opinion remains deeply divided on nuclear weapons and choices around Trident replacement. The over twenty opinion polls conducted since 2005 suggested that many people are in favour of abandoning the UK's nuclear deterrent when given a simple yes or no choice when the costs are included in the question, but opinion tends to be split more evenly when a third option of a smaller, cheaper replacement is introduced. [15]

The BASIC Trident Commission

In 2011 BASIC launched an independent cross-party commission to examine the UK's nuclear system and Trident renewal. The Trident Commission's final report will be published in July 2014.



Graph Source: Dr. Ritchie, Nick and Ingram, Paul, "Trident in UK Politics and Public Opinion," July 2013, BASIC

WHY IS THIS DEBATE IMPORTANT?

Internationally

UK and its role in NATO:

The UK is a member of the NATO defence alliance. The UK's nuclear weapons are assigned to NATO's nuclear defence and are also seen as contributing to NATO's collective security.

UK-US relations:

The United Kingdom and United States have been partners in several agreements including the 1958 MDA and their nuclear programmes have many inter-twining relationships.

NPT and Treaty obligations:

In accordance to Article VI of the NPT, member states are obligated to 'pursue negotiations in good faith on

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[13] Ingram, Paul, 'Reading the findings of the UK Trident Alternative Review', BASIC, July 2013, http://www.basicint.org/sites/default/files/basictar-prebrief_0.pdf

[14] Ibid

[15] Ritchie, Dr. Nick and Paul Ingram, 'Trident in UK Politics and Public Opinion', BASIC, July 2013, http://www.basicint.org/sites/default/files/tridentpoliticspublicopinion_basicjul2013.pdf

effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control*'.*[16] To date, the UK has played a role in global disarmament reducing its delivery systems down to one and decreasing its 400 (approximately) warheads during the Cold War to the current 225 total operational and stockpiled combined.

Nationally

Industrially:

There are a number of jobs dependent on the development of submarines and nuclear warheads. The naval base in Scotland supports some 6,700 jobs, expected to rise to 8,200 by 2022. [17] The UK submarine industry accounts for 3% of employment in the UK's scientific and defence industrial base. A replacement as currently planned could employ up to 26,000 people at some point in the process.[18]

The question of Scottish independence:

The Scottish referendum for independence will be held on 18 September 2014. The Scottish National Party (SNP) in government has long advocated for the removal of Trident from Scotland. The SNP has said that it will demand the removal of Trident submarines from their bases in Scotland in the event of independence. There are no obvious alternative locations to base these nuclear submarines elsewhere in the UK.

Economically:

This replacement even gives rise to a question over the 'rationality of such spending at a time of austerity and cuts across the MOD's entire conventional equipment procurement programme'.[19] There needs to be transparency about the cost of maintaining and renewing Trident. The security and defence budget will face a tight squeeze though a contraction in public spending. This will coincide with a procurement bulge forecast and the peak spending on the Trident renewal project. Decision-makers will face difficult choices of priority between defence capabilities in the coming years.

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[16] 'Non-Proliferation of Nuclear Weapons (NPT)', Department for Disarmament Affairs, UN, 2000, http://www.un.org/en/conf/npt/2005/npttreaty.html

[17] Mills, Claire, 'Update on the Trident Successor Programme', Library House of Commons, 2013

[18] Hartley, Keith, 'Defence Industrial Issues: Employment, Skills, Technology and Regional Impacts', Discussion Paper 2 of the BASIC Trident Commission, pp. 13-14, March 2012

[19] Mills, Claire, 'Update on the Trident Successor Programme', Library House of Commons, 2013

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This fact sheet was compiled and written by Maria Rivas with the assistance of Chris Lindborg, Rachel Staley & Paul Ingram.