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‘Defending the Future’

A rational approach to Britain’s future nuclear arsenal

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Summary

The UK faces a major strategic choice at the 2015 election over whether to renew the UK’s nuclear weapons systems beyond 2042.

Current Conservative-led plans call for a like-for-like Trident replacement and retention of the Cold War Continuous At-Sea Deterrence (CASD) posture will require a significant increase in the defence budget between now and 2032 to avoid major sacrifices to the UK’s conventional defence capabilities. The Conservatives have not made clear how they would find the c. £25bn to do this, leading to a likely crimping of the UK’s ability to engage internationally.

Following the Trident Alternatives Review, the Liberal Democrat leadership are promoting a partial replacement of the *Vanguard* ballistic missile submarines, ending CASD. **This will be debated on Tuesday 17 September from 1120 – 1250 as part of the Defence Policy Paper (Motion F32).**

Dubbed “Trident-Lite”, this policy covers a number of options. Depending on how it was implemented, this could lead to savings of between 3% and 20% of through life costs. However, there remain questions over the political impact of the UK sailing an armed submarine in a crisis (crisis stability) and how much the Trident Lite options would actually cost.

There are options outside of the scope of the Trident Alternatives Review: uncosted air delivered nuclear weapons, and a “virtual deterrent” in which the UK retains the capacity to build nuclear weapons but does not actually field them. **The amendment to the Defence Policy Paper proposed by George Potter would move Liberal Democrat policy to this position.**

Finally, there are more radical proposals that renounce nuclear weapons entirely.

Overview

Rarely does one election crystallise a major decision point for defence and foreign policy; the 2015 election is an exception. It could impact the decision on whether to replace the *Vanguard*–class submarines that carry the UK's current nuclear weapons with a new design known as *"Successor"*. The scale of the financial commitment means that the Trident renewal decision will profoundly affect Britain's defence priorities over the next two decades, as well as Britain's foreign and security policy choices beyond 2050.

The driver of the *Successor* programme is the replacement of the submarines, not the missiles. The MoD believes that the lead time required to design, build and test the new submarines is 12 – 14 years, meaning that a decision cannot be delayed beyond 2016 if *Successor* is to be available in the late-2020s to replace the retiring *Vanguards*, for as long as the current submarines are operated on a Continuous At Sea Deterrence (CASD) posture.

In the 2010 Strategic Defence and Security Review (SDSR), the decision was made to reduce the number of missiles carried by Vanguards from 12 to 8; over time, this will also lead to a small reduction in the number of warheads in the UK stockpile. That reduction appears to be permanent.

The Debate

In stark contrast to the Cold War-driven replacement of the *Resolution*-class submarines with the *Vanguards* in the early 1980s, the seeds of an historic broad-based political debate about whether or not a like-for-like replacement is desirable have been sown. This the first full public debate on British WMD policy since the UK atomic weapons programme began in secret under Attlee in 1945.

Debate has been matched by unprecedented – and very welcome – openness on UK nuclear weapons policy. The Coalition Agreement provided for a Liberal Democrat led Trident Alternatives Review, published in July 2013. Separately, the British American Security Information Centre (BASIC) has established an expert commission that will report in early 2014.

Deterrence Theory

Deterrence is based on the notion that the UK's nuclear weapons means that can inflict "unacceptable damage" against an aggressor state, deterring others from attacking us. It is important to recognise that this also explicitly states that such an aggressor state will not be deterred by the NATO nuclear guarantee, and that only UK weapons provide sufficient deterrent effect.

It is therefore important to understand what level of capability is required to have the desired deterrent effect. This is a political question reflecting on assessment of the UK's current and future adversaries – and therefore what level of capability is required to inflict unacceptable damage on these adversaries. Simply, do we need to have the capacity to deter Russia and China, or are we purchasing a system to deter the likes of Iran or North Korea? Deterring only countries with military capabilities similar to Iran or North Korea could allow the deterrent to be significantly less capable than Trident II, opening the door to a limited deterrent, which would be much cheaper than Trident CASD.

UK Options

UK thinking has defined four groups of strategic postures, each of which has a number of options and associated costs.

First, there is a continuation of the existing posture of *"Continuous Deterrence"*, whereby nuclear weapons are held at very high readiness indefinitely. This means the UK is able to retaliate to an attack within hours.

Second, there are a range of *"Reduced Readiness"* under which the UK would continue to field nuclear weapons, but with a mixture of periods where nuclear weapons were held at very high readiness, and other times where there would be no ability to retaliate for weeks or possibly months. This incorporates both "Trident Lite" and non-Trident based systems which would provide only "Limited Deterrence".

Third, there is the set of options where the UK does not field nuclear weapons. This could be where the UK retains nuclear weapons manufacturing and deployment capability but does not assemble or deploy them – *"Preserved Deterrent"*.

Fourth, and most radically, the UK could decide to denuclearise, foregoing nuclear weapons entirely, scrapping the existing weapons and the capacity to design and build them – *"Nuclear Disarmament"*.

I - Continuous Deterrence

The UK's current posture sees at least one of the Vanguard submarines on armed patrol at all times, and is known as Continuous At-Sea Deterrence (CASD). The Alternatives Review assessed a Trident-based system to be the best value for money, stating that a suitable cruise missile and warhead could not be developed and fielded before 2040.

Based on equipment reliability, patrol lengths, training and maintenance, a CASD posture requires four ballistic missile submarines, of which one or two (during patrol changeovers) will be armed at sea. Provided that the submarine remains serviceable and undetected, an enemy first strike cannot disable the UK's ability to retaliate.

CASD and a policy of like for like replacement of Vanguard with Successor is the policy of the Conservative Party. Four boat CASD comes with an estimated through-life cost of £110bn +/- £10bn over the next 30 years, though it is likely to absorb 25 – 33% of the likely MoD procurement budget from 2018–33. Thus it is these capital costs that imply the re-equipment of the conventional forces scheduled for this period would have to be cut further. The Conservatives are yet to explain where they will find the money to do this, as it would mean further cuts to other departments or tax increases.

II – Reduced Readiness

Reduced Readiness covers a range of readiness postures *as well as* a range of definitions of unacceptable damage, resulting in delivery systems of greater or lesser capability.

IIa – Trident Lite

The high capability / reduced readiness case could be described as "Trident Lite". This would retain the Trident II missile, but would procure only two or three *Successor* submarines.

Two submarines would mean that would be gaps in patrolling, meaning that the UK's ability to retaliate after a first strike is not assured unlike CASD. Depending on your assessment of the risk of a first strike on the UK, this may or may not pose a problem: with sufficient warning, it would be possible to have continuous deterrent patrol coverage for more six to 12 months at a time. **This is the policy advocated in the Liberal Democrats Defence Policy Paper.**

However, advocates of "Trident Lite" face three objections. First, in the history of conflict, intelligence warnings are notoriously inaccurate, meaning that there may not be warning of a crisis. In the worst case, this could mean that there would be no submarine available just at the time it was required, or that both submarines could be neutralised in a first strike.

Second, unless there were already a submarine at sea as a crisis appeared – potentially at short notice – the UK would have to sail an armed Trident submarine in the midst of a crisis, which would be a clear escalation just at the time that you would ideally be reducing tensions rather than increasing them.

Third, purchasing two submarines incurs the same research and development, design and engineering support costs. As a result, it saves a fraction of the total cost of the programme, with Danny Alexander estimating the savings of £4bn over 30 years for three submarines. Extrapolating from this, we can expect to save in the order of £8bn out of £100bn+ over 30 years for a two submarine force. Unfortunately, as it does require the design and construction of *Successor* submarines, "Trident Lite" is also unlikely to provide significant savings in the early years of the programme, and therefore does not answer the pressure on the MoD's procurement budget over the next 15 years.

IIb – Limited Deterrence

If the UK were only interested in deterring states with defensive military capabilities of the order of Iran or North Korea, then a system as capable as Trident is not required to cause "unacceptable damage". It is assumed that such a system would consist of nuclear bombs carried on a manned aircraft.

Critics will rightly point out that such a system would have reduced deterrent value against countries like Russia or China and that such a deterrent would be progressively eroded by advances in air defences. But the deterrent effect is reduced rather than eliminated; if one nuclear-equipped aircraft gets through to the target, unacceptable damage is highly likely – preserving the deterrent effect.

Under "Limited Deterrence", the UK would manufacture the freefall bombs and deploy both the warheads and training aids to the RAF and the Royal Navy's new aircraft carriers, withdrawing Trident II from service. This would ensure that training was being conducted and that nuclear air strikes would be feasible at short notice. There would be an option to re-role the existing Vanguard submarines to fire conventionally armed cruise missiles after such a decision were made.

It is unfortunate that whilst the freefall bomb option was discussed in the Alternatives Review, it was not costed on the same basis as the other options. However, because it does not require *Successor*, it is likely to be substantially cheaper than any other deployed option.

III – Preserved Deterrent

All of the previous options have seen a larger or smaller of nuclear weapons actively deployed by the UK. Under the Preserved Deterrent posture, the UK would retain the capability to build free fall nuclear weapons at a predetermined period of notice. Such a capability could be held either at relatively short notice – months – in which case the nuclear weapons infrastructure would need to be in place, and limited training would be likely to take place – or longer without these elements in place.

Such a policy would mean that the UK would need 12 – 18 months' preparation time in order to be capable of conducting a nuclear strike, meaning that the UK would be reliant on the nuclear umbrella of NATO's other nuclear states, the USA and France.

Under Preserved Deterrence, there would be a challenge in maintaining nuclear weapons expertise. Effort should be put towards developing verification technologies to support global nuclear disarmament efforts.

This, combined with switching the savings from cancelling Trident into the conventional forces, is the position advocated by the amendment to the Defence Policy Paper proposed by George Potter and others.

IV – Nuclear Disarmament

Finally, it would be possible for a future UK government to decide that it cannot foresee a situation where it would require an independent nuclear weapons capability, and therefore it is sensible to move to a position of nuclear disarmament, including the closure of the AWE facilities and moving the UK's military stocks of weapons-grade uranium and plutonium under IAEA safeguards before they are blended down to become power-generation reactor fuel. Though theoretically not irreversible, this would effectively signal the end of the British WMD programme. This is the position of the Green Party, the Scottish National Party and Plaid Cymru / The Party of Wales.

Other Considerations

Industrial Issues

The key question usually tied to the replacement of the *Vanguard* submarines is industrial: if the UK is to remain capable of designing and building advanced nuclear powered – though not necessarily nuclear armed – submarines in future, there is an irreducible minimum amount of work that the industry needs to retain the skill base. Given the small numbers of submarines ordered by the Royal Navy, and the limited opportunity for exports, it is asserted that *Successor* needs to be built so that the new *Astute* submarines can be replaced in the 2030s.

This is an ostensibly powerful but flawed argument, in that it asserts that the only way that the industrial base can be retained is by committing to a £100bn+ cost of two or more *Successor* submarines. In reality, what matters is the amount of design and fabrication work for the submarine yard in Barrow, with Successor providing a useful but hardly unique excuse. For example, it would be possible for the Royal Navy to increase their order of *Astute* submarines from seven to twelve, and start the design work on their replacement earlier than previously expected in order to retain design expertise.

In other words, the *Successor* cart should not be put in front of the Barrow submarine yard horse. As odd as it is to point this out, the UK should be making £100bn+ decisions about the procurement of a new nuclear weapons system independent of the need to keep Barrow submarine yard in work.

Basing Issues

Like the Resolution class submarines before them, the *Vanguard* submarines are based at HM Naval Base Clyde, at Faslane northwest of Glasgow. Faslane and the associated nuclear weapons storage area at Royal Navy Armaments Depot Coulport will be the home base of *Successor* and *Astute* submarines.

The Scottish National Party's platform calls for an independent Scotland to be nuclear free, raising the spectre of the rump-UK government either having to negotiate a lease from Scotland for *Successor's* likely service life – potentially to 2060. If achievable, such a lease is likely to be expensive either directly or in return for concessions in other policy areas.

An alternative would be to relocate *Successor* and *Astute* to a base inside the rump-UK post Scottish independence. It appears that some outline work may have been done by the MoD, but the 1960s alternatives to Faslane, including Devonport, Falmouth and Milford Haven would all be very expensive, and may require the modification of safety rules.

Fortunately, with the Scottish Independence Referendum in September 2014, we should know whether or not relocation costs for *Vanguard* and *Successor* need to be included in the overall costs of the *Successor* programme when the Main Gate decision is made in 2016.

Alliance Issues

There are concerns that abandoning Trident will jeopardise the UK's broader alliance with the United States. The UK Trident programme makes two contributions: first, cost sharing, which covers design and construction of the Common Missile Compartment (CMC) of the submarines, and also a cost share on the life-extension of the missiles themselves. These costs are already committed and would be honoured under any such scenario.

Given that the UK faces a relatively binary choice between *Successor* or the UK's conventional forces, the default position that Trident is essential to the US-UK alliance needs to be reconsidered. Based on the two decades since the end of the Cold War, and a series of future scenarios based on the intra-state conflict or non-state actors, it remains an open question which is more valuable to the US, and therefore as Britain's contribution to the Alliance.

Conclusions

Given the reported Conservative opposition to the Alternatives Review, special mention should be made of the efforts of Sir Nick Harvey and latterly Danny Alexander in ensuring the work was completed and published. They have performed a major service to the British public by providing the basis for an evidenced based debate.

This debate is vital. The 2015 election provides the chance for a national discussion on whether the UK needs a nuclear weapons system beyond 2050, and if so, of what sort and capability. The Liberal Democrats' have helpfully broadened the question from a binary like-for-like replacement of the *Vanguard* submarines with four-submarine for CASD or unilateral nuclear disarmament, which should be applauded.

However, the proposal of renouncing CASD and moving instead to "Trident Lite" fails to convince, as the minimal cost savings come at a very significant cost in capability. If the international situation has changed significantly enough to step back from a CASD posture – and there are strong arguments to suggest the UK should – value for money as well as strategic considerations would favour moving to either a minimal air-dropped nuclear capability or to a Preserved Deterrent posture. This case would be even stronger if the savings from scrapping *Successor* were rolled into the post-Afghanistan re-equipment of the UK's conventional forces.

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The views expressed in this briefing
are not necessarily those of the
commissioning organisations.
The aim is to stimulate intelligent
and informed debate on the issue
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Britain's future as a nuclear
weapon state.