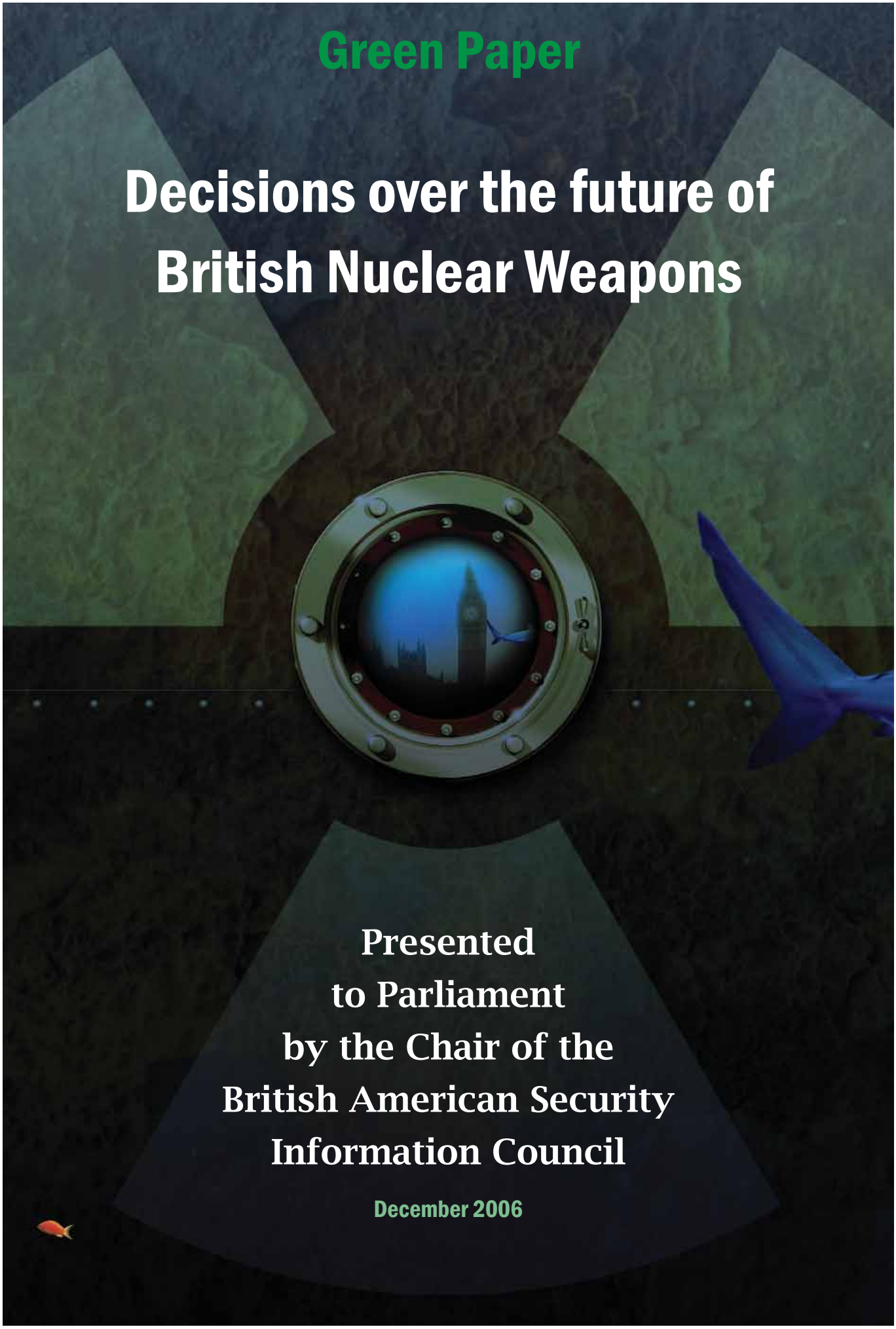
Green Paper

Decisions over the future of British Nuclear Weapons



Presented
to Parliament
by the Chair of the
British American Security
Information Council

December 2006

This Green Paper has been written by Paul Ingram, Senior Analyst at BASIC.

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BASIC

British American Security Information Council

The Grayston Centre, 28 Charles Square, London N1 6HT UK Tel: 020 7324 4680
Email: pingram@basicint.org
and
110 Maryland Ave, NE, Suite 205
Washington, DC 20002, USA
Tel: +1 202 546 8055

www.basicint.org

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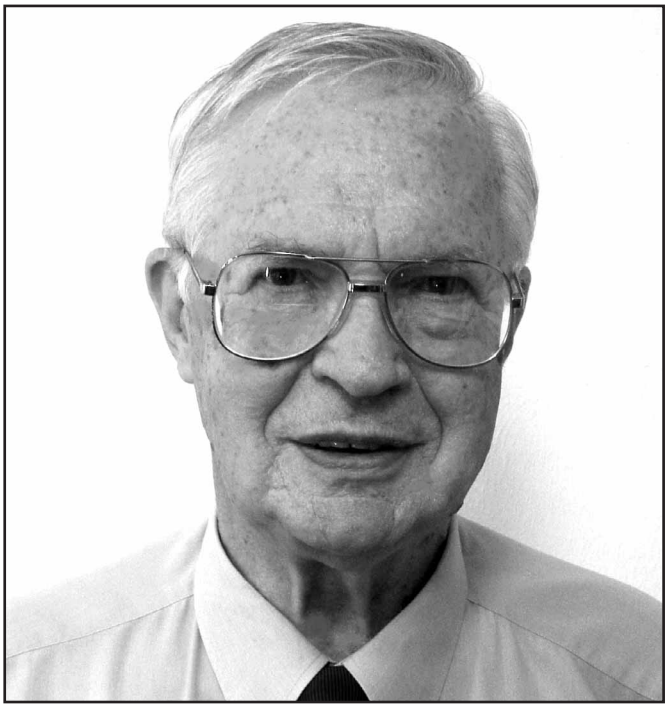
Foreword by the Chair

Britain's nuclear weapons policy has excited much public debate in the past. While the circumstances may be very different, there is no doubt a strong, if often latent, public interest in the forthcoming government decision over any replacement for the Trident nuclear weapon system.

This Green Paper outlines a simple choice between three options facing Britain at this point, and the questions that will need to be answered in the Government's own White Paper when it is published in the near future.

This Green Paper seeks to move the argument from the polarised debate over whether or not Britain should have 'The Bomb' to a genuine debate among stakeholders, to frame the debate today in terms of how best to enhance national and international security. This is done in the belief that time and focus is needed to ensure an informed and extensive debate before final decisions are taken.

We would strongly question the need for haste. The Defence Committee's report in June stated that a binding decision on retention of the strategic nuclear deterrent was not needed until 2014. We may have a good deal longer, because of operational changes made in the 1998 Strategic Defence Review. Either way, we have the time to reflect.



We would urge the government to hold fire on any decisions, lay out the options before the House, much as we have attempted here but in greater detail, along with the necessary background information, so that the debate has the time and attention it deserves.

Prof James O'Connell

Chair of the British American Security Information Council (BASIC)

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Executive Summary

Three options

What are the real options?

The Government intends to publish a White Paper on the future of Trident in the near future. It will inform Parliament and the public of its decision before it has even outlined in public the questions it seeks to answer.

Essentially, Britain today faces three realistic choices:

1) To delay any decision, by reassessing the life expectancy of the existing submarines to be longer, actively extending their life, telescoping the production of a replacement system, or some combination of these actions.

2) To start the process of replacing the Vanguard-class submarines with some variation of a new generation of submarine or modified version of Vanguard or Astute.

3) To decide not to replace its nuclear deterrent with a new system, and possibly to start the process of disarmament sooner rather than later.

This Green Paper assesses the costs and benefits of each of these options, and assesses their likely support within Parliament and the public.

Delay

From the perspective of replacing the system, there are powerful advantages to deferring the decision that could attract strong political support. If it were possible, a delay would:

- enable strategic planners to be clearer about security trends into the 21st century, giving MoD greater deployment flexibility;
- allow greater interoperability with future US platforms;
- give more time for disarmament negotiations, and avoid a further shock to the NPT when it is already under pressure;
- reduce spending beyond a projected procurement crunch in 2011-2020; and
- provide the time and space for the national debate promised by the Government.

A delay need not rely upon throwing money at the problem (life extension). There are a number of reasons, not least operational changes since the 1998 SDR, for thinking the submarines have more life left in them than officially recognised. It may also take less time to commission a replacement system if existing designs are modified rather than new ones created from scratch.

Upgrade

The upgrade option involves several variations on a submarine theme: from direct replacement with a similar submarine fleet (designed along similar lines to Vanguard, or entirely new designs) dedicated to the strategic nuclear deterrent and based upon US-supplied ballistic missiles; to a multi-role submarine, perhaps involving a modified Astute or new design.

A decision to upgrade appears to enjoy the most support within the British political elite for a number of reasons, not least because of the belief that it offers an insurance policy: that if British security deteriorates and vital interests are threatened by a nuclear adversary, a deterrent may yet play an active role.

However, this option also presents significant risks to British and global security. It could signal Britain's intent to remain in the nuclear weapons business indefinitely and, thus, a lack of confidence in non-proliferation efforts. It could also draw resources away from both conventional military spending, at a time when the overall defence budget is under increasing political and procurement pressure, and spending on measures to mitigate other key security challenges, such as terrorism and climate change.

Disarm

While a decision not to replace Trident has many merits, there does not appear to be sufficient confidence in the future security environment to achieve the political support necessary for such a move. There are also powerful political forces rooted in the history of 20th century British politics that undermine moves towards a non-nuclear posture.

However, the option of developing a virtual nuclear weapons capability as the UK winds down the Vanguard-based system has received surprisingly little attention. Retaining a core expertise for warhead production at Aldermaston and the bare essentials for a rudimentary delivery system by aircraft or missile could enable a future government to rapidly deploy a nuclear deterrent (within weeks or months) should it deem such an action necessary. Such a move would bring the UK into compliance with its international obligations under the NPT to disarm and provide a powerful example within the international community of a nuclear weapon state reaching threshold status as a step towards global elimination.

When is the decision required?

Why the hurry?

Summary

The Government's stated intention is to announce a decision on Trident replacement by publishing a White Paper before the end of 2006, prior to any formal debate in Parliament. The haste is predicated on the belief that clarity is needed very soon if the UK is to successfully procure a replacement system before the current system is decommissioned.

There are four reasons why this belief is probably unfounded:

1) **Reduced lead-times:** if a decision can be taken to narrow the options (to similar replacement or no replacement) rather than finally determine them this could reduce lead-times considerably.
2) **Point of no return:** the preliminary development work underway to keep several options on the table, and involving modest investment, does not require an irreversible decision to be taken now.
3) **Longer life expectancy:** the life expectancy of the current submarines is probably much longer than assumed.
4) **Evolving the CASD posture:** with a modest change in posture appropriate to today's security environment, abandonning Continuous-at-sea Deterrence (CASD) could mean extending Trident's life expectancy still further.

This is important because there are significant military, strategic, economic and political benefits to holding off a decision for at least another five years. Given these advantages, the onus is on those advocating replacement now to justify such an early decision.

The weakest link

It is universally agreed that the first component of Britain's existing Trident system to reach the end of its life will be the Vanguard-class submarines. They were designed in the 1980s during the Cold War. The 1998 Strategic Defence Review (SDR) and 2003 Foreign Office and Defence White Papers referred to a life expectancy of 30 years, as did ministerial statements prior to 2006. The latest (August 2006) report from the MoD's DLO Nuclear Cluster also talks of a thirty-year life expectancy to 2024.[1]

In its evidence to the Defence Committee in January 2006, the MoD reduced this for the first time to a more conservative base life expectancy of 25 years, but stated that this could be extended, *"albeit with gradually increasing cost and some increasing risk of reduced availability, perhaps out to the mid-2020s".*[2] A more extensive form of life-extension, involving replacement of the reactor core, is deemed too expensive to be worthwhile. The first boat, HMS Vanguard, was commissioned in 1994, so it should be in service until 2019, or around 2024 with a five-year extension.

With little else to go on other than the previous procurement process (in commissioning the Vanguard-class), the general assumption is that a new system would take roughly 14 years from decision to commission; however, the MoD has warned against relying too heavily on this assumption.[3]

Reduced lead-times

While the MoD's caution on lead-times is understandable, equally, it may be possible to reduce significantly those estimated lead-times by narrowing the options. The previous 14-year timescale required major modifications and redesigns of a new Vanguard-class that bore little resemblance to the previous Polaris-class boats. The construction of each Trident boat took around five years. With a couple of design-years given over to making relatively minor modifications and upgrades, construction could start within two to three years of a decision being taken to replace like-for-like. The appropriate lead-time could be eight rather than 14 years.

Any proposal to engage in a transformation requiring a longer lead-time and significantly higher financial investment, along the lines of the previous transformation, would surely need strong justification, given the capability and sophistication of the current system as deployed.

The point of no return

The second reason for thinking it should be possible to delay any final decision derives from the fact that the bulk of the investment is loaded into the last stages of the replacement programme, namely in construction. With modest investment in developing one or several of the replacement options, these can be kept on the table for several years into the future without making an irreversible commitment at this time. The Defence Committee has accepted this point, stating that a binding decision on the final option and any serious investment would not be needed until 2014.[4]

Longer life expectancy?

However, this does not appear to account for operational changes introduced with the 1998 SDR, the third reason for doubting the need for haste. While the SDR retained a policy of Continuous-at-sea Deterrence (CASD), it also announced a new policy that, as part of its reduced readiness, the UK *"will have only one submarine on patrol at a time"*. This significantly reduced the number of at-sea hours for each submarine, in turn significantly reducing the stresses on both hull and reactor and thus increasing the life expectancy. The reduced-readiness package also implied reduced hours at depth and thus reduced pressures on the reactors and the hulls.

It requires three boats to ensure that one is out at any one time (one on patrol, one in dock in preparation and one in refit). Four boats give added security in case of catastrophic damage or exceptionally poor performance: two boats can be in refit or repair at any one time without affecting CASD. Thus, even if the reliability of boats starts to deteriorate after their original life expectancy is reached, with four boats the policy of CASD should still be achievable some years afterwards.

It is also reasonable to expect the life of the Vanguard submarines, with life-extension measures, to bear some resemblance to those of the Ohio-class in the United States, given the collaboration over the reactors design under the UK-US 1958 Mutual Defense Agreement (MDA). The US have extended the life-expectancy of the Ohio-class now from 30 years to 44 years.[5] It is hard to imagine why the British models should be dramatically inferior (particularly when their original life expectancy was identical to the Ohio-class). Is the MoD implying a significantly poorer standard of British craftsmanship, or such a dramatically different safety regime?

Dropping the CASD requirement

Fourthly, the Continous at-Sea Deterrence (CASD) could be reconsidered. The 2003 Defence White Paper stated that the UK faces no major conventional threat today or in the near future. The Defence Committee highlighted this point that "*in the light of the reduced threat we currently face, an alternative possibility would be to retain a deterrent, but not continuously at sea,"* allowing extended life expectancy.

Nine years ago the SDR rejected dropping CASD on the grounds that any emergency launch of Trident at times of crisis could dangerously escalate tensions. On the other hand, it is often desirable to send a strong message of intent to a potential adversary, a strategy frequently used in other instances, and codified in Trident's own sub-strategic role. Dropping CASD would show British commitment to the further de-alerting necessary to promote global nuclear disarmament, as required under the NPT, while maintaining a flexible deterrent that could be deployed in times of crisis, if that is deemed appropriate.

It would also dramatically increase the life expectancy of the current system, both by reducing stresses on the submarines today, and by providing for even greater redundancy in the system, of particular use towards the end of the submarines' lives.

Advantages to delay

There are a number of crucial military, strategic, economic and political advantages to delaying the decision to replace Trident:

- **Maintaining maximum flexibility of response makes military sense.** If the Government were to delay it would allow time for a clearer assessment of the future threats the UK is likely to face, and at a point in time much closer to when the current system comes to the end of its life.
- **An early replacement would throw us out of sync with the Americans.** The UK Trident system relies upon missiles drawn from a common pool maintained by the US government and currently planned to run until 2042 with a life extension. A Trident follow-on system would have to be compatible both with the (upgraded) Trident II D5 missiles and any (as yet undetermined) US follow-on missile. Unless a new US missile system were to be introduced in time to operate alongside the existing system, the replacement British system would lose US support for its missiles in 2042. The US is due to start developing a replacement to the Trident system in 2016 for an in-service date of 2029-30, when the oldest, life-extended Ohio-class submarine is due to retire. If the replacement were to deploy a new missile, it would be at this moment.

- **An early replacement would further undermine UK non-proliferation efforts.** The NPT, the cornerstone of the worldwide regime preventing the spread of nuclear weapons, is currently under significant strain partly as a result of the widely perceived failure of the nuclear weapons states to live up to their disarmament commitments under Article VI of the treaty. While the UK Government believes it has lived up to its responsibilities by reducing numbers and readiness, the pressure it can place on Iran and North Korea with the support of the rest of the international community is weakened while it clings to the utility of its own nuclear deterrence. A decision to replace Trident at this point, and thereby giving notice of a commitment to nuclear deterrence for the indefinite future, would send a damaging signal: suggesting to the international community that the UK is unwilling to place confidence in the non-proliferation regime (while expecting others to do so).
- **Delay would allow the UK to initiate a new multilateral nuclear disarmament initiative.** One of the key reasons given by some to retain (and replace) the UK nuclear deterrent is to enter international nuclear disarmament negotiations from a position of strength. Delay would enable the UK to seriously initiate high profile international negotiations towards further nuclear disarmament with a view to influencing other recognised and unrecognised nuclear weapon states - and to do so before investing heavily in a replacement system. Such an initiative could be the central plank of Britain's effort to secure progress at the 2010 NPT Review Conference.
- **Delay would ease pressure on the public purse.** The UK Government's public spending plans in the run up to the 2007 Comprehensive Spending Review are under severe pressure, and any public discussion on Trident replacement is going to be dominated by short-term spending concerns. Although the bulk of the procurement spend on a replacement system is not likely to be needed until after 2014, the political climate of a tightening on public expenditure is likely to strongly influence the debate.
  It would be irresponsible to make an irreversible decision to move forward on the basis that a future government would have to find the necessary resources to pay for the effort when it is already known that the procurement budget is unlikely to be sufficient to meet existing defence spending plans for 2011-2020.
- **Delay would allow an informed and proper public and parliamentary debate to take place.** Discussion over this decision has until now been stifled by an information blackout within Whitehall, and the widespread prejudice and political hyper-sensitivity surrounding the issue, largely as a result of the polarised debates of the 1980s. If a White Paper (announcing the government's formal position) is hurried out, and a formal, brief debate is held in parliament afterwards on its content (effectively after the decision), the public (and many parliamentarians) will feel cheated of any chance to properly influence the issue.

Industrial considerations

Industry representatives, in their evidence to the Defence Committee, have been keen to see a new follow-on project after Astute, warning that lengthy gaps could lead to a loss of key expertise. Such claims are to be expected from companies looking for profitable work, and should not unduely influence the Government. Some of the delay and cost escalation experienced within the Astute programme itself could be down to such factors. However, these were far from fatal, despite the 16 year gap between ordering the Vanguard and Astute submarines. Warnings of 'catastrophe' from any delays are almost certainly exaggerated, and resulting costs to the MoD could be dwarfed by savings achieved from the delay. Certainly, industrial concerns ought not to over-ride military, strategic, democratic and diplomatic considerations.

Conclusions

Though a delay could create industrial complications, a premature decision to deploy a new system may undermine value for money and conventional defence priorities, as well as harm international non-proliferation and disarmament negotiations. Given the variety of advantages to delaying the decision it is crucial that the White Paper states clearly the reasons why a decision is required in the short time span outlined by the Government. Unless it can give good reasons for an early decision, we would urge the Government to hold back, and allow the informed debate it promised to be held without prejudice.

To Deploy or not Deploy

How do Britain's nuclear weapons fit in?

Summary

The British Government has a clear view of its role in the world, as an advocate for democracy and the rule of law, free markets, and multilateral diplomacy. There is a common view that we lead by example, and seek to develop international regimes and institutions that further the common interest.

The decision on any replacement for Trident should be focused upon defence and foreign policy rationales. This requires consideration of Britain's role in the world. Successive Defence and Foreign Office White Papers have sought to define this role, but the position of Britain's nuclear weapons appears not to have been considered in the broader context of these policy papers. How do nuclear weapons fit in with that role, and might they undermine it? What are the opportunity costs to deployment?

The option of being a virtual nuclear weapon state, ignored in the polarised debate up until now, also needs to enter into the calculations.

Britain's role in the world

> *"At the heart of any foreign policy must lie a set of fundamental values. For this Government, the values that we promote abroad are those that guide our actions at home."*
> ***Jack Straw**, Forward, 2006 FCO White Paper*

Trident's traditional deterrence role

The Trident system was commissioned in 1980 at the height of the Cold War, and was specifically designed to survive Soviet attack and to penetrate its defences. Its role had already transformed dramatically when the first submarine was deployed in 1994, and several major changes to its posture were consolidated in the SDR of 1998.

Recent Government policy documents, notably the 2003 Defence White Paper and the 2006 FCO White Paper, have acknowledged that the UK currently faces no strategic threat from a peer or superior state, and probably will not do so in the near future. The principal justification for a British nuclear weapon system is its role as an insurance policy against possible future threats - a resurgence of Russia, a global threat from China, or a 'rogue state' outside the influence of the West.

It was the strategic environment that the Defence Committee chose to focus its attention on in its first report.[6] It concluded that:

> *" ...there are difficulties inherent in anticipating future threats to the security of the UK. It is not possible to predict accurately the nature of the future strategic international environment and to identify with any certainty the threats the UK is likely to face (para 96)... If the MoD believes in the value of the nuclear deterrent as an insurance policy, rather than in response to any specific threat, we believe it is important to say clearly that is the reason for needing the deterrent. (para 103)"*

In the same month as British forces were invading Iraq, the Joint Doctrine and Concepts Centre (JDCC) published its assessment of likely threats to 2030. It included pessimistic predictions of proliferation to new states requiring a continued Alliance strategic deterrent.[7] However, it did not identify any unique role for independent British nuclear weapons, and was ambiguous on the need for a nuclear as opposed to conventional deterrent against most of the possible emerging threats.

The 1980s debate over British nuclear policy highlighted the widespread belief that it would be immoral to condemn nuclear deterrence and disarm whilst simultaneously relying upon the Americans to provide Britain with a nuclear umbrella. Even if this were the case in the face of a real and present threat from the Soviet Union, it is difficult to argue this today. Relying upon NATO for extended deterrence against future possible threats is a real option for Britain, although many future security threats are likely to be better addressed, or indeed prevented, through non-military means.

The insurance analogy appears attractive, and gives the impression of prudence. The reluctance of the Government to clearly rely upon it as its principle justification is based on a clear and inescapable consequence of so doing: that it would justify possession by any other state, particularly those that face more immediate and present threats to their survival. As Sir Michael Quinlan pointed out to the Defence Committee, it also does not escape the need for a proper cost benefit analysis that requires a judgment of the risk of the emergence of a threat requiring response, and a comparative cost of the options, including non-replacement.

Competing Security Concerns

The 2006 Foreign Office White Paper outlines the security priorities for Britain. These include global terrorism and counter proliferation, organised crime, conflict prevention, energy and climate security, sustainable development and poverty reduction, and managing migration. These have no relationship at all with Trident or its replacement (or in the case of counter-proliferation are undermined by it). Investment in a replacement nuclear weapon system will need to be justified in relation to the opportunity costs in tackling non-military threats to British security.

War on Terror

"In my view, the situation we face is indeed war, but of a completely unconventional kind. And it can't be won in a conventional way. We will not win the battle against global extremism unless we win it at the level of values as much as force. We can only win by showing that our values are stronger, better and more just than the alternative. That also means showing the world that we are even-handed, fair and just in our application of those values."
***Tony Blair**, September 2006* [8]

It is widely acknowledged that British nuclear weapons have no clear role in the war on terror, particularly against anonymous and suicidal attackers with tenuous links to states. But even with a clear supply link there would surely be significant doubt that Britain would retaliate with a nuclear strike against innocent populations in states that probably were not party to the decision to explode a terrorist device.

"I do not think that anyone pretends that the independent nuclear deterrent is a defence against terrorism".

Tony Blair, October 2005 [9]

Active engagement and a new deterrence role

Both the US and UK have been developing a doctrine of interventionism at the heart of their security policies which is designed to protect vital interests, and to strengthen global security and stability. Tony Blair calls it a policy of engagement, actively promoting our values abroad.

"The most demanding expeditionary operations, involving intervention against state adversaries, can only plausibly be conducted if US forces are engaged."
***2003 Defence White Paper**, para 3.5.*

A UK-US nuclear weapon system may provide the ultimate backup to this policy. Any resistance to an intervention would not only face overwhelming conventional military firepower, but also the possibility of a swift and stealthy surprise attack involving deadly accurate Trident ballistic missiles, with nuclear or in future conventional warheads.

This extended form of deterrence in support of offensive operations could be referred to as deterrence against resistance. It fits in neatly with the Bush Administration's evolving US nuclear strategy first outlined in the 2001 Nuclear Posture Review.

Statements by Geoff Hoon when Defence Secretary in 2002, a year before the invasion of Iraq, hinted that the Government was contemplating the threat of British nuclear weapons to deter the use by Iraq of chemical or biological weapons against British invading forces, even though British forces were equipped to deal with such threats.[10]

A few months later Hoon took a step back and confirmed that there had been no change to UK posture, and that nuclear weapons would not be used against non-nuclear weapon states. The underlying messaging had, however, already been accomplished: those who challenged UK/US vital interests risked messing with a nuclear response.

This posture is dangerous to non-proliferation efforts. It encourages those seeking to neutralise UK/US influence to acquire the capability to respond in kind.

Non-proliferation

> *"Preventing states, in particular Iran and North Korea, from acquiring or spreading WMD, and ensuring more effective global nonproliferation mechanisms, will be a top priority."*
> ***FCO 2006 White Paper**, p.18*

The Non-proliferation Treaty (NPT), as the cornerstone of the global effort to prevent the spread of nuclear weapons and encourage moves towards a nuclear-weapon-free world, now has more signatories than virtually any other international agreement (and all but four countries - India, Israel, North Korea and Pakistan- are party to it). It recognises the interests of all states in checking the spread of nuclear weapons. Britain, working alongside the United States, was a strong advocate from the beginning of negotiations in the 1960s, and was formally recognised as one of five nuclear weapon states. British Ministers and diplomats played a pivotal role in 1995 and 2000 in achieving consensus documents that involved the indefinite extension and real steps to strengthen the regime, not least the 13 steps towards nuclear disarmament agreed in 2000.

The NPT has, however, come under severe strain recently, with the departure of North Korea and its explosion of a nuclear device in October 2006. Iran's pursuit of a nuclear fuel cycle also highlights the limitations of a treaty that seeks simultaneously to control nuclear proliferation and promote nuclear power. The future of the NPT has been called as witness to both sides in this debate. If we cannot rely upon its success in checking the spread of nuclear weapons, how can we be considering at this point giving up our nuclear defence? On the other hand, an extended commitment to nuclear deployment on the grounds that we have no trust in its ability to provide future security sends a terminal message that will no doubt be picked up by those seeking to unravel or by-pass the Treaty. The 2000 Review Conference consensus document clarified the nuclear weapon states' *"unequivocal undertaking… to accomplish the total elimination of their nuclear arsenals"*, as part of their NPT Article VI responsibilities. The British Government has acknowledged this responsibility in several statements, and points to the reduced firepower and withdrawal of all but the submarine forces decided by the Conservative Government in the early 1990s, and the increased transparency and reduced readiness and numbers of warheads and missiles announced by the Labour Government in the SDR of 1998.

However, the deployment of Trident after the end of the Cold War represented a significant improvement in nuclear capability: in range, accuracy and speed of delivery. The reductions in firepower simply made the system more useable. Any similar improvements in capability achieved through replacement would be viewed by many other states as a move away from Britain's NPT obligations and could be challenged accordingly.[11]

Influence of British deployment

The Article VI responsibility is interpreted by the Government as a commitment to engage in multilateral disarmament agreements, and continued possession is often justified as a means to ensure Britain retains a seat at the table to further these negotiations. The Government's stated belief however, expressed in the SDR, is that Britain possesses a minimum deterrent, and will engage in negotiations once the larger nuclear powers have reached a level of armament comparable to our own.[12]

> *"We cannot predict the future, but we can prepare for it and so influence it."*
> ***Tony Blair**, Preface to 2006 FCO White Paper*[13]

It is often assumed within Britain that its nuclear deployments have negligible influence on the nuclear postures of other states. There are two reasons for doubting this belief:

1) Continued deployment and especially investment in new systems risks harming the NPT directly (if seen by others as running contrary to Article VI) and indirectly (if others feel vindicated in activities contrary to their responsibilities under the Treaty). Even though Britain may see itself as having a relatively good record, a decision to replace Trident at this sensitive point could have an important (though probably not decisive) impact on the Treaty. It could also undermine British diplomatic efforts to promote the FCO's high priority non-proliferation objectives, and the IAEA's attempts to sign up more countries to its Additional Protocol for stronger safeguards.
2) Britain's key role within recent US military interventions means that it is widely perceived within many populations of the majority world as part of a real security threat to their nations. Nuclear deployment by states seen as a threat makes it easier for hawks in other countries to justify counter-deployment of nuclear weapons as a deterrent to that intervention.

One way or another British influence on others is best tested by a survey of opinion in those target states, not by assumptions held by officials and legislators in London. Britain's deployment decision has an influence on others' proliferation choices, though that influence is far from decisive. A decision by Britain to get rid of its nuclear weapons would not lead to other countries immediately following suit. But its decision, either way, will affect both the diplomatic and strategic environment within which other states make their decisions, and the state of the treaties that constrain or otherwise inform those choices.

Economic considerations

Cost of Trident and its replacement

Defence Economist Professor Keith Hartley reports that the last time data was reported to parliament in a manner that enabled comparisons between the costs of nuclear and conventional forces was in 1991/2.

> *"Spending on nuclear forces was equal to some 50 per cent of the navy budget, some 36-7 per cent of each of the army and RAF budgets, and almost 60 per cent of the R&D budget."*[14]

More recently, Ministers have estimated the acquisition costs for Trident to be £14.9bn in 2005 prices.[15] The annual running costs, under Resource Accounting and Budgeting (that accounts for revenue and capital expenses) varies. Previously it was reported as 3% and 4.5% of the defence budget, but is projected to be between 5% and 5.5% for the next two-three years (some of the increase accounted for by investment at Aldermaston). This equates to £2bn in current prices, the budget for the DLO's Nuclear Cluster.[16]

The Liberal Democrats took these figures and added them together to reach a figure of £76bn[17]. While this is overly crude (using the unusually high spending figures of 2006-2009, and not including a discount rate), it does serve to highlight that the overall spend for any new system is likely to be a great deal more than the £25bn often cited. This could play against a smooth political decision to replace, particularly at a time when there will be heated internal debate over priorities in the run-up to the Comprehensive Spending Review.[18]

In current prices, HMS Vanguard's unit cost amounted to £2.2bn, while the three succeeding boats cost between £1.2bn and £1.3bn a piece. Military equipment inflation is exceptionally high, at 10%.[19] This is largely down to increasing sophistication of units, and reduced production runs. Even if the Vanguard designs were dusted off and minor modifications made, the unit production cost of a follow-on of similar but updated specifications could be expected to be of the order of £3bn for the first copy and £2bn each after.

It is highly unlikely that this would be deemed acceptable to the MoD or to designers. It is more likely that a new submarine with similar purpose would be developed, perhaps under the Maritime Underwater Future Capability (MUFC) programme, involving major and expensive new design and development work. This may involve a dual-use platform, combining hunter-killer and attack capabilities (including cruise-missile delivery) alongside the deployment of nuclear-tipped ballistic or cruise missiles. Whilst this clearly has the potential to cut costs, it also risks burdening the design with too many competing requirements.

In line with Sir Michael Quinlan's original recommendation for Trident deployment in the 1980s, a purchase of three boats could retain the Continuous-at-sea Capability (CASD - see chapter on delay).[20] If the MoD were to abandon CASD it would be possible to have a credible minimum deterrent with only two submarines. It would also be possible to consider other reductions in warhead numbers and in capability.

Who pays?

The fact that the nuclear deterrent is as much a political as a strategic weapon underlies the dispute raging currently between the MoD and the Treasury about whether the cost of any replacement comes out of the existing defence budget or out of the Treasury's Special Reserve. While the MoD is supportive of replacement, it does not want it to create intolerable budgetary pressures on armed forces that already face worrying overstretch and under-manning.[21] One of the main reasons given by those leaving the armed forces is poor equipment and support.

Add to this the recently-highlighted funding gap within the MoD's current procurement plans beyond 2012.[22] This involves key major equipment procurements such as the two Carriers and Joint Strike Fighters, the A400M strategic airlift, and the Future Rapid Effects System (FRES). If the Government decides to procure a third tranche of Typhoon Eurofighters this will add to the pressure. Some analysts are pointing to a straight choice between well-functioning armed forces and a nuclear deterrent.

Industrial Impacts

The Defence Industrial Strategy (DIS) clearly places heavy weight on retaining a submarine construction and support capability within the UK. Any appeal to the DIS in this regard would, however, be circular. The DIS requirement was specifically for the purpose of maintaining a design capability for the strategic deterrent. If this were no longer necessary, because such a capability were procured directly from elsewhere (the United States or France), or the deterrent was not renewed, the DIS requirement would be irrelevant.

A purchase off-the-shelf could hold significant savings, and may solve many of the timing issues caused by UK design dependence upon the upgraded Trident missiles and their successors.

This would, of course, have local economic impacts. Barrow is particularly dependent upon submarine construction, which employs some 3,450 people.[23] It would also mean the loss of a unique skills base, closing down future options for British submarine construction, and creating an additional technological dependence for support and maintenance. On the other hand, there is already a dependency upon the supply of ballistic missiles, an essential component of the strategic deterrent.

In contrast to submarine construction in Barrow, the future of Aldermaston is assured. It would be illegal under the NPT for Britain to purchase its warheads from abroad. In the case of a decision not to renew, expertise would still be required at Aldermaston for some decades to develop verification practices and to decommission existing systems.

The virtual arsenal option

Rather than replace Trident, Britain could revert to a threshold nuclear weapon status. This would involve ending the deployment of British nuclear warheads and dismantling them, but leaving the door ajar temporarily to re-constitute a rudimentary nuclear weapon quickly should the unlikely need arise in the future.

> *Some observers have referred to this option as a 'virtual arsenal'. A number of states… are believed to have the technical capability… to develop a nuclear weapon programme within a comparatively short space of time.*
> *House of Commons Library Report on Trident Replacement, Nov 2006, p. 48* [24]

This option would go a long way to addressing the principal concerns of those on both sides of the Trident replacement debate. A virtual nuclear weapon would be the cheapest and least sophisticated insurance policy against the emergence of any future nuclear blackmail. Britain would remain a nuclear weapon state under the NPT (see below), and thereby retain the status in disarmament negotiations necessary to retain a seat at the 'top table' and drive forward multilateral disarmament proposals, more likely to receive support from the majority non-nuclear world. Britain would no longer be seen as a nuclear threat by other states, and the risks from accidental launch would be eliminated.

This status might be achieved under a 'managed disarmament process', by Britain decommissioning the Trident submarines, removing and dismantling the warheads but retaining both the fissile material under international inspection and appropriate expertise at Aldermaston to construct basic nuclear warheads. Britain's formal status under the NPT would be unaffected, as by definition (having exploded a nuclear weapon prior to 1967) it would remain a nuclear weapon state, at least until a new Treaty were negotiated in the event of all the nuclear weapon states achieving similar threshold status. In practice, the UK could declare its intention to act as a non-nuclear weapon state, and request to be treated as such by the IAEA.

The key technical questions are: how long would it take and what would be the delivery vehicle? While it would be extremely difficult to resurrect quickly a complex nuclear weapon system like Trident, a rudimentary nuclear deterrent would be a simple project for Britain. This would take the form of a free-fall bomb, the original and most basic nuclear weapon design, delivered by aircraft, or a land-based or surface-navy based missile. The military, legal and political (both domestic and international) implications of such a decision would need to be addressed.

Conclusion

There is widespread agreement that an extensive debate is needed on the nuclear weapon options facing Britain today. It is a fact that nuclear weapons have a powerful impact on Britain's security, for good or for ill. Yet the imminent publication of a White Paper setting out the Government's decision prior to any formal debate will fuel perceptions that it is approaching such a debate with its mind made up.

The need for a rapid decision to replace the existing Trident nuclear weapon system has frequently been asserted. However, the case for haste has yet to be made. This Green Paper demonstrates why a delay in the decision for at least five years is both possible and preferable. Delaying the decision would present a number of important benefits, particularly from the perspective of those in favour of Trident replacement, but who are also concerned by the cost and impact on global nuclear proliferation, or who are keen to see the British system run in sync with that of the United States.

Britain faces a very different security context to that in the 1980s - the last time decisions were taken to deploy a new nuclear weapon system. A considered conclusion to this contemporary discussion will require a departure from the polarised positions of the 1980s nuclear debate. Options that until now have been largely ignored — such as the possibility of Britain retaining a nuclear weapon capability without the active deployment of warheads, in effect becoming a virtual nuclear weapon state — urgently need to be considered.

This is a time to step back, take stock, and consider Britain's true security needs and the impact of our posture on other countries' nuclear decisions. It is a time to avoid shallow political positioning and prioritise instead the global security needs of future generations.

Further recent recommended resources on Trident replacement:

The Future of the British Nuclear Deterrent, Claire Taylor, Tim Youngs, Ross Young and Gavin Berman. House of Commons Library Research Paper 06/53, 3 November 2006

The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context, Defence Committee Eighth Report of Session 2005-6, HC 986.

Delivering Security in a Changing World, Defence White Paper December 2003 (Cm 6041-I)

Active Diplomacy for a Changing World: The UK's International Priorities, FCO White Paper, 28 March 2006.

International Affairs, Volume 82, No. 4, July 2006 (Chatham House, London)

The Future of Britain's Nuclear Weapons: Experts Reframe the Debate, Ed Ken Booth and Frank Barnaby (Oxford Research Group, March 2006)

Worse than Irrelevant? British Nuclear Weapons in the 21st Century, Rebecca Johnson, Nicola Butler, Stephen Pullinger (Acronym Institute) November 2006

Why Britain should stop deploying Trident, Greenpeace, March 2006

Britain's New Bomb Programme Exposed, Greenpeace UK, October 2006

'Britain's Bomb: What Next? ed. Brian Wicker, (SCM Press, London) November 2006

Endnotes

1 DLO, 'The Nuclear Cluster', August 2006. Available online: http://www.mod.uk/NR/rdonlyres/F25A7345-AA9D-46E8-B33A-76304FBF7B53/0/NuclearclusterPDF.pdfn

2 MOD Memorandum to the Defence Select Committee, HC 835, Session 2005-06, 19 January 2006. Available online at: http://www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/835/835m01.htm

3 Defence Select Committee, The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context: Government response to the Committee's Eighth Report of Session 2005-06, HC1558. Available online at:http://www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/1558/155802.htm

4 Ibid, para 140, line beginning 2014.

5 'NRDC: Nuclear Notebook: U.S. nuclear forces 2005', Bulletin of the Atomic Scientists, January-February 2005, pp. 73-75 (vol. 61, no. 01), http://www.thebulletin.org/article_nn.php?art_ofn=jf05norris

6 Defence Select Committee, The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context. 8th Report of the session 2005-06, HC 986, June 2006.

7 Joint Doctrine and Concepts Centre, Strategic Trends, March 2003. This does not represent formal government policy, but JDCC is located within MoD. The work on the report started on 12 September 2001. The report is no longer available on official websites, but can be accessed online at: http://ics.leeds.ac.uk/papers/pmt/exhibits/1993/strategictrends.pdf

8 Blair, Tony, A Global Alliance for Global Values , Foreign Policy Centre pamphlet, September 2006.

9 House of Commons, Hansard, 19 October 2005, column 841.

10 Defence Secretary Geoff Hoon on the Jonathan Dimbleby programme, 24 March 2002.

11 See 'The Maintenance and Possible Replacement of the Trident Nuclear Missile System', Joint Opinion of Rabinder Singh QC and Professor Christine Chinkin of Matrix Chambers, 19 December 2005, http://www.peacerights.org/

12 Strategic Defence Review, Cm 3999, Para 70.

13 Foreign and Commonwealth Office, White Paper 2006, Active Diplomacy for a Changing World: The UK's International Priorities, 28 March 2006.

14 International Affairs 82,4 (2006), Hartley, Keith, The Economics of UK nuclear weapons policy, 677. Figures were derived from Ministry of Defence, Defence Statistics 1992, GSO, HMSO, 1992.

15 Hansard, 18 January 2005 c29

16 DLO, 'The Nuclear Cluster' op cit.

17 'New Trident system may cost £76bn, figures show', Richard Norton-Taylor, Guardian 21 September 2006.

18 When the cost of replacement is highlighted it significantly reduces public support for the replacement of Trident. 'Attitudes to Nuclear Weapons', MORI opinion poll commissioned by Greenpeace UK, released 16 September 2005. Available online at: http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/7269.pdf

19 P. Pugh, lecture to Royal Aeronautical Society, April 2006, Retrospect and prospect: trends in cost and their implications for UK aerospace. Quoted by Keith Hartley (op cit).

20 Defence Committee, The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context, HC 986, Session 2005-06, Ev.9 and 10.

21 National Audit Office, HC 1633 2005-2006, Recruitment and Retention in the armed forces, 3 November, 2006. Available online at: http://www.nao.org.uk/pn/05-06/05061633.htm

22 Aviation Week & Space Technology estimate a funding gap of £11.6 bn over this period, see 'Britain Faces Long-Term Military Procurement Crunch', Douglas Barrie, 16 July 2006.

23 Murray Easton, MD of submarines, BAE Systems, Uncorrected evidence to the Defence Committee, 7 November 2006.

24 Available online at: http://www.parliament.uk/commons/lib/research/rp2006/rp06-053.pdf

This Green Paper is produced prior to the publication of the government's own White Paper announcing the decision on Trident replacement. Considering the options facing Britain, this paper outlines the compelling case against rushing into a decision prematurely. It also considers an interim option of retaining a nuclear weapon capability without deploying warheads, taking a step towards a nuclear-weapon free world without immediately and irreversibly forsaking a nuclear defence in the short term. This option has not yet received the attention it deserves.

British American Security Information Council

The Grayston Centre,
28 Charles Square, London N1 6HT
United Kingdom Tel: 020 7324 4680
Email: pingram@basicint.org

and

110 Maryland Ave, NE, Suite 205
Washington, DC 20002,
United States of America
Tel: +1 202 546 8055

www.basicint.org