



The Trident Successor Programme: An Update

Standard Note: SN06526

Last updated: 10 March 2015

Author: Claire Mills and Louisa Brooke-Holland

Section: International Affairs and Defence Section

The programme to replace the UK's nuclear deterrent from 2028 onwards continues apace. In December 2012 the Government published its first update report to Parliament on the progress of the Trident renewal programme and in July 2013 published the Trident Alternatives Review. That review was commissioned in 2011 in order to assist the Liberal Democrats in making a case for potential alternatives to the like-for-like replacement of Trident, as stipulated in the 2010 Coalition Agreement. Further updates to Parliament were published at the end of 2013 and 2014 respectively.

This note examines the progress that has been made since Initial Gate on the programme was passed in May 2011, including the contracts that have been placed to date and the estimated costs of the replacement programme. The issue of cost has been particularly pertinent within the context of recent debates over the UK's defence expenditure and possible future cuts after the election.

The note also looks at wider issues such as the Trident Alternatives Review, the UK's disarmament obligations under the Nuclear Non-Proliferation Treaty and the debate surrounding the Scottish referendum on independence in September 2014.

This information is provided to Members of Parliament in support of their parliamentary duties and is not intended to address the specific circumstances of any particular individual. It should not be relied upon as being up to date; the law or policies may have changed since it was last updated; and it should not be relied upon as legal or professional advice or as a substitute for it. A suitably qualified professional should be consulted if specific advice or information is required.

This information is provided subject to [our general terms and conditions](#) which are available online or may be provided on request in hard copy. Authors are available to discuss the content of this briefing with Members and their staff, but not with the general public.

Contents

- 1 Introduction 3**
- 2 Policy Background 4**
 - 2.1 SDSR Conclusions 4
 - 2.2 Trident Alternatives Review 5
 - Responses to the Review 9
 - 2.3 The Trident Commission 14
 - 2.4 The UK’s Disarmament Obligations 14
 - Progress on Disarmament since 2010 15
- 3 Status of the Successor Programme 17**
 - 3.1 Initial Gate 17
 - 3.2 Assessment Phase Progress and Contracts Placed to Date 19
 - Jobs 20
 - 3.3 Costs 21
 - Cost Savings under the SDSR 21
 - Costs of the Programme to Date 22
- 4 The Scottish Referendum Debate 23**
- 5 Future Parliamentary Scrutiny 26**
- 6 Basic Timeline of Decisions and Reports 27**

What is Trident?

The nuclear deterrent system is composed of three parts: nuclear warheads which are mounted on Trident II D5 ballistic missiles which are launched from Vanguard-class nuclear powered submarines. There are four submarines in the fleet and they maintain a Continuous-at-sea deterrence (CASD), meaning one is always out on patrol, on Operation Relentless. Vanguard-class submarines are classed as SSBN's (Ship Submersible Ballistic Nuclear).

The nuclear deterrent is based in western Scotland at Her Majesty's Naval Base Clyde. The submarines are based at Faslane and the warheads are stored at the Royal Naval Armaments Depot, Coulport. Warheads are transported to the Atomic Weapons Establishment (AWE) at Aldermaston, Berkshire for overhaul. The missiles are maintained and stored under joint agreement with the United States at King's Bay, Georgia.

The life of the Vanguard-class submarines has been extended and replacement submarines, currently known as the Successor programme, are expected to enter service in 2028. The current nuclear warheads will remain viable until the late 2030s and the decision on a replacement warhead is not needed until 2019.¹ The UK is participating in the US life extension programme for the Trident D5 missile which will extend its life until the 2040s.²

1 Introduction

The Vanguard-class submarines that carry the nuclear warheads and missiles are coming to the end of the life. Their replacement is known as the Successor.

In light of the lengthy procurement process required for complex weapons systems, Parliament voted in 2007 to "maintain the strategic nuclear deterrent beyond the life of the existing system." The Government had, the year before, published a White Paper outlining its intention to build a new class of submarines, with a final decision on whether three or four boats are needed to maintain CASD to be taken when more is known about the design.

The Government decided in the Strategic Defence and Security Review of 2010 to delay Main Gate until 2016. This is when the main investment decision on a programme is taken. Initial gate was passed in 2011, releasing funds for a five year assessment phase. Previously, the 2006 White Paper suggested Main Gate would fall between 2012 and 2014. The Government will decide at Main Gate how many boats to procure.

Both the Conservative Party and the Labour Party have committed to maintaining Continuous-at-sea Deterrent.³ The Liberal Democratic Party favours ending the Continuous-at-sea posture and reducing it to a Contingency Posture with fewer boats.⁴

¹ In the 2006 White Paper the Government had indicated that a decision on the replacement warhead could be taken during the post-2010 Parliament. The 2010 SDSR stated that a decision on the replacement warhead will now be deferred until 2019.

² Ministry of Defence and Foreign and Commonwealth Office, *The Future of the United Kingdom's Nuclear Deterrent*, Cm 6994, Session 2006-07

³ HC Deb 16 July 2013, c90WS & HC Deb 17 July 2013 c1232

Upon entering the Coalition, the Liberal Democratic Party secured the agreement of the Conservative Party to study the costs, feasibility and credibility of alternative systems and postures for the nuclear deterrent. This became known as the Trident Alternatives Review. It was published in July 2013. The review does not make recommendations and is not a statement of Government policy.

The Ministry of Defence has committed to providing annual reports to Parliament on the status of Successor programme. The most recent was published in December 2014.

The Ministry of Defence estimates the cost of the Successor programme to fall within the 2006 White Paper estimates of £15-20bn, including 11-14 billion for the new submarine (at 2006-7 prices).⁵ The in-service costs of the UK's nuclear deterrent amount to approximately 5-6% of the defence budget. Opponents of the nuclear deterrent, such as CND, suggest the lifetime costs of the deterrent will amount to £100 billion.

Trident is based in Scotland and was a major issue in the build-up to the referendum for independence in September 2014 because of the Scottish Government's commitment to secure "the speediest safe withdrawal of nuclear weapons from Scotland" within the first term of the Scottish Parliament following independence, if that had been the outcome of the referendum.⁶

Successive Governments have insisted that replacing Trident is compatible with the UK's obligations under the Nuclear Non-Proliferation Treaty (NPT), arguing that the treaty contains no prohibition on updating existing weapons systems and gives no explicit timeframe for nuclear disarmament.

2 Policy Background

2.1 SDSR Conclusions

In line with expectations, the 2010 Strategic Defence and Security Review (SDSR) concluded that the UK strategic nuclear deterrent would be retained as a key element of the Future Force 2020. As a result of the Government's value for money review, the SDSR made several recommendations, however, on changes to the successor programme in order to achieve cost savings. The basis for those changes was the overriding conclusion that minimum effective deterrence could be achieved with a smaller nuclear weapons capability. Therefore, the SDSR concluded:

- The number of operational launch tubes on the current Vanguard-class submarine will be reduced over the next few years from 12 to eight and the number of warheads deployed from 48 to 40.

⁴ Liberal Democratic Party Policy Paper 112: *Defending the future: UK Defence in the 21st century*, Autumn conference 2013

⁵ HC Deb 13 February 2014 c850W

⁶ Scottish Government, *Scotland's Future*, 26 November 2013

- The operational stockpile of nuclear warheads will be reduced from less than 160 to fewer than 120; while the overall nuclear stockpile will be reduced from no more than 225 to no more than 180 by the mid 2020s.⁷
- Main Gate of the programme will take place in 2016.
- Continuous-at-sea deterrence (CASD) will be maintained. Breaking CASD is not considered by the MOD to be a viable means for achieving costs savings. The submarines are nuclear powered so there would be no savings on fuel, while they would also still need to be crewed when in port for safety and security reasons. A decision on the final number of submarines required to maintain CASD will be taken at Main Gate when further information on the reliability and maintenance requirements of the new submarine design becomes available.
- The service life of the current Vanguard-class submarines will be extended and the first replacement platform will enter service in 2028. This involves service-life extension of nine years, if an original 25-year lifespan is assumed.⁸ It will also bring the successor programme largely into line with the US programme to replace its existing Ohio-class SSBN.⁹
- The new platform will be configured with eight operational missile tubes, instead of the originally planned 12. It had been suggested that reducing the size of the missile compartment would make a re-designed Astute-class more feasible as a potential successor platform.¹⁰
- The current nuclear warheads will remain viable until the late 2030s and therefore, a decision on the replacement warhead will now be deferred until 2019.¹¹

2.2 Trident Alternatives Review

In tandem with the Initial Gate announcement in May 2011, the Secretary of State for Defence also confirmed that, in order to assist the Liberal Democrats in making the case for alternatives (which was set out in the 2010 Coalition agreement), a study into the costs, feasibility and credibility of alternative systems and postures would be undertaken.

That review was led by the Cabinet Office, with Ministerial oversight provided by the Chief Secretary to the Treasury, Danny Alexander, and was expected to take 18 months to complete. The terms of reference for the review were limited to the following questions:

- i. Are there credible alternatives to a submarine-based deterrent?
- ii. Are there credible submarine-based alternatives to the current proposal, such as a modified Astute-class submarine using cruise missiles?

⁷ This decision has been considered part of UK's commitment toward disarmament, a position put forward at the NPT Review Conference in May 2010. Further information on the outcome of that review conference is available in Library Research Paper, RP10/42, [Progress towards nuclear disarmament?](#), 15 June 2010

⁸ Assuming a 25-year lifespan for the Vanguard-class, the first submarine would have left service in 2019 (HMS *Vanguard* entered service in 1994), and in 2024 if assuming a 30-year span. The final vessel of the fleet (HMS *Vengeance*) entered service in 2001 and therefore decommissioning dates were 2026 or 2031 respectively.

⁹ That programme is expected to bring a new submarine into service from 2027 onwards.

¹⁰ Comment by Dr Jeffrey Bradford of King's College London on: <http://kingsofwar.org.uk/2010/10/sdsr-mortgaging-the-future-to-a-war-in-afghanistan/>

¹¹ In the 2006 White Paper the Government had indicated that a decision on the replacement warhead would be taken during the post-2010 Parliament.

- iii. Are there alternative nuclear postures, for example non-continuous at sea deterrence, which could maintain the credibility of the UK's nuclear deterrent?

The assessment was expected to examine how any alternatives could be delivered, the feasibility, cost, industrial implications and the level of associated risk.

Initially the MOD stated that “there are no plans to publish either the report itself or the information it draws upon due to its highly classified nature. It remains too early to speculate about what it might be possible to say publicly about the conclusions when the review has been completed”.¹²

However, the Government went on to confirm that an unclassified version of the review would be published.

That [Trident Alternatives Review](#) was subsequently published on 16 July 2013. The review does not make recommendations and is not a statement of Government policy, which remains as set out in the SDSR.

Within its terms of reference the review examined a number of alternative systems, platforms and postures to determine whether they could provide a credible alternative deterrent capability. Credibility was based upon five criteria: readiness, reach, resolve, survivability/invulnerability and destructive power.

In summary, the main alternatives¹³ considered were:

Platforms/Systems

- Nuclear-tipped cruise missiles deployed either aboard a submarine, surface ship or aircraft, possibly in a dual-purpose role (i.e. with both conventional and nuclear strike capability).
- Air-launched free fall nuclear bombs deployed aboard a fast jet fleet.
- Of the submarine options considered, in addition to the current SSBN, were a nuclear-armed hunter-killer submarine (SSN), based on either a modified Astute or a new design, or a variant of the current SSBN that could fire either cruise or ballistic missiles.
- The review also briefly examined the potential for silo-based ballistic missiles, although this option was discounted as the review progressed.

Posture

- Adopting a posture of focused deterrence which would entail maintaining a nuclear deterrent for a specific period and against a specific adversary. At all other times the deterrent could adopt a reduced readiness level.
- Adopting a posture of sustained deterrence, whereby deployment of some deterrent capability would be maintained but at reduced alert.
- Adopting a posture of responsive deterrence, whereby deployment of some deterrent capability would be maintained, albeit with gaps between deployments. The frequency

¹² HL Deb 19 December 2012, c301WA

¹³ The report itself sets out a number of options which were discounted as the review progressed.

and length of a deployment would be irregular in order to avoid adversaries predicting when gaps may occur.

- Adopting a posture of preserved deterrence whereby no deterrent platforms would regularly be deployed but the UK would maintain the ability to deploy if necessary.

In the subsequent debate in the House of Commons on 17 July Danny Alexander confirmed that all of these postures would be “designed to allow us to surge back to the so-called focused deterrence, which would sustain a continuous posture in response to our needs”.¹⁴

On the issue of alternative platforms and systems, the review made the following points:

- Of the maritime cruise missile options, submarines are the least vulnerable platform, although they would still be vulnerable to attack upon launch of a missile as they would be required to operate relatively close to an adversaries’ territory.
- Aircraft deployed with cruise missiles would also be vulnerable to attack prior to launch if an adversary retained the ability to target their location (either deployed aboard a carrier or at an airbase). The review acknowledged that some states already have this capability, while others may develop it as ballistic missile technologies and satellite targeting systems proliferate.
- Cruise missiles have additional potential constraints: their limited range means there may be geographic areas that the UK, if it was acting alone, could not reach. If forward basing were required it could require third party agreement, thereby placing a degree of uncertainty over the UK’s sovereign ability to use its deterrent. Missile defence capabilities are also likely to improve and proliferate. The report concluded that “maintaining the same level of assurance that the UK deterrent can overcome an adversary’s defences is therefore likely to be harder with a cruise missile based system”.¹⁵
- The design and development of a warhead capable of being integrated into a cruise missile or free-fall bomb would be the critical challenge. Moving to an alternative to the current Trident missile would add technical, financial and schedule risk to the programme. It was considered that delivery of a warhead capability integrated into a cruise missile could not be delivered, without risk, for some 24 years, around 2040. On that basis the UK would be required to procure a small capability (a two-boat fleet), based upon the current SSBN, in order to bridge the gap between the out of service date for the current Vanguard-class SSBN and the delivery of an alternative cruise missile based system.
- Cost estimates for the development, procurement and in-service support of a new system (platforms, missiles, warheads and any requisite infrastructure), in addition to the procurement of a ‘gap’ capability, compared to an SSBN fleet of either 3 or 4 boats, were considerably higher. The cost driver for all non-Trident based options was identified as the development of a new warhead and the need to provide a two-boat SSBN fleet to fill the gap between capabilities. The report noted that “it is the need for

¹⁴ HC Deb 17 July 2013, c1220

¹⁵ Trident Alternatives Review, p.6

these 2 successor SSBNs that makes the cost of the alternatives more expensive overall than a 3 or 4 boat successor SSBN fleet".¹⁶

- The report also noted that all alternative options would also require the UK to order additional conventional submarines in order to avoid the loss of sovereign submarine manufacturing capability in the future.
- A dual-capable submarine fleet would also be more expensive as a larger fleet would be required in order to perform the equivalent range of conventional and deterrent tasks. The review concluded that a fleet of between 10 and 18 SSN would be required, as opposed to the current fleet of 4 SSBN and 7 SSN.

On that basis the review identified that an SSBN operating a continuous at sea deterrence posture offers the UK the highest level assurance that can be attained with a single deterrent system.

However, while acknowledging that there are no real alternatives to the current SSBN platform within the timeframe under consideration, the review went on to highlight that "there are alternative non-continuous postures (akin to how we operate conventional military assets) that could be adopted, including by a fleet of SSBNs, which would aim to be at reduced readiness only when the UK assess the threat of a no-notice pre-emptive attack to be low". On the basis of a non-continuous posture, the future SSBN fleet could also consist of fewer platforms. However, the report also stated that "none of these alternative systems and postures offers the same degree of resilience as the current posture of continuous at sea deterrence, nor could they guarantee a prompt response in all circumstances".¹⁷

The report also noted that any change to the UK's deterrent system and/or posture could impact on the UK's wider national interests and relations with allies.

In presenting the report to Parliament the Prime Minister stated that the review was "designed at the outset to be a neutral, factual review of options" but also went on to confirm that:

Government policy remains as set out in the strategic defence and security review. We will maintain a continuous deterrent and are proceeding with the programme to build a new fleet of ballistic missile submarines"¹⁸

The Chief Secretary to the Treasury, Danny Alexander, who led the review, opened a Commons debate on the [Trident Alternatives Review](#) on 17 July 2013. In that opening statement he acknowledged that a replacement system based upon the current Trident system offered the most cost effective option for the timeframe under consideration. However, he also sought to reiterate that the review had demonstrated that several credible alternatives to the UK's current approach to nuclear deterrence were available, including abandoning the policy of continuous deterrence and operating a fleet of fewer submarines. He commented:

A different approach would allow the UK to contribute meaningfully to the new multilateral drive for disarmament initiated by President Obama, while maintaining our national security and our ultimate insurance policy against future threats [...]

¹⁶ Ibid, p.8

¹⁷ *Trident Alternatives Review*, p.10

¹⁸ HC Deb 16 July 2013, c90WS

The review presents a much greater opportunity for change and the consideration of alternative postures, and that in turn presents the possibility of maintaining our nuclear deterrent capability with fewer submarines. This is where the real opportunity resides for making long-term savings, for recalibrating our policy to the requirements of our age, and [...] for contributing to nuclear disarmament [...]

The reality is that in the current circumstances, and for the foreseeable future, the ultimate guarantee does not need to sit on a hair trigger. We can afford to go much further in de-alerting our nuclear deterrent. The option of non-continuous deterrence does not threaten current security, and by changing postures we can reduce cost at the same time. For example, ending CASD and procuring one fewer successor submarine would make a saving of about £4 billion over the life of the system.

I believe that as large numbers of nuclear weapons remain and the risk of proliferation continues, it is right that the UK retains a nuclear capability for as long as the global security situation makes that necessary. But I also believe that that capability should be scaled and deployed to meet the threat we face now, and held as a contingency to deal with the threats we may face in the future. We should seek to balance the costs of this insurance policy against the other needs of defence and, indeed, other priorities across government.¹⁹

Responses to the Review

Although supported by the Liberal Democrats, the review was met with widespread criticism from elsewhere across the House. Concern was largely expressed over the review's suggestion that the UK could adopt a 'part time' deterrent, which many Members argued provides no deterrent capability at all, and the lack of consideration given in the report to the UK's submarine manufacturing capabilities. Others criticised the length of time taken to conduct the review, and the cost incurred to the taxpayer, on a review that presented no conclusions or recommendations. A number of MPs even suggested that the outcome of the review had undermined the Liberal Democrat's case for arguing for alternatives in the first place.²⁰ Advocates for disarmament went even further to criticise the total absence from the review of the other alternative for the UK: unilateral disarmament. A number of Members also proposed bringing forward the Main Gate decision on the programme into the current Parliament in order to avoid turning the issue into a political bargaining chip in the event of a hung Parliament in 2015.

Responding for the Opposition Shadow Defence Minister, Kevan Jones, stated:

Many Labour Members have waited anxiously to see the report's conclusion but, 26 months later, the review to make the case for the alternatives, which had the full weight of the Government's resources behind it, presents us with no conclusions, makes no recommendations and does not even support adopting any of the alternatives put forward by the Chief Secretary. Only the Liberal Democrats could envisage an alternatives review that rejects all the alternatives [...]

As has been said, we are convinced that the only credible way forward for a minimum nuclear deterrent is a continuous-at-sea deterrent; otherwise, the UK would be vulnerable. The Chief Secretary's suggestion would not only make the UK more vulnerable, but lead to a situation where we would not possess first strike or even second-strike capabilities. It would also be a significant escalatory factor if the UK

¹⁹ HC Deb 17 July 2013, c1220-1227

²⁰ See "Trident: no need for like-for-like replacement, says Danny Alexander", *The Guardian*, 22 January 2013 for a summary of the Liberal Democrats original position on the alternatives review.

stepped up its armed CASD posture. It is simply not credible and it is also very dangerous.²¹

Liam Fox also picked up on this latter point:

What are the Liberal Democrats saying with this policy? They are saying that we would abandon CASD, but deploy at times of increased international tension. What does any Member think would happen to international tension if we deployed a nuclear system that was not otherwise deployed? That would be a crazy foreign policy. I have to say to my Liberal Democrat colleagues that it is all very well to talk about stepping down the ladder, but if the bottom of the ladder is hanging off a cliff, that is not exactly a sensible manoeuvre.²²

He went on to note:

On cost, the Chief Secretary said that they would save £4 billion over the lifetime of the programme—£4 billion over a 34 to 50-year period. That £4 billion is the equivalent to less than two weeks' spending on the national health service, or six days of what we spend on pensions and welfare. This is supposed to be value for money. For that infinitesimally small saving over a 50-year period, they would abandon a crucial element of our national security—a very interesting definition of value for money [...]

The crucial question to be asked by anyone who wants to dismantle or diminish the CASD posture is: what will the world look like in 30, 40 or 50 years? It is all very well to say, "The risk assessments says that at the moment it's okay", but we do not know what the risk assessments will be in the future, and it is not our job to play roulette with the security of future generations in our country. We are being offered 50 years of protection from nuclear blackmail for the people of our country. There are those who say that £20 billion or more of capital costs is too much for 50 years' protection from nuclear blackmail, but that it was all right to spend £9.5 billion for six weeks for the Olympics. We need to get our priorities right in this country and recognise what is important in the longer term.²³

Bob Ainsworth also agreed with the assessments regarding escalation in a time of crisis:

There is no such thing as a non-credible or a less-credible deterrent. There can be no such thing as a part-time deterrent. To be a deterrent, something has to deter. Doing anything less than deter stops a nuclear deterrent from being a deterrent at all. It turns it into what? Potentially, at times of crisis, it turns into an invitation; it most certainly turns it from a deterrent into a weapon. If we look at what underpins the White Paper—and as the previous speaker clearly stated—we seen that such a weapon would be dangerous to deploy. How, when and in what circumstances would it be put to sea? How would we disguise, at a time of rising tension, that we were doing that? It would be dangerous to deploy and difficult to sustain. It is all right to say that if we have three boats, we could, for a time in some circumstances, up our level of deterrent and go back to continuous-at-sea deterrence. Yes, we could do that for a while if we got ahead of the crisis, stepped back to CASD, deployed a boat at sea and kept it at sea throughout that time. But with three boats, for how long could we do that?²⁴

Madeleine Moon and Bernard Jenkin also went on to note the importance of the UK deterrent to NATO. Mr Jenkin commented:

²¹ Ibid, c1228 and 1232

²² Ibid, c1235

²³ HC Deb 17 July 2013, c1236

²⁴ Ibid, c1237

Our continuous-at-sea deterrence is an important contribution to NATO. It is a pay-back to the United States for being the ultimate guarantor of European security. We should not imagine for a minute that if we started downgrading our deterrent, the United States would remain as interested as it is now in maintaining security in Europe, with all the benefit for this country.²⁵

In responding to some of these criticisms Liberal Democrat MP Sir Nick Harvey argued:

...the principal reason why alternative systems were found not to be viable was not—as some have suggested—because they were not technically viable. In contrast, it was because the length of time such alternatives would take, and the amount of money it would involve to equip a warhead to an alternative system, would make such alternatives prohibitive in the medium term. That is the expert view of those tasked with looking at the matter. If that is the conclusion to which they have come, I for one would not seek to question it and we must accept it [...]

Given that this report was commissioned by a Government who are a coalition of two parties with fundamentally different opinions on the issue, it was never going to come forward with proposals. It was about considering the alternatives and informing the debate that might follow [...]

we must consider the threat we might face in 20, 30 or 40 years' time, so we must therefore ensure that we have a nuclear deterrent in 20, 30 or 40 years' time that is capable of deterring the threat that we might face at that point. My point is simply that the threat we face today is not the same as it was at the height of the cold war [...] The idea that the nuclear capability has a deterrent effect at all only by being patrolled 24/7 is clearly absurd. All the rest of our capability has a deterrent effect against a variety of aggressors in a variety of scenarios and we do not see the need to exercise any of it on a 24/7 basis [...]

It simply is not the case that in order to get a deterrent effect from our military capability we have to patrol it all the time. That is absolute nonsense. The British, the French and the Americans have a posture of continuous-at-sea deterrence; the Russians and Chinese do not. The Indians and the Pakistanis take each other's nuclear weapons perfectly seriously, but that does not mean they patrol with them the whole time. It is complete nonsense to say we have to do it on that basis.²⁶

For disarmament advocates, however, the biggest criticism of the review has been its failure to take into account the further option of unilateral disarmament. In the debate Caroline Lucas MP commented:

On the review's comprehensive nature, does the right hon. Gentleman not agree that a review that fails even to consider the option of not replacing Trident at all and having no nuclear submarines is ultimately flawed? Decades after the cold war and in the midst of austerity, the key question that has to be asked is whether Britain needs a nuclear submarine system that will cost us £100 billion over the next 30 years...

It is deeply worrying and, indeed, the height of irresponsibility that both the 2010 strategic defence and security review and this review of an alternative to Trident have not explored the full range of options. The Prime Minister trumpeted the review as "neutral" and "factual", but I would argue that it is biased and empty of essential facts.²⁷

²⁵ Ibid, c1243

²⁶ HC Deb 17 July 2013, c1238-40

²⁷ HC Deb 17 July 2013, c1220 and 1253

Jeremy Corbyn also agreed with this view:

The review that the Liberal Democrats have asked for and that was no doubt produced at enormous expense is not a discussion of the alternatives. It is a discussion of weaponry and, in part, of perceptions of security and risk, but it is not a discussion of the alternative to Trident and nuclear weapons, which is not to have them at all and instead to aspire to a nuclear-free world...

Let us look for alternatives such as nuclear weapon-free zones, supporting a non-proliferation treaty, or a conference of middle eastern states to bring about a nuclear weapon-free middle east. The review is not an alternative document but one that leads us down the road of nuclear proliferation and danger.²⁸

Responding to those criticisms, Danny Alexander suggested that:

It is important to be clear what the review was not about. First, it was not about short-term savings to help to deal with the current deficit. It is possible under some of the options that savings against current plans would start to accrue from the mid-2020s, but this is not about back-filling budgets in the next Parliament. As I also said earlier, the review has not addressed the question of whether the UK should remain a nuclear weapon power, because complete unilateral disarmament is not the policy of either the Conservative party or the Liberal Democrats—or, indeed, of Labour. The review did not seek to address the question of whether we should possess nuclear weapons. However, the scale and posture of our nuclear weapon capability can change.²⁹

On the issue of moving the Main Gate forward, Dr Julian Lewis argued:

we could sign the main-gate contracts for some or all of the submarines in advance of the next general election. The only reason we put that off was to enable the Liberal Democrats to have their alternative study. They have had their alternative study, and it did not even consider a two-boat solution; it considered only a three-boat or four-boat solution. It could hardly be a breach of the coalition agreement if we were to challenge the Liberal Democrats to accept signing the contracts on the first two boats, if not the first three. That would at least prevent them from blackmailing either party, in the event of a hung Parliament, to get rid of the deterrent entirely.

At the most recent Defence questions I think I heard from the Opposition a commitment to try to bring forward the main gate decision to this side of the election. I urge Opposition Members who believe in deterrence to join Conservative Members and put relentless pressure on our leaders for a grand coalition to bring forward the main gate decision and secure the future of the nuclear deterrent—³⁰

He was also supported in that view by Sir Gerald Howarth.

Outside of Parliament the Trident Alternatives Review has met with equally mixed views. An [analysis by RUSI](#) raised a number of questions about the risks of adopting a non-continuous deterrent posture. It asked whether moving forces to a higher readiness level during a crisis could be sustained with just a small fleet of submarines; whether breaks in patrolling could prompt a pre-emptive strike against inactive forces; and what effect an escalation in patrolling during a crisis could have on an adversary and whether it could in fact escalate a crisis as opposed to de-escalating one. The report goes on to note:

²⁸ HC Deb 17 July 2013, c1258-9

²⁹ HC Deb 17 July 2013, c1220-1222

³⁰ Ibid, c1252-3

There are no entirely objective answers to these questions, and the confidence held in a non-continuous deterrent may ultimately depend more upon gut feeling than speculations about future threats. In this case, the balance between the risks of a non-continuous posture and the financial rewards offered by a smaller fleet of submarines may play an important role in determining the future of the UK's nuclear forces up to 2016 and beyond. The Conservative party has already drawn upon this to argue that abandoning permanent patrols would be a 'huge gamble' for a 'tiny saving'.³¹

Paul Ingram, Executive Director of BASIC also suggests that the review has a number of limitations as a result of issues that it has not sought to address, namely: the non-nuclear option and whether the UK should have a nuclear weapons capability at all; the evolving nature of the security environment and whether nuclear deterrence continues to have relevance; and the international politics surrounding the broader non-proliferation agenda. He goes on to suggest that options for pooling nuclear assets with NATO partners should be explored, which would realise substantial cost savings, and that reducing patrols is “exactly what we need today, something that is flexible and appropriate to the threats we face... Britain needs to be in a position to offer something on the global table of disarmament, and this requires a greater level of flexibility that many seem willing to contemplate”.

He also questions the assumption that alternative systems should be ruled out on the basis of the length of time it would take the UK to develop a new warhead for a cruise missile. He states:

If the nuclear deterrent really is the national asset that many claim, these lead-times could surely be reduced significantly. They compare unfavourably with the widespread estimates of Iran's capabilities to field a nuclear weapon in months from scratch and without allies. The Americans have shared much of their Trident warhead specifications with us, are they really unwilling to share the development of their future air-launched cruise missile with us?³²

The Campaign for Nuclear Disarmament, while welcoming the suggestion to move away from continuous deterrence and reduce the number of SSBN, also argued that the review was “fundamentally flawed” as it failed “to consider a future without nuclear weapons for the UK” and that ahead of 2016, “the full disarmament option must also be on the table”.³³

Peter Burt of the Nuclear Information Service expressed the view that “by taking Trident off permanent patrol, the UK now has an opportunity to make a decisive move which could dramatically boost our international status as a global leader and, as the US's closest ally, signal our firm support for the President Obama's international arms control agenda”.³⁴

However, in a letter to the Editor of *The Daily Telegraph* a number of former Labour and Conservative Secretaries of State for Defence and two former Defence Chiefs, expressed the opposing view:

We firmly believe that we should not water down the strategic deterrent that has been the cornerstone of our national security for the past 45 years. Britain's continuous at-sea deterrent is vital to ensuring this country has the ultimate defence and the means to deter any current or potential aggressor.

³¹ Hugh Chalmers, “The risks and rewards of alternative approaches to trident”, *RUSI Analysis*, 23 July 2013

³² Paul Ingram, “Commentary on the UK Trident Alternatives Review”, BASIC, 16 July 2013

³³ <http://www.cnduk.org/cnd-media/item/1708-cnd-slams-fundamentally-flawed-trident-alternatives-review>

³⁴ “24/7 nuclear shield is in doubt as alternatives to Trident are examined”, *The Observer*, 14 July 2013

In an uncertain world in which the number of nuclear weapons remains high and some states are increasing their holdings, we should not take risks with our security by downgrading to a part-time deterrent.

We cannot possibly foresee what threats will develop over the next 30 years. Reducing our submarine-based Trident capability would weaken our national security for the sake of a very small fraction of the defence budget. It is our view that if Britain is to remain a leading global power with strong defences, nothing less than a continuous at-sea deterrent will do.³⁵

2.3 The Trident Commission

An independent, cross party inquiry set up by the BASIC think-tank and led by a number of senior politicians examined the UK's nuclear weapons policy and the issue of Trident renewal in a report published in July 2014. The **Trident Commission** concluded the UK should retain nuclear weapons on the basis that:

If there is more than a negligible chance that the possession of nuclear weapons might play a decisive future role in the defence of the United Kingdom and its allies, in preventing nuclear blackmail, or in affecting the wider security context within which the UK sits, then they should be retained.

In reference to the Trident Alternatives Review, the Trident Commission expressed its opposition to proposals to develop alternative platforms and delivery systems, with new warheads “simply on the basis of possible but speculative cost savings.”³⁶

The Commission was co-chaired by Lord Browne of Ladyton, former Labour Secretary of State for Defence, Sir Malcolm Rifkind, former Conservative Defence and Foreign Secretary, and Sir Menzies Campbell, former leader of the Liberal Democrats and Shadow Foreign Secretary.

2.4 The UK's Disarmament Obligations

Article VI of the Nuclear Non-Proliferation Treaty commits the recognised nuclear weapon states to “pursue negotiations in good faith on 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”.

Successive Governments have insisted that replacing Trident is compatible with the UK's obligations under the NPT, arguing that the treaty contains no prohibition on updating existing weapons systems and gives no explicit timeframe for nuclear disarmament. It also insists it has taken a number of steps in support of the NPT, pointing to the significant down-sizing of the British nuclear arsenal since the end of the Cold War, with the withdrawal of all other nuclear weapons systems except for Trident, the reduction to fewer than 200 warheads in the overall stockpile and the reductions in the operational status of the deterrent.

Furthermore, the Government insists that sustainable nuclear disarmament can only be achieved through a multilateral process.³⁷ The UK has the smallest nuclear arsenal of the five recognised nuclear powers and says it will be willing to place its remaining weapons on the

³⁵ “Letter to the Editor: Britain open to attack if Trident is abandoned”, *The Daily Telegraph*, 15 July 2013

³⁶ “**Trident Commission: Concluding Report**”, BASIC, 1 July 2014, p5

³⁷ MOD, *Working towards Nuclear Disarmament*

table for negotiation when Russia and the US have reduced their arsenals to similar levels.³⁸ Others believe the Government could do more to advance the cause of nuclear disarmament by reducing the UK arsenal further.

Progress on Disarmament since 2010

Since the 2010 Review Conference the UK Government has taken several steps intended to demonstrate its commitment toward disarmament.

In the midst of the 2010 conference the new Coalition Government published, for the first time, information on the size of the UK's overall nuclear stockpile. The then Foreign Secretary, William Hague, announced in the House:

So I am pleased to announce today that, for the first time, the Government will make public the maximum number of nuclear warheads that the United Kingdom will hold in its stockpile-in future, our overall stockpile will not exceed 225 nuclear warheads. This is a significant step forward on previous policy, which was to publish only the number of warheads classed as "operationally available", the maximum number of which will remain at 160. We believe that the time is now right to be more open about the nuclear weapons that we hold. We judge

that that will further assist in building the climate of trust between nuclear and non-nuclear weapons states, which has been lacking in recent years, and will contribute to efforts to reduce the number of nuclear weapons worldwide. I can assure the House that this disclosure poses no threat to the security of the United Kingdom. Together with similar announcements made by the United States and France, it helps to set standards of transparency that all states with nuclear programmes should follow.

I can also announce that the Government will re-examine the UK's declaratory policy as part of the strategic defence and security review. The purpose of our nuclear weapons is to deter attack, and the UK has long been clear that it would consider using them only in extreme circumstances of self-defence, including the defence of our NATO allies. This country has been deliberately ambiguous over the precise circumstances of use, although we have offered some assurances to non-nuclear weapons states. We have decided that the time is right to look again at our policy-the US has done the same in its recent nuclear posture review-to ensure that it is fully appropriate to the political and security context in 2010 and beyond.³⁹

Reductions in the UK Nuclear Deterrent

- At its Cold War peak the UK nuclear stockpile consisted of approximately 520 nuclear warheads.
- By 1998 the deterrent had been reduced to one single system: Trident.
- The 1998 SDR announced a reduction to fewer than 200 operationally available warheads. Total stockpile estimated at 280.
- The 2006 White Paper reduced the stockpile to fewer than 160 operationally available warheads.
- In 2010 information on the size of the UK's overall nuclear stockpile (225 warheads) was published for the first time.
- The 2010 SDSR announced a reduction to 120 operationally available warheads; while the overall stockpile would be no more than 180 by the mid-2020s. Once that reduction has been achieved, the UK nuclear stockpile will have been reduced by 65% since the end of the Cold War.

³⁸ The size of the US nuclear arsenal, as of September 2013, was 4,804 according to the US Undersecretary of State for Arms Control and International Security (see "Stage set for 2015 NPT review conference, *Arms Control Today*, 2 June 2014)

³⁹ HC Deb 26 May 2010, c181-2

The Strategic Defence and Security Review in October 2010 subsequently outlined several decisions relating to the UK's nuclear force. The primary conclusion was that minimum effective deterrence could be achieved with a smaller nuclear weapons capability. Therefore, the SDSR concluded:

- The number of operational launch tubes on the current Vanguard-class submarine would be reduced over the next few years from 12 to eight and the number of warheads deployed from 48 to 40. In June 2011 the Government announced that the programme for implementing these reductions had been brought forward and that at least one Vanguard-class submarine carried the maximum of 40 warheads. The remaining reductions would be achieved during this Parliament.⁴⁰ Those reductions were subsequently achieved in January 2015.⁴¹
- The operational stockpile of nuclear warheads would be reduced from less than 160 to fewer than 120; while the overall nuclear stockpile would be reduced from no more than 225 to no more than 180. The reductions in the operational stockpile were achieved in January 2015; while the reduction in the overall nuclear stockpile is expected to be achieved by the mid-2020s.

The SDSR also outlined the UK's declaratory policy. The SDSR confirmed that the "UK would not use or threaten to use nuclear weapons against non-nuclear weapon states parties to the NPT". This assurance would not apply, however, to any state in material breach of the NPT. The SDSR also states:

We also note that while there is currently no direct threat to the UK, or its vital interests from states developing capabilities in other weapons of mass destruction, for example, chemical and biological, we reserve the right to review this assurance if the future threat, development and proliferation of these weapons make it necessary.⁴²

The language is similar to that used by the US in its *Nuclear Posture Review* which was published in April 2010. While offering negative security assurances to the NPT non-nuclear weapon states, it effectively leaves options open with regards to Iran and North Korea, which are both deemed to be in contravention of their NPT obligations.⁴³

The SDSR also maintains a position on ambiguity on the precise details of when, how and at what scale the UK may consider the use of its nuclear weapons capability. However, as also stated in the 1998 Strategic Defence Review, this sets out the position that the UK would only use nuclear weapons in extreme circumstances of self-defence.

The UK has also continued discussions on nuclear disarmament with the other recognised nuclear weapon states through the P5 dialogue, although, as outlined above, there has been some debate as to its willingness to actually make concrete progress.

⁴⁰ HC Deb 29 June 2011, c50-51WS

⁴¹ Nuclear Deterrent: Written Statement, HCWS210, 20 January 2015

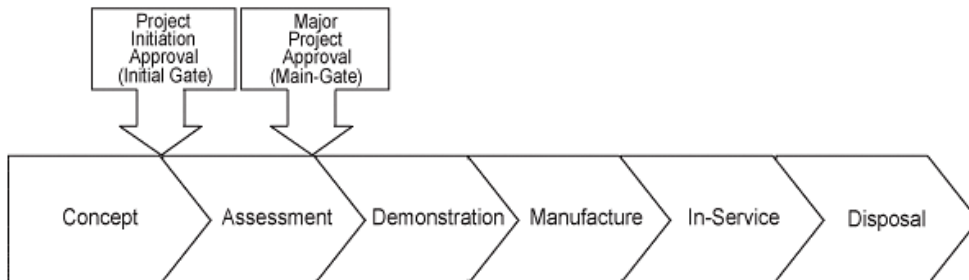
⁴² SDSR Fact Sheet 10: Trident Value for Money Review

⁴³ North Korea renounced the NPT in January 2003. However, some disagreement over its status remains. The country backdated its mandatory three month withdrawal notification period back to 1993, when it first threatened to withdraw from the treaty, thereby drawing criticism from some quarters that it did not follow the correct procedures and therefore remains subject to the provisions of the treaty.

3 Status of the Successor Programme

3.1 Initial Gate

The procurement of defence equipment in the UK is conducted, in the majority of cases, according to the following generic CADMID cycle:



The Initial Gate review assesses the feasibility of the programme going forward. Approval by the MOD's internal Investment Approvals Board is required at this point before funds can be released for the assessment phase. Approval at Initial Gate does not, however, commit the MOD to approval later on in the programme at Main Gate, which is the point when the main investment decision on a programme is taken.

Despite expectations in the SDSR that the Initial Gate of the Trident replacement programme would take place by the end of 2010, approval of Initial Gate was not announced until 18 May 2011.⁴⁴ In a Statement to the House, the Secretary of State for Defence confirmed:

I am announcing today that we have approved the initial gate investment and selected a submarine design that will be powered by a new generation of nuclear propulsion system—the pressurised water reactor 3—that will allow our submarines to deliver our nuclear deterrent capability well into the 2060s if required [...]

We have now agreed the broad outline design of the submarine, made some of the design choices—including the propulsion system and the common US-UK missile compartment—and the programme of work we need to start building the first submarine after 2016. We have also agreed the amount of material and parts we will need to buy in advance of the main investment decision.⁴⁵

More detailed information on the decisions taken at Initial Gate was published in a separate report to Parliament. That report highlighted the following key decisions:

- A number of systems from the Astute-class submarine design have been incorporated into the design of the successor submarine, although the report does not specify exactly what those systems are. The 'pull through' of technology is expected to reduce both costs and design and delivery risk for the new platform, while also ensuring commonality in the training and maintenance regimes for the UK's nuclear submarine fleet.
- In order to take advantage of technological developments since the Astute was originally designed, the successor submarine will incorporate a new nuclear propulsion design,

⁴⁴ Initial Gate is an investment approvals point in the procurement process which assesses the feasibility of the programme going forward in terms of time, cost and performance. Initial Gate approval is required before any programme can move into its assessment phase. Approval at Initial Gate does not ensure approval at the later Main Gate which is the main investment decision on a programme and the point at which a preferred bidder is chosen and contracts placed.

⁴⁵ HC Deb 18 May 2011, c351

while also ensuring sufficient flexibility in the overall design to incorporate through-life upgrades.

- The Pressurised Water Reactor 3 (PWR3) has been chosen as the propulsion system. It is considered easier to operate than the current system (PWR2), has a longer in-service life, will require less time in upkeep and maintenance and has lower through-life maintenance costs because of its longer service life.⁴⁶
- Work with the US on a Common Missile Compartment is ongoing to evaluate how best to incorporate the UK's requirement for eight operational missiles, against a baseline design for the CMC which currently involves a 12 missile tube unit. It has been recognised that the cost of the CMC will be minimised by keeping as much of the design as possible in common with the US.

Going forward, the report envisaged:

- Design maturity of around 70% being achieved by the end of the assessment phase so that manufacture can commence after Main Gate without the need for redesign, which would introduce delays and increased cost into the programme.
- Incorporating into the design, at an acceptable level of risk, several components in which technological improvements have been planned, including communications, tactical weapon systems, batteries and structural materials.
- Establishing an Integrated Programme Management Team (IPMT) to oversee the work schedule, costs and risks of the programme and to manage the relationship between the MOD and its main industry partners.
- Around £8m is expected to be spent between 2011 and 2014 to study, in detail, the requirement for investment in the UK's nuclear deterrent infrastructure.

The Initial Gate business case outlined several 'long lead' items that would be procured as part of the next phase of work, including the steel for the hull of the first replacement submarine. In response to questions in February 2011 the MOD confirmed that this was necessary "due to the length of time needed for the mill run" and "in order not to put at risk the in-service date".⁴⁷

The Initial Gate report to Parliament in May 2011 also indicated that contracts for other long lead items would be placed during the assessment phase, including items relating to the propulsion system of the submarine. No long lead items will be procured for the fourth boat as a decision on the size of the eventual fleet is not due to be taken until 2016.

The intention to procure a number of long lead items prior to the main investment decision in 2016 prompted criticism from a number of MPs, including Tom Brake who argued:

It's a false start, he's [the Secretary of State] has jumped the gun. Clearly there is a commitment on behalf of the Government to assess the value for money of the Trident

⁴⁶ A submarine with the PWR3 has been estimated at £50m more expensive to procure and operate than the current design incorporating the PWR2. However, it is estimated to be cheaper in the longer term due to the extended in-service life that the PWR3 offers.

⁴⁷ HC Deb 16 February 2011, c805W

replacement programme. This has got to happen before components of the system are being purchased.⁴⁸

3.2 Assessment Phase Progress and Contracts Placed to Date

The assessment phase has been divided into several stages of work, largely focused on the design of the successor platform:

- Stage One – to decide and understand the specifications of each system and component of the successor submarine. The main outcome will be the system drawings and technical specifications necessary for the purchase of equipment provided by companies outside of the three Industrial partners on this programme.
- Stage Two – Consideration of how the various sub-systems and components will be incorporated into the overall submarine design.
- Stage Three – detailed technical drawings for the submarine will be produced.

In its update to Parliament in December 2012, the MOD confirmed that the focus of work over 2012 had been on Stage One. In its 2014 update to Parliament, the MOD stated that some sections of the submarine had moved into stage 2 (spatial) design, with the remainder to commence stage 2 design from around mid-2016.

In May 2012 framework contracts were awarded to BAE Systems, Babcock and Rolls Royce. These contracts cover the period up to Main Gate and provide an overarching structure under which rolling waves of work packages will be established. That first set of work packages, worth approximately £350m and covering the first 18 months of work on the assessment phase, were also announced. The largest contract, worth £328m, was awarded to BAE Systems for work on the overall design of the submarine. A £15m contract was awarded to Babcock for part of the in-service support package; while a contract worth £4m was awarded to Rolls Royce for work on the integration of the reactor design.⁴⁹

In October 2012 the second set of work packages were announced. These packages cover a further 18 months of design work for BAE Systems and Babcock and are also valued at approximately £350m (£315m for BAE Systems and £38m for Babcock).⁵⁰

In December 2013 a further £79 million was committed, in two contracts worth £47 million and £32 million, to BAE Systems. The contracts are for the company to begin work on some initial items, like structural fittings, electrical equipment, castings and forgings.⁵¹

The missile tubes for the successor submarine are being procured as part of the collaborative Common Missile Compartment (CMC) project with the US. In October 2014 an \$83.8m contract was awarded to General Dynamics for the continuing development of the CMC. The contract provides funding for 17 missile tubes; four for the US submarine programme, one for a US shore test facility and 12 missile tubes for the UK successor programme. The 12 UK missile tubes' share of this contract is estimated at \$59 million.⁵²

⁴⁸ "Liam Fox risks Lib-Dem backlash with steel order for new nuclear sub", *The Evening Standard*, 17 February 2011

⁴⁹ Ministry of Defence press release, 22 May 2012

⁵⁰ Ministry of Defence press release, 29 October 2012

⁵¹ "New investment in Successor submarines", *Ministry of Defence new story*, 16 December 2013

⁵² PQ 215809 [Trident Missiles], 4 December 2014

Assessment phase activity in 2015 will include £250 million worth of further design work by BAES, and detailed designs for the new production facilities at BAES Barrow.

The 2014 *Update to Parliament* reports that £588m of Assessment Phase funding has been earmarked for long lead items to be ordered before Main Gate, of which £213 million had been committed as of 31 March 2014. This includes long lead items for the PWR3 propulsion system; weapons handling and launch system; gearbox components and associated equipment; material to support the manufacture of missile tubes; and material to support the manufacture of integrated tube and hull fixtures. Further orders before Main Gate are expected to include additional PW R3 components; main lubrication oil pumps; main feed flexible couplings; main shaft bearing; hull fittings; pressure plate and stiffeners; turbo generators; main engines and condensers; electrical distribution components and fibre optic components.⁵³

In June 2012 a separate Core Production Capability contract was agreed with Rolls Royce for the production of the reactor cores for the successor submarines. However, the actual manufacture of the core for the first boat of the fleet will not commence until after Main Gate.⁵⁴ In February 2013 a separate submarine propulsion contract was also awarded to Rolls Royce to deliver and maintain the UK's nuclear propulsion capability for submarines, which will include both the Astute⁵⁵ and the successor deterrent submarine.

Separately, the MOD also announced in May 2012 its commitment to continue investing £1bn a year in facilities at the Atomic Weapons Establishment under the current 25-year contract with AWE Management Ltd. This agreement does not relate to any replacement warhead programme but is considered necessary "to ensure we can maintain our existing nuclear warhead in service for as long as necessary, and to ensure we retain the capability to design and manufacture a replacement warhead should that be necessary".⁵⁶ A decision on whether to refurbish or replace the existing warhead, as part of the overall successor programme, will be made in the next Parliament.

Jobs

Approximately 2,200 people across the MOD and all three companies are currently working on the Successor programme, of whom over 50% are engineers and designers.⁵⁷ The Ministry of Defence estimates in its 2013 Update to Parliament that jobs on the Successor programme will peak at 6,000 during the build phase from 2016 to the late 2020s and involve an estimated 850 British companies in the supply chain.⁵⁸ Over 850 potential suppliers across the UK have been identified for possible future work as the design of the submarine matures, according to the 2014 Update to Parliament.

Philip Dunne, the Minister for Defence Equipment, Support and Technology, said in 2012 "should the Successor programme achieve Main Gate approval, and proceed to production,

⁵³ Ibid

⁵⁴ Ministry of Defence, *The United Kingdom's Future Nuclear Deterrent: 2012 Update to Parliament*, December 2012

⁵⁵ Astute is the new class of attack submarines that are currently being introduced into service to replace the Trafalgar-class submarines.

⁵⁶ HC Deb 14 May 2012, c21WS

⁵⁷ Ministry of Defence, *The United Kingdom's future nuclear deterrent: 2014 update to Parliament*, 16 December 2014

⁵⁸ Ministry of Defence, *The United Kingdom's future nuclear deterrent: 2013 update to Parliament*, 16 December 2013

it will sustain thousands of jobs across the UK submarine industry, including businesses at all levels of the submarine supply chain.”⁵⁹

3.3 Costs

Current forecast costs for the successor programme remain within the estimates initially set down in the 2006 White Paper, i.e. £15-20bn for the overall programme, including £11-14bn for the successor platform, £2bn to £3bn for the warhead and £2bn to £3bn for the infrastructure (2006/2007 prices). This was reaffirmed in the 2014 *Update to Parliament* report.

Uprating these costs in line with the [Treasury's GDP deflator](#) for the period 2006/07 to 2013/14 gives an overall estimate, in 2013/14 prices, of £17.5bn-£23.4bn for the overall programme, including £12.9 - £16.4bn for the submarines.

The MOD has also confirmed that once the new nuclear deterrent submarine comes into service, the in-service costs of the UK's nuclear deterrent, including the costs of the Atomic Weapons Establishment, will be similar to the current level of around 5-6% of the defence budget.⁶⁰ These figures were reaffirmed by the Government in February 2014.⁶¹

The Trident successor programme will be funded from the MOD's core equipment budget.

Opponents of the nuclear deterrent, such as [CND](#), cite figures amounting to £100 billion, which is their estimate for the costs of the deterrent over its lifetime. This figure includes submarine procurement, cost of missile extension programme, estimates of in-service costs (£57 billion, calculated as 6% of a £40 billion defence budget each year from 2034-2058), replacement warheads and decommissioning costs.⁶²

Cost Savings under the SDSR

The decisions set down in the SDSR are expected to reduce the costs of the nuclear deterrent by £750m over the current spending review period up to 2014-15, and £3.2bn over the next ten years (£1.2bn of savings and £2bn of deferred spending). The £750m savings over the period of the current CSR will largely come from the decision to reduce the number of missiles and warheads deployed aboard the Vanguard-class submarine.

In answer to a Parliamentary Question on 8 November 2010 the Secretary of State for Defence confirmed that the additional costs of maintaining the Vanguard-class in service would be in the region of £1.2- 1.4bn.⁶³ It has also been acknowledged, however, that savings achieved from the Submarine Enterprise Performance Programme (SEPP) will be used to offset the additional costs of delaying the successor programme:

The deferral does add cost to the successor programme but we are embarking on a programme to improve the efficiency of the submarine enterprise. The savings we expect this efficiency programme to generate will more than offset any additional costs resulting from the deferral of the submarines in service date.⁶⁴

⁵⁹ HC Deb 18 September 2012 c617W

⁶⁰ HC Deb 20 December 2012, c907W

⁶¹ HC Deb 13 February 2014 c850W

⁶² [“People not Trident-the economic case against Trident replacement”](#), CND, March 2014

⁶³ HC Deb 8 November 2010, c5

⁶⁴ SDSR Briefing Pack: Trident V4M: Q&A

To date no estimates have been made of the of the savings which may be accrued from reducing the deterrent fleet from four boats to three, a decision on which is expected to be made as part of the Main Gate in 2016.⁶⁵ The Liberal Democratic Party, in its *Defending the Future* paper, estimated that “having three rather than four submarines would save roughly £4 billion; two would produce further savings.”⁶⁶

Costs of the Programme to Date

The total programme spend at the end of financial year 2013-14 was just over £2 billion:

- £854 million on the Concept Phase (prior to Initial Gate)⁶⁷
- £1,243 million on the Assessment Phase⁶⁸

The Assessment Phase has an approved budget of £3.3 billion, of which £1.2 billion had been spent by the end of financial year 2013/14.

The forecast cost of the Assessment Phase given in the Initial Gate report of 2011 was £3 billion.⁶⁹ However, in its *Update to Parliament* in December 2014 the MOD stated that, with agreement from the Treasury, a further £261m of funding had been brought into the Assessment Phase from elsewhere in the programme in order to allow essential elements of the programme to be brought forward. The *Update* says this is in line with plans set out in the Initial Gate Business Case. As such, this brings the total approved Assessment Phase funding to £3.3 billion.⁷⁰ This does not increase the overall cost of the programme as the £261 million is not additional funding. The MOD also confirmed that it would identify, at Main Gate in 2016, an appropriate contingency for the Manufacture Phase of this programme.

According to the 2013 MOD [Equipment Plan](#), approximately one quarter of total committed MOD spending on equipment over the next ten years will be on submarine and deterrent systems.⁷¹

Given the financial commitments associated with the replacement of the nuclear deterrent, questions have continued to be asked about the rationality of such spending at a time of austerity and further expected cuts across the MOD’s entire budget. Indeed, going forward, it is widely acknowledged that on current projections the UK defence budget is expected to fall below the NATO spending benchmark of 2% of GDP beyond 2015.

As such, many commentators have called for Trident to be re-examined as part of the 2015 Strategic Defence and Security Review.⁷² [BASIC](#) have suggested re-opening the Trident

⁶⁵ HC Deb 31 October 2012, c296W

⁶⁶ Liberal Democratic Party Policy Paper 112: *Defending the future: UK Defence in the 21st century*, Autumn conference 2013, para 6.4.1

⁶⁷ National Audit Office, *Major Projects Report 2014 and the Equipment Plan 2014 to 2024*, 13 January 2014, HC 941-I 2014-15, p75

⁶⁸ Ministry of Defence, *The United Kingdom’s future nuclear deterrent: 2014 update to Parliament*, 16 December 2014

⁶⁹ Ministry of Defence, *The United Kingdom’s Future Nuclear Deterrent: The Submarine Initial Gate Parliamentary Report*, May 2011

⁷⁰ Ministry of Defence, *The United Kingdom’s future nuclear deterrent: 2014 update to Parliament*, 16 December 2014

⁷¹ Malcolm Chalmers of RUSI has suggested that this could rise to one third of the overall equipment spend if unallocated spending and contingency provisions are attached to the programme at any point in the future. See: “Towards the UK’s Nuclear Century”, *RUSI Journal*, December 2013

⁷² See House of Commons Debate on [Trident Renewal](#), 20 January 2015 and the debate on the [Defence and Security Review](#), 2 March 2015.

Alternatives Review (see below); while a recent report from [Centre Forum](#) argued that an air, as opposed to submarine, launched capability would still provide a credible minimum nuclear deterrent, at less cost.

4 The Scottish Referendum Debate

Scotland voted against becoming an independent country in a referendum held in September 2014.

The strategic nuclear deterrent was a major issue in two years building up to the referendum. The Scottish National Party has a long-standing policy of removing nuclear weapons from Scotland and the implications for the UK's strategic nuclear deterrent in the event of a 'Yes' vote would have been far reaching.

This section was written prior to the referendum and is retained as it provides a useful overview of the debate.

First Minister of Scotland and Leader of the SNP, Alex Salmond, stated in October 2012 that if Scotland were to vote for independence then this policy should be enshrined in a written constitution that "should include an explicit ban on nuclear weapons being based on Scottish territory".⁷³ At its 2012 Conference, the SNP agreed a resolution outlining that if Scotland were to gain independence "a sovereign SNP government will negotiate the speediest safe transition of the nuclear fleet from Faslane which will be replaced by conventional naval forces".⁷⁴

The Scottish Government outlined its policy in the *Scotland's Future* paper, published in November 2013.⁷⁵ The Scottish Government considers "securing the speediest safe withdrawal of nuclear weapons from Scotland" to be one of its five priorities for defence and favours removing Trident "within the first term of the Scottish Parliament following independence." This suggests a timeframe of around 2020-21, assuming the first elections are held in 2016. It added the withdrawal of Trident nuclear weapons and/or the Vanguard submarine fleet would be decided and delivered "as quickly as it can be both safely and responsibly secured."

The UK Government's position on independence remained consistent. In its January 2013 response to the Scottish Affairs Committee report on independence and the implications for the nuclear deterrent, the MOD stated:

The UK Government's position on the referendum on Scottish independence is clear: Scotland benefits from being part of the UK and the UK benefits from having Scotland within it. We are confident that the people of Scotland will choose to remain part of the UK and are not planning for Scottish independence or to move the strategic nuclear deterrent from Her Majesty's Naval Base Clyde (HMNB Clyde) [...]

The UK Government will not pre-negotiate the departure of Scotland from the UK.⁷⁶

That report went on to state:

⁷³ [SNP press release](#), 7 October 2012

⁷⁴ <http://www.moraysnp.org/p/snp-defence-policy-update.html>

⁷⁵ Scottish Government, *Scotland's Future*, 26 November 2013

⁷⁶ Scottish Affairs Committee, *Government response to the Committee's Fourth report*, HC861, Session 2012-13

If the result of the referendum on Scottish independence were to lead to the current situation being challenged, then other options would be considered. Any alternative solution would come at huge cost. It would be an enormous exercise to reproduce the facilities elsewhere. It would cost billions of pounds and take many years. It is impossible to estimate how much it would cost to replicate the infrastructure, which would depend on many factors including timescales and the precise scope of the facilities that might be required.⁷⁷

On the issue of jobs in Scotland specifically, the report noted:

HMNB Clyde is the largest employment site in Scotland, with around 6,700 military and civilian jobs and this is projected to increase to around 8,200 by 2022. The Base is a major source of employment for highly skilled workers and a significant contributor to the local economy. The rise in the number of jobs over the next decade accompanies the move to base all Royal Navy submarines on the Clyde to achieve economies of scale and the greater effectiveness of collocation; this symbiosis of a submarine centre of specialisation and associated contractor and base support is a matter of pride for the United Kingdom. It is for the Scottish Government to explain how this quality and quantity of employment in the region would be matched if the enterprise had to be relocated.⁷⁸

The UK Government discussed the nuclear deterrent further in the *Scotland analysis: Defence* paper, published in February 2014 as part of the UK government's *Scotland analysis* series. The UK Government argues it would be an "enormous exercise" to reproduce the current facilities at Faslane and Coulport elsewhere in the United Kingdom:

The UK Government has made it clear that it is not planning for Scottish independence. If the result of the referendum were to lead to the current situation being challenged, then options would be considered, but any alternative solution would come at huge cost. It would be an enormous exercise to reproduce the facilities elsewhere. It would cost billions of pounds and take many years. Furthermore, if the nuclear deterrent had to relocate, then so would the whole of the submarine enterprise, including the Royal Navy's attack submarines and the submarine centre of excellence. This would have a major impact upon the sustainability of the naval base at Faslane, which is the biggest employment site in Scotland with 6,700 military and civilian jobs, increasing under current UK Government plans to 8,200 by 2022.⁷⁹

In July 2013 several media reports suggested that the MOD was considering the option of designating Faslane as "sovereign British territory", similar to the Sovereign Base Areas in Cyprus, if the referendum resulted in a 'yes' vote. That proposal was met with anger by the Scottish Government with the Deputy First Minister, Nicola Sturgeon accusing the Government of "an outrageous attempt at bullying".⁸⁰ However the suggestion that this option is under consideration was subsequently denied by Downing Street.⁸¹

At its 2012 Conference the SNP also passed a resolution stating that an independent Scotland should become a member of NATO, albeit "subject to an agreement that Scotland will not host nuclear weapons" and only remain in NATO if NATO "takes all possible steps to bring about nuclear disarmament". However, NATO's status as a nuclear alliance,

⁷⁷ Scottish Affairs Committee, *Government response to the Committee's Fourth report*, HC861, Session 2012-13

⁷⁸ Scottish Affairs Committee, *Government response to the Committee's Fourth report*, HC861, Session 2012-13

⁷⁹ HMG, *Scotland analysis: Defence*, 28 February 2014, para 2.40

⁸⁰ "Scottish independence: Downing Street dismisses MOD's 'keep Faslane' idea", *BBC News Online*, 11 July 2013

⁸¹ No.10 Press Briefing, 11 July 2013

as set down in its Strategic Concept,⁸² has prompted criticism of this new policy, even from within the SNP itself. Eight SNP members of the Scottish Parliament called on the Conference to maintain the status quo in light of the fact that “NATO continues to be a nuclear based alliance”.⁸³ Malcolm Chalmers, writing for RUSI, has observed:

It would be hard to square Scotland’s acceptance of the Strategic Concept with an expulsion of the UKEWNI’s [United Kingdom of England, Wales and Northern Ireland] nuclear force from its bases at Faslane and Coulport. There would be a fundamental inconsistency in accepting the role of nuclear weapons in NATO’s security, but demanding their rapid removal from one’s own national territory. Even Germany, which has made clear that it wishes to remove US nuclear weapons from its territory, has also made clear that it would co-ordinate this with NATO allies and would not act unilaterally.⁸⁴

On this issue of NATO membership, the UK Government directly quotes concerns raised by a Henry Jackson Society paper, in its *Scotland analysis: Defence* paper, namely: “the SNP’s commitment to the unilateral divestiture of Trident from Scotland, without agreement from other NATO allies; its opposition to nuclear-armed vessels docking in Scottish ports, a position held by no other NATO country; and the possibility of its demands resulting in the unilateral disarmament of another NATO member: the UK.”⁸⁵

The Lords Spokesman on Defence, Lord Astor of Hever, has also stated:

there is no guarantee that membership of NATO would be automatic. No country joins NATO and pretends that it is not a nuclear alliance. The UK’s nuclear weapons are assigned to NATO, and an independent Scotland, if it were part of NATO, would continue to benefit from the nuclear umbrella that it provides. NATO’s strategic concept, as agreed and reiterated by all the allies at the 2010 Lisbon summit, is that its deterrence posture will consist of both conventional and nuclear forces.⁸⁶

The NATO Secretary-General, Anders Fogh Rasmussen, said during a visit to London that the NATO has not discussed the Scottish referendum or made any preparations in the event of a yes vote.⁸⁷

NATO Defence Ministers agreed in December 1996 that NATO countries have “no intention, no plan, and no reason to deploy nuclear weapons on the territory of new members.” They also said “new members, who will be full members of the Alliance in all respects, will be expected to support the concept of deterrence and the essential role nuclear weapons play in the Alliance’s strategy.” The full agreement reads as follows:

We reaffirm that the nuclear forces of the Allies continue to play a unique and essential role in the Alliance’s strategy of war prevention. New members, who will be full members of the Alliance in all respects, will be expected to support the concept of

⁸² NATO’s updated [Strategic Concept](#) (2010) states that “as long as nuclear weapons exist, NATO will remain a nuclear alliance. The supreme guarantee of the security of the Allies is provided by the strategic nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies” (para 17 and 18).

⁸³ “SNP members vote to ditch the party’s anti-NATO policy”, *BBC News*, 19 October 2012

⁸⁴ Malcolm Chalmers, “Kingdom’s End?”, *RUSI Journal*, June 2012

⁸⁵ HMG, *Scotland analysis: Defence*, 28 February 2014, para 2.38, quoting “In Scotland’s Defence? An Assessment of SNP Defence Strategy by George Grant, Henry Jackson Society, July 2013.

⁸⁶ HL Deb 1 November 2012, c651

⁸⁷ “[The Future of NATO: A Strong Alliance in an Unpredictable World: Anders Fogh Rasmussen, transcript Q&A](#)”, *Chatham House The Royal Institute of International Affairs*, 19 June 2014, Q6

deterrence and the essential role nuclear weapons play in the Alliance's strategy. Enlarging the Alliance will not require a change in NATO's current nuclear posture, and therefore, NATO countries have no intention, no plan, and no reason to deploy nuclear weapons on the territory of new members nor any need to change any aspect of NATO's nuclear posture or nuclear policy -- and we do not foresee any future need to do so.⁸⁸

The Defence Select Committee and the Scottish Affairs Select Committee, among others, have looked at this issue in some depth:

- Defence Select Committee, *Sixth report - Defence Implications of Possible Scottish Independence*, [HC 198](#), [HC 198-II](#)
- Defence Select Committee, *9th Special Report - The Defence Implications of Possible Scottish Independence: Government Response to the Committee's Sixth Report of Session 2013-14*, [HC 839](#)
- Scottish Affairs Select Committee, *The Referendum on Separation for Scotland: Terminating Trident – Days or Decades*, [HC 676](#)
- Scottish Affairs Select Committee, *The Referendum on Separation for Scotland: Terminating Trident – Days or Decades, Government Response*, [HC 861](#)

5 Future Parliamentary Scrutiny

In 2007 Parliament voted on the general principle of replacing the UK's nuclear deterrent.

Ahead of Initial Gate in 2011 various calls were made for Parliament to have a further vote before the programme proceeded into its assessment phase. At the time an MOD Minister stated that "Parliament does not routinely review internal Ministry of Defence business cases and I have not yet heard a convincing argument that suggests that this programme should be any different".⁸⁹

Calls for greater Parliamentary scrutiny, including a vote on the Main Gate decision in 2016, are likely to dominate this issue going forward. However, the MOD has been consistent in its view that it will be for the Government that takes office in 2015 to determine whether parliamentary scrutiny of the programme prior to Main Gate in 2016 will include a further debate and votes in the House. In July 2010 the MOD confirmed that "a decision on how best to consult will be made nearer the time".⁹⁰

As outlined above, many Parliamentarians had been calling for Main Gate to be brought forward into the current Parliament, in order to avoid the issue being used as a political bargaining chip in the event of another hung Parliament after the 2015 election. In September 2013 the then Defence Secretary, Philip Hammond, spoke out against bringing Main Gate forward, on the basis that taking an investment decision before a programme is sufficiently mature could lead to later cost growth and time delays:

⁸⁸ *Final Communiqué: Meeting of the North Atlantic Council in Defence Ministers Session held in Brussels*, NATO Press Release M-NAC(DM)-3(96) 172.. 18 December 1996

⁸⁹ HC Deb 1 March 2011, c66WH

⁹⁰ HC Deb 26 July 2010, c621W

As my hon. Friend will be aware, major investment decisions are made when programmes are sufficiently mature in terms of design and cost estimates. For the successor submarine we expect this point, the main gate decision point, to be in 2016. Making investment decisions and placing contracts when projects are not sufficiently mature is likely to lead to cost growth and time delays. However, it is not possible, for any individual project, to estimate with any degree of accuracy what those costs and delays might be, precisely because the programme is not yet sufficiently mature.⁹¹

While it is broadly accepted that the Main Gate decision will be presented to Parliament in 2016 there is, however, no obligation on the Government to give Parliament a vote on taking the Successor programme forward.

6 Basic Timeline of Decisions and Reports

- December 2006 – Government publishes its White Paper *The Future of the United Kingdom's Nuclear Deterrent*, Cm 6994
- 14 March 2007- Vote in the House on the general principle of whether the UK should retain a strategic nuclear deterrent ([Hansard 14 March 2007, c298-403](#))
- October 2007 – MOD establishes its Future Submarine Integrated Project Team to work in collaboration with the MOD's integrated project Team based at Defence Equipment and Support in Abbey Wood. In conjunction with the MOD, BAE Systems, Babcock Marine and Rolls Royce were identified as the three Tier 1 partners on this programme.
- October 2010 – *The Strategic Defence and Security Review*, Cm 7948, is published. This updates elements of the 2006 White Paper.
- May 2011 – Programme passes the Initial Gate. Government publishes its [Initial Gate Parliamentary Report](#).
- December 2012 – [First progress report to Parliament](#) is published.
- July 2013 – The [Review of Alternatives](#) is published.
- December 2013 – The [2013 Update to Parliament](#) is published.
- July 2014 – [Trident Commission report](#) is published.
- December 2014 – [2014 Update to Parliament](#) is published.
- Early 2016 – Expected Main Gate.
- 2019 – A decision on a replacement warhead is expected.
- 2028 – The first replacement submarine is due to enter service.

⁹¹ HC Deb 11 September 2013 c711W