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BASIC Trident Commission Evidence from Nuclear Information Service

1. Nuclear Information Service (NIS) is a not-for-profit, independent information service which works to promote public awareness and debate on nuclear weapons and related safety and environmental issues (see <http://nuclearinfo.org> for more information). Our research work is supported by funding from the Joseph Rowntree Charitable Trust.
2. NIS welcomes the invitation from the BASIC Trident Commission to submit evidence addressing the questions which the Commission is considering. Our evidence addresses all three of the initial questions asked by the Commission, and focuses on the following points in particular:
 - NATO's contribution to the UK's security and the role that the UK can most effectively play in NATO.
 - Risks the UK faces in remaining a nuclear-weapon state, and in particular safety issues associated with the Ministry of Defence's nuclear programme.
 - Alternatives to replacing Trident which we consider warrant particular attention.

We are happy to answer questions or provide further information on any of the matters covered in our submission if requested to do so by the Commission.

Question 1

Should the UK remain a nuclear weapon state?

3. Advocates of nuclear weapons often say that, through their deterrence effect, they have maintained the peace in Europe since the end of World War Two. While nuclear deterrence certainly played a part in preventing major conflict in Europe over this period, it is impossible to prove the importance of its contribution because a range of other complex international factors also shared in maintaining peace and stability. The growth of the European Union and the resulting increase in economic and social interdependence, stable economic and political conditions which did not allow extremist regimes to gain a foothold, and powerful memories of the suffering and destruction caused during the 1939-45 war are other important reasons why Europe has remained relatively peaceful since the end of World War Two.
4. The threat of Cold War superpower conflict in Europe, which nuclear weapons were deployed to deter, has receded dramatically since the collapse of the Soviet Union in 1991. The range of security threats currently faced by the UK is no longer dominated

by the menace of a single principal adversary, but is far more diverse and irregular. The UK's National Security Strategy, published in 2010, identifies 15 generic priority risks which may threaten the UK over the next 20 years¹. It is significant that some of these risks, such as natural hazards, a major radioactive release, or disruption to international supplies of resources, could not be eliminated by military means.

5. Of the threats listed in the National Security Strategy, none of the four Tier One (highest priority) threats could conceivably be addressed by nuclear weapons, and only one of the four Tier Two threats (an attack on the UK or its Overseas Territories by another state or proxy using chemical, biological, radiological, or nuclear (CBRN) weapons) might be deterred by nuclear weapons. As a member of the North Atlantic Treaty Organisation (NATO), the UK could expect that NATO conventional and nuclear forces, regardless of its own national forces, would act as a deterrent to such an attack. This leads us to conclude that the role of nuclear weapons in guaranteeing the security of the UK is over-stated.
6. There are a number of possible reasons why the UK would wish to remain a nuclear weapon state:
 - Because the government considers that nuclear weapons provide “the ultimate assurance of our national security”² against an uncertain future.
 - Because the UK's nuclear arsenal “supports collective security through NATO for the Euro-Atlantic area”³ and is an important contribution made by the UK to NATO.
 - Because the government considers that they have a political, rather than military, significance.
 - For reasons other than these.

Each of these justifications for remaining a nuclear weapon state is examined in turn. We then consider some of the risks the UK faces in remaining a nuclear weapon state.

An ultimate assurance of national security

7. The Strategic Defence and Security Review outlines the circumstances in which UK nuclear weapons might be used. Setting the context, the Review states: “No state currently has both the intent and the capability to threaten the independence or integrity of the UK. But we cannot dismiss the possibility that a major direct nuclear threat to the UK might re-emerge”⁴, before continuing “The UK has long been clear that we would only consider using our nuclear weapons in extreme circumstances of self defence, including the defence of our NATO Allies, and we remain deliberately ambiguous about precisely when, how and at what scale we would contemplate their use”⁵.

¹ 'A Strong Britain in an Age of Uncertainty: The National Security Strategy.' Cm 7953. Cabinet Office, October 2010. Page 27.

² 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Foreword to the White Paper by the Prime Minister, Page 5.

³ 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Paragraph 3.4, Page 18.

⁴ 'Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review'. Cm 7948. Cabinet Office, October 2010. Paragraph 3.2, Page 37.

⁵ 'Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review'. Cm 7948. Cabinet Office, October 2010. Paragraph 3.5, Page 37.

8. A similar rationale is outlined in the 2006 White Paper 'The Future of the United Kingdom's Nuclear Deterrent', with the qualification that "the legality of any such use would depend upon the circumstances and the application of the general rules of international law, including those regulating the use of force and the conduct of hostilities"⁶. The government therefore accepts that the rules of international law should constrain the circumstances under which nuclear weapons could lawfully be used.
9. Such circumstances have been explored by the International Court of Justice, which in 1996 delivered an Advisory Opinion on the use of nuclear weapons⁷. The Court found that in almost all situations the use of nuclear weapons would violate international humanitarian law. A possible loophole was left open regarding state survival. Similar language to that in the judgement is used by the government in the 2006 White Paper to outline its own views on the circumstances when nuclear weapons could lawfully be used, stating: "The threshold for the legitimate use of nuclear weapons is clearly a high one. We would only consider using nuclear weapons in self-defence (including the defence of our NATO allies), and even then only in extreme circumstances"⁸. It is difficult to see how the use of nuclear weapons in a tactical battlefield context could be lawful, or how nuclear weapons could be lawfully be used for pre-emption or retaliation. The circumstances under which the UK's nuclear weapons might be used are therefore much more narrow than sometimes assumed. They cannot be seen to act as a general 'insurance policy' against every possibility which an uncertain future might present – only against 'extreme circumstances'. By definition extreme circumstances are those which are highly unlikely to arise, raising the question whether resources might be more effectively spent on measures to address a more probable range of security scenarios.
10. It might be argued that the UK should not be obliged to comply with international law in deciding when to use its nuclear weapons. Such a view would put the UK on a par with other 'rogue states' which do not accept international norms and laws. Strenuous efforts are made to prevent such states from acquiring the capability to develop weapons of mass destruction, and the UK should expect strong international and internal opposition to its nuclear weapons programme if it decides to ignore international law and adopt such a doctrine.

The UK's contribution to NATO

11. Under the terms of the 1962 Nassau Agreement reached between President John F. Kennedy and Prime Minister Harold Macmillan the United Kingdom has agreed to formally assign its nuclear forces to the defence of the NATO alliance except in the extreme circumstances of a national emergency.
12. Of NATO's 28 member nations, only the USA, France, and the UK contribute nuclear

⁶ 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Paragraph 2.11, Page 14.

⁷ 'Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons'. International Court of Justice. 8 July 1996. <http://www.icj-cij.org/docket/index.php?p1=3&p2=4&k=e1&p3=4&case=95>

⁸ 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Paragraph 2.11, Page 14.

forces to the security of the Atlantic Alliance. The New START Treaty limits the number of warheads deployed by the USA to 1550⁹, and the USA is also believed to deploy a further 180 tactical nuclear weapons, not covered by New START, in Europe¹⁰.

France's nuclear arsenal includes "fewer than 300 nuclear warheads"¹¹ and the UK is reducing the number of its operationally available warheads to no more than 120¹². The UK's nuclear contribution to NATO security is thus well under 10% of the contribution made by the USA, NATO's major nuclear partner – hardly the "substantial contribution" to NATO nuclear forces described in the 2006 White Paper on Trident replacement¹³.

13. The UK's nuclear capability depends on long-standing co-operation with the United States which dates back to the Cold War. Britain's goal from this partnership was to be able to develop nuclear weapons which were independent of the United States and were seen by Moscow as being independent of the United States. On the US side, President Eisenhower saw nuclear collaboration with the British and other allies as a way of making the NATO alliance a more formidable bulwark against the Soviets¹⁴.
14. During the Cold War NATO's role and purpose were clearly defined by the existence of the perceived threat from the Soviet Union. By the early 1990s the Warsaw Pact had been dissolved and the Soviet Union had collapsed. As a result, the NATO Strategic Concept published in 1991 adopted a broader view of security needs and since then the alliance has adopted new forms of political and military cooperation to address new threats. The principal security challenges identified in the latest Strategic Concept, adopted in Lisbon in 2010, are the proliferation of weapons of mass destruction, terrorism, instability beyond NATO borders, and cyber attack. The need to maintain the "independent centre of nuclear decision-making" said to be provided to NATO by the UK's nuclear forces¹⁵ is far from clear.
15. Economic circumstances mean that all NATO members are finding it difficult to meet the Alliance's benchmarks for defence spending. Former US Defense Secretary Robert Gates has warned that this means that NATO members need to reconsider how they contribute to NATO's forces, stating:

"The relevant challenge for us today, therefore, is no longer the total level of defense spending by allies, but how these limited (and dwindling) resources are allocated and

⁹ 'New START Treaty Reduces Limit for Strategic Warheads But Not Number'. Ivan Oelrich and Hans Kristensen. Federation of American Scientists Strategic Security blog. 18 August 2010.

<http://www.fas.org/blog/sis/2010/08/18/new-start-treaty-reduces-limit-for-strategic-warheads-but-not-number/>

¹⁰ '180 NATO Nukes'. Jeffrey Lewis. Arms Control Wonk blog, 7 December 2010.

<http://lewis.armscontrolwonk.com/archive/3343/180-nato-nukes>

¹¹ Presentation of SSBM 'Le Terrible' – Speech by M. Nicolas Sarkozy, President of the Republic.

Cherbourg, 21 March 2008. <http://www.ambafrance-uk.org/President-Sarkozy-s-speech-at.10430.html>

¹² 'Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review'. Cm 7948. Cabinet Office, October 2010. Paragraph 3.10, Page 38.

¹³ 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Paragraph 3.4, Page 18.

¹⁴ 'UK Independence or Dependence?' Tara Callahan and Mark Jansson in 'U.S. - UK Nuclear Cooperation After 50 Years', edited by Jenifer Mackby and Paul Cornish. CSIS Press, 2008. Pages 134-5.

¹⁵ 'The Future of the United Kingdom's Nuclear Deterrent'. Cm 6994. Secretary of State for Defence and Secretary of State for Foreign and Commonwealth Affairs. December 2006. Paragraph 3.4, Page 18.

for what priorities. For example, though some smaller NATO members have modestly sized and funded militaries that do not meet the 2 percent threshold, several of these allies have managed to punch well above their weight because of the way they use the resources they have.

“Despite the pressing need to spend more on vital equipment and the right personnel to support ongoing missions – needs that have been evident for the past two decades – too many allies been unwilling to fundamentally change how they set priorities and allocate resources. The non-U.S. NATO members collectively spend more than \$300 billion U.S. dollars on defense annually which, if allocated wisely and strategically, could buy a significant amount of usable military capability. Instead, the results are significantly less than the sum of the parts.”¹⁶

Both Gates's successor as Defense Secretary, Leon Panetta, and NATO Secretary General Anders Fogh Rasmussen have reiterated these concerns¹⁷, stressing the need for NATO members to focus on what is really necessary and highlighting the need for non-US members of NATO to co-operate on areas such as unmanned surveillance drones, intelligence gathering and air-to-air refuelling.

15. Former NATO Secretary General Lord George Robertson has warned that: “One of the great problems we have today in the military arena, especially in a lot of the NATO nations, is that people are looking on the enemies of the past rather than the threats of tomorrow.”¹⁸ In planning to modernise Trident, a weapons system designed for the Cold War, the UK is falling into this trap. In the current and foreseeable economic and security climate the UK's nuclear weapons do not feature as a NATO priority, and spending money to replace Trident wastes money that could be spent on meeting NATO's real needs. Limited money will be available for spending on defence – at least in the short to medium term – and so the government should review how it can ensure its unique contribution best supports the future needs of the NATO alliance.
16. The BASIC Trident Commission should investigate further what capabilities NATO genuinely needs from the UK and how important the UK's nuclear contribution really is to the alliance.

Political significance

17. Separately from their security role, nuclear weapons are often seen (particularly by political leaders) as bestowing power and prestige and as symbols of industrial and technical prowess. The post-war historical association between major powerdom and possession of nuclear weapons remains strong.
18. Nick Ritchie has argued that nuclear weapons underpin Britain's core self-identity as a major pivotal power with a special responsibility for the upkeep of the current

¹⁶ 'Transcript of Defense Secretary Gates's Speech on NATO's Future'. Wall Street Journal, 10 June, 2011. <http://blogs.wsj.com/washwire/2011/06/10/transcript-of-defense-secretary-gates-speech-on-natos-future/>

¹⁷ 'U.S. warns NATO over spending cuts, security'. David Brunnstrom. Reuters news report, 5 October 2011. http://www.reuters.com/article/2011/10/05/us-nato-idUSTRE7941Y120111005?feedType=RSS&feedName=topNews&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+reuters%2FtopNews+%28News+%2F+US+%2F+Top+News%29

¹⁸ Oral testimony from George Robertson, former UK Secretary of State for Defence in 'U.S. - UK Nuclear Cooperation After 50 Years', edited by Jenifer Mackby and Paul Cornish. CSIS Press, 2008. Page 287.

international order and a duty to intervene with military force in conflicts that threaten international stability¹⁹. This means that the issue of whether Britain should remain a nuclear weapon state has become closely linked to the issue of what Britain's place in the world should be.

19. Partly linked to this viewpoint, rivalry with France is considered by some politicians to be a reason for the UK to remain a nuclear weapon state. When the decision to purchase the current Trident system was taken in 1981 Foreign Secretary Lord Carrington is said to have stated: "Failure to acquire Trident would have left the French as the only nuclear power in Europe. This would be intolerable."²⁰ However, a justification for retaining nuclear weapons based on the view that the UK needs to match French nuclear ambitions is unlikely to be able to stand up to scrutiny from voters who have to pay for the UK's nuclear weapons or from the international community, which expects the UK to comply with its disarmament obligations under the Non-Proliferation Treaty (see paragraph 65 below).
20. Perhaps because of the UK's colonial tradition, we tend to emphasise military solutions to international problems more than other European nations. As a result, the UK has been drawn over past decades into a number of costly military interventions that have not succeeded in meeting their objectives and bear no clear link to the defence of British citizens.
21. The UK could continue to wield major influence in the world without being a major military power or nuclear-weapon state by virtue of its economic strength and unique historical and cultural ties with the rest of the world. The UK's permanent membership of the United Nations Security Council (to their credit, Ministers have clearly stated that this status is not dependent upon the UK remaining a nuclear-weapon state²¹) and membership of the European Union and NATO all provide routes which enable the country to 'punch above its weight' diplomatically. Taking on an international role as a pioneer of a 'sustainable security' approach²², through which the UK uses diplomacy and conflict resolution to gain results rather than military force, could allow the UK to retain its place as a respected world power. This would not necessarily be a rapid or painless transition for the nation to make, but it would almost certainly prove to be more cost-effective in the long term.
22. The association between international status and the possession of nuclear weapons is a dangerous linkage which contributes to a perception among insecure regimes that acquiring nuclear weapons is a route to gaining a place on the global stage. This perception appears to be a significant driver for the proliferation of nuclear weapons. Were the UK to renounce its nuclear weapons in the future, this would play an

¹⁹ 'Trident and British Identity: Letting go of nuclear weapons'. Nick Ritchie. Bradford Disarmament Research Centre, University of Bradford. September 2008.
<http://www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing3.html>

²⁰ 'Thatcher went behind Cabinet's back with Trident purchase'. Alan Travis. Guardian, 30 December 2011. <http://www.guardian.co.uk/uk/2011/dec/30/thatcher-cabinet-opposed-trident-purchase?newsfeed=true>

²¹ Liam Fox, 'Official Report, HC Deb, 21 June 2010, c55.
<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100621/debtext/100621-0009.htm#1006219000799>

²² 'Shared Responsibilities: A National Security Strategy for the UK. The final report of the IPPR Commission on National Security in the 21st Century'. Institute for Public Policy Research, 30 June 2009.
<http://www.ippr.org/publications/55/1704/shared-responsibilities-a-national-security-strategy-for-the-uk>

important part in demonstrating that nuclear weapons are not necessary for a nation to play a leading role in international affairs. Short of this, the UK government can help to break the perceived link between status and the possession of nuclear weapons by supporting initiatives to de-legitimise and stigmatise the possession of nuclear weapons (see paragraph 73 below).

Other reasons

23. If the UK wishes to remain a nuclear weapon state for reasons other than those examined above, these reasons have never been stated or articulated by government. As it is in the clear interest of government to justify its nuclear doctrine to potential enemies, and account for its spending on nuclear weapons to the public, we consider that this possibility can be discounted.

Risks posed by the UK's nuclear weapons

24. Nuclear weapons have been described as “the United Kingdom's ultimate insurance policy in this age of uncertainty”²³. However, rather than providing insurance against risks they may, under certain conditions, contribute to future risks rather than reduce them. Examples of some such situations follow.

Proliferation risks

25. Although the Trident replacement programme would enable the UK to remain a nuclear-weapon state, this might paradoxically make the future more risky if it acts as a driver for the proliferation of nuclear weapons. For example, Iranian government outlets point out that in their view, the UK is in breach of its obligations under Article VI of the Non-Proliferation Treaty in modernising its nuclear weapons, and that as a result the UK is in no position to criticise Iran’s nuclear programme²⁴. In the eyes of some, therefore, Trident replacement serves to undermine and de-legitimise the international non-proliferation regime. Proliferation risks have been summarised by Ken Booth, Professor of International Politics at the University of Wales, Aberystwyth, who wrote: “If the present British government announces that it will retain nuclear weapons until about 2050, and if this contributes to the erosion of the norms so far sustaining the NPT (and history shows the fragility of international regimes when key states ignore their obligations) then what might British security look like, even if it possesses nuclear weapons, in a world of 20-plus nuclear powers? Change rather than continuity may sometimes be the rational response to the inevitability of future uncertainty.”²⁵

Political risks

26. One reason sometimes cited as a need for the UK to remain nuclear weapons in the long term is protection against the possibility of a ‘resurgent Russia’, with an aggressive and extremist leadership, in the future. In the UK politics are showing a

²³ ‘Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review’. Cm 7948. Cabinet Office, October 2010. Foreword by David Cameron and Nick Clegg, Page 5.

²⁴ See, for example, ‘UK builds new nukes, IAEA ignores’. Press TV, 28 November 2011. <http://www.presstv.ir/detail/212607.html>

²⁵ ‘Debating the future of Trident: Who are the real realists?’ Ken Booth. In ‘The Future of Britain’s Nuclear Weapons’ edited by Ken Booth and Frank Barnaby. Oxford Research Group, March 2006, pp76-91.

long-term drift to the right, and extremist political parties have experienced some recent electoral success. Over the fifty-year life of Trident's replacement there is a possibility that the UK political landscape may change beyond recognition, and that the UK's nuclear weapons may end up in the hands of an aggressive extremist government. Under such circumstances the decision made by the current generation of politicians to replace the UK's nuclear weapons could end up posing significant risks to global stability, with reciprocal risks to the British public. Looking into the longer-term future, there is a possibility that factors such as a severe economic crisis, or dramatic impacts resulting from a worst-case climate change scenario, might result in a future government in the 2050s being unable to maintain the level of institutional control needed to manage its nuclear weapons infrastructure safely and competently. Such risks increase looking into the far future, beyond the proposed lifetime of the Trident replacement system but within the lifespan in which radioactive wastes and the nuclear legacy from the programme will need to be managed. Under a more optimistic scenario, a cordial US – Russia relationship which resulted in the US delivering on its offer to share missile defence technology with Russia would undercut the deterrent effect of the UK's nuclear weapons against Russia.

27. Ken Booth points out that “there can be no risk-free futures, for uncertainty is the existential condition of international politics. The challenge then is to find the optimum means of controlling the nuclear risks of whatever policy prescription one advances”²⁶. It would be unwise to assume that the UK is guaranteed a stable and predictable future whilst the rest of the world faces uncertainty, and equally unwise to view the possession of nuclear weapons as a panacea which will guarantee future security. All policy options for the future, including maintaining the status quo, pose risks in varying degrees.

Economic risks

28. The long term economic situation for the UK is uncertain. In his Autumn Statement in November 2011 the Chancellor stated that public spending will need to be tightly controlled until 2017²⁷ and recovery thereafter may be hampered if, for example, there is an unexpected steep rise in energy prices. If the UK experiences an unexpected shock to the economy, circumstances could arise which might make it impossible for the nation to complete the Trident replacement programme and deploy the four submarines which are said to be necessary to guarantee an invulnerable nuclear deterrent. Given that the UK has invested significant political currency in its status as a nuclear weapons state, such a situation would be a major blow to the UK's international status and, possibly, to national morale. Longer term economic decline might make it impossible for the UK to continue to operate its nuclear weapons and infrastructure to adequate safety standards (see paragraphs 30-40 below). Such a situation was experienced – entirely unforeseeably - by Russia in the early 1990s following the break-up of the Soviet Union, giving rise to significant concerns about the security of fissile materials and proliferation-sensitive technology.

²⁶ 'Debating the future of Trident: Who are the real realists?' Ken Booth. In 'The Future of Britain's Nuclear Weapons' edited by Ken Booth and Frank Barnaby. Oxford Research Group, March 2006, pp76-91.

²⁷ 'Osborne confirms pay and jobs pain as growth slows'. BBC News, 29 November 2011. <http://www.bbc.co.uk/news/uk-politics-15931086>

Scotland

29. The possibility of Scotland's independence also raises major issues for the future of the UK's nuclear weapons, which have been explored in detail by Malcolm Chalmers and William Wallace²⁸. If Scotland becomes independent, the location of the Trident submarine base on the Clyde will create enormous difficulties for England, Wales, and Northern Ireland in continuing to operate a nuclear weapons programme. Conversely, widespread hostility to the Trident programme in Scotland appears to be a significant factor driving support for independence. The significant lack of public support in Scotland (increasingly reflected in opinion polls across the remainder of the UK) for Trident is presented by sceptics as evidence of a 'legitimacy deficit' for a London government which does not reflect Scottish aspirations. Regardless of the future path which Scotland chooses to take, Scottish opposition to Trident replacement can be expected to pose risks for the UK's nuclear weapons programme.

Safety risks

30. The consequences for the UK of remaining a nuclear-weapon state will be neither neutral nor benign if a serious accident involving a nuclear weapons take place in the UK. Accidents can and do happen: production of plutonium for the nuclear weapons programme resulted in the UK's worst nuclear accident, the Windscale fire in 1957²⁹, and there have been a number of documented accidents which have resulted in the dispersal of radioactive material or breakup of US nuclear weapons³⁰.

31. Some of the more significant 'near miss' incidents which have been reported as occurring in the UK's military nuclear programme over recent years include:

- Grounding of the Trident submarine HMS Victorious on the Skelmorlie Bank in the Clyde Estuary on 29 November 2000³¹.
- Serious flooding at the Atomic Weapons Establishment at Burghfield on 20 July 2007 which caused damage valued at £5 million and resulted in the plant being out of action for 9 months³².
- A series of leakages of radioactive coolant from the Clyde submarine base at Faslane in 2004, 24 August 2007, and 20 February 2008, said to be sufficiently serious for the Scottish Environmental Protection Agency to warn that it would consider closing the base down if it had the legal powers to do so³³.
- A collision between the Royal Navy's Trident submarine HMS Vanguard and French

²⁸ 'Uncharted Waters: The UK, Nuclear Weapons, and the Scottish Question'. Malcolm Chalmers and William Walker. Tuckwell Press, 2001.

²⁹ 'Windscale fire: 'We were too busy to panic''. Roger Highfield, Daily Telegraph, 9 October 2007. <http://www.telegraph.co.uk/science/science-news/3309842/Windscale-fire-We-were-too-busy-to-panic.html>

³⁰ 'Broken Arrow: The Declassified History of U.S. Nuclear Weapons Accidents'. James C. Oskins and Michael H. Maggelet. Lulu, 2008.

³¹ 'Board of Inquiry into the circumstances surrounding the grounding of HMS VICTORIOUS - 29th November 2000'. Ministry of Defence, 19 December 2000. http://www.mod.uk/NR/rdonlyres/3C986583-61BC-4A3F-A7C3-8D749F45F488/0/boi_hms_victorious_grounding.pdf

³² 'Britain's nuclear weapons factory 'nearly overwhelmed' by flood. Julian Rush. Sunday Telegraph, 11 October 2008. <http://www.telegraph.co.uk/news/uknews/defence/3178392/Britains-nuclear-weapons-factory-nearly-overwhelmed-by-flood.html>

³³ 'MoD guilty of repeated nuclear safety breaches'. Rob Edwards and Severin Carrell. Guardian, 27 April 2009. <http://www.guardian.co.uk/environment/2009/apr/27/nuclear-mod-clyde-safety-breaches>

nuclear armed submarine MN Le Triomphant whilst submerged at sea on the night of 3-4 February 2009, which required each vessel to return to port for repairs³⁴.

- Failure to restore steam generator emergency safety valves following refit of patrol submarines HMS Turbulent and HMS Tireless at Devonport Naval Dockyard³⁵.
- A fire in an explosives processing area at the Atomic Weapons Establishment Aldermaston on 3 August 2010 which left one worker injured and required the precautionary evacuation of nearby homes³⁶.

32. Resource shortages – both financial and personnel – pose the greatest current threat to safety standards within the Ministry of Defence's nuclear programme. The Defence Nuclear Environment and Safety Board has highlighted a lack of suitable nuclear experienced and qualified personnel as a key risk for the programme every year in its annual assurance report since 2006, with the risk rated as red for the last three years (2008 – 10). In its 2010 report the Board assessed that the situation was “getting progressively worse rather than being steady”³⁷, stating: “What is less clear at the time of writing is the pressure that may result from the declaration of reductions in the MOD workforce by 17,000 military and 25,000 civilian personnel, but it would seem unlikely that the DNP [Defence Nuclear Programme] will be exempt from an expectation of “efficiencies”. Initial indications are of an aspiration for 25% savings in operating costs; this is obviously pulling in an opposite direction to the current shortfall in resource; managers in the DNP will need to establish the most robust baselines possible and defend them rigorously”³⁸.
33. Resource shortages are a challenging and long term issue for the Ministry of Defence's nuclear programme. The Royal Navy's Director of Submarines, Rear Admiral Simon Lister, has told the Defence Nuclear Environment and Safety Board: “We have been 20 years in a position of concern over adequacy of resource and people with the likelihood that it will take 10-15 years to recover ... The demographics are bad for both civilian and uniformed NSQEP [nuclear suitably qualified experienced personnel] and will deteriorate for the next five years”³⁹. The problem is compounded by poor staff morale within the Ministry of Defence and a lack of confidence in senior management⁴⁰.
34. The Haddon-Cave report into the broader issues surrounding the loss of an RAF Nimrod aircraft over Afghanistan in 2006 found that reports warning of conflict between

³⁴ 'Nuclear subs collide in Atlantic'. BBC News, 16 February 2009.

<http://news.bbc.co.uk/1/hi/7892294.stm>

³⁵ 'Nuclear submarines went to sea with potentially disastrous defect'. Severin Carrell and Rob Edwards. Guardian, 2 May 2010. <http://www.guardian.co.uk/uk/2010/may/02/nuclear-submarines-defects-valves> Although HMS Turbulent and HMS tireless are fleet submarines, and do not carry nuclear weapons, the incident was a generic fault which occurred in the same dockyard that refits Vanguard class submarines.

³⁶ 'Fire in bunker at atomic weapons site in Aldermaston'. BBC News, 4 August 2010.

<http://www.bbc.co.uk/news/uk-england-10863205>

³⁷ '2010 Annual Assurance Report'. Defence Nuclear and Environment Safety Board, 2010. <http://robedwards.typepad.com/files/dnesb-2010-assurance-report.pdf> Paragraph 12, page 5.

³⁸ '2010 Annual Assurance Report'. Defence Nuclear and Environment Safety Board, 2010. <http://robedwards.typepad.com/files/dnesb-2010-assurance-report.pdf> Paragraph 11, page 5.

³⁹ 'Minutes of the 16th Meeting of the Defence Nuclear Environment and Safety Board held in Abbey Wood on 23 June 2009'. Ministry of Defence. Paragraph 16, page 4. Copy provided to Nuclear Information Service under the Freedom of Information Act.

⁴⁰ 'Revealed: crisis of confidence rocking MoD to the core'. Rob Edwards. Sunday Herald, 8 January 2012. <http://www.heraldscotland.com/news/home-news/revealed-crisis-of-confidence-rocking-mod-to-the-core.16188303>

ever-reducing resources and the demands of keeping old aircraft flying were not heeded. Haddon-Cave concluded that following the 1998 Strategic Defence Review “deep organisational trauma”, financial pressures and cuts at the Ministry of Defence “drove a cascade of multifarious organisational changes, which led to a dilution of the airworthiness regime and culture within the MOD, and distraction from safety and airworthiness issues as the top priority”⁴¹. The risks that the same mistakes will be made across the Ministry of Defence following the Strategic Defence and Security Review are significant.

35. The military nuclear programme is generally subject to different regulatory arrangements to civil nuclear sites, with the Defence Nuclear Safety Regulator, the Ministry of Defence's own internal regulatory team, playing a significant role while civil regulators such as the Office for Nuclear Regulation, Environment Agency, and Scottish Environmental Protection Agency play a lesser role and may have limited enforcement powers in areas where the Ministry of Defence is exempt from statutory control. In our view regulatory standards in the military sector lack the same degree of independence, transparency, and rigour as those in the civil sector, increasing the risk of accidents.
36. There are specific concerns about nuclear reactors used to power the Royal Navy's submarines. The head of the Defence Nuclear Safety Regulator has acknowledged that the PWR2 nuclear reactors which power the Royal Navy's current fleet of submarines “falls significantly short of benchmarked relevant good practice”⁴² in nuclear submarine design and operation in two important respects. The low power of the emergency propulsion system, in the event of a reactor fault in deep water, is not able to provide sufficient dynamic lift to allow the submarine to surface under certain circumstances, and the PWR2 plant is twice as likely to experience structural failure causing a loss of coolant accident as equivalent civil and submarine reactor plants. Unlike civil reactors and those used in the US Navy's submarines, the PWR2 emergency core cooling system does not inject coolant to the reactor pressure vessel head. Although a new generation PWR3 reactor is under design for the Trident 'Successor' submarines, the current Vanguard class submarines are powered by PWR2 reactors and Astute class vessels which are planned for construction will also employ PWR2 technology.
37. Risks are compounded by pressure on the submarine fleet caused by delays in construction of new Astute class submarines, which mean that the Royal Navy will have to use older boats beyond their out-of-service dates and work the smaller fleet of Astute submarines harder, or reduce scheduled activity for submarines over part of the next decade⁴³.
38. The Defence Nuclear Safety Regulator has also expressed concerns about arrangements for design of the next generation PWR3 nuclear propulsion plant for the 'Successor' submarine. A Safety Improvement Notice was served on the Ministry of

⁴¹ 'The Nimrod Review'. Charles Haddon-Cave QC. HC1025. The Stationery Office, 28 October 2009. <http://www.official-documents.gov.uk/document/hc0809/hc10/1025/1025.asp>

⁴² 'Successor SSBN: Safety regulators' advice on the selection of the propulsion plant in support of the future deterrent review note'. Andrew McFarlane, Head of the Defence Nuclear Safety Regulator. Report to the Defence Board, 4 November 2009. <http://nuclearinfo.org/files/DNSR%20report%204%20November%202009.pdf>

⁴³ 'Ministry of Defence: The Major Projects Report 2011'. Report by the Comptroller and Auditor General. HC1520-1. National Audit Office, 18 November 2011. Paragraph 11, page 8.

Defence's Nuclear Propulsion Project Team in May 2010 by the regulator requiring the team to take action to address failures in meeting good safety management practice⁴⁴. A persistent failure to address regulatory concerns was considered to be “no longer tolerable” at a time when key design decisions for the Successor submarine are being made, presenting increased risk to reactor design and safety management arrangements. Inadequate resourcing was identified as a root cause of the problems. More than one year late the regulator was still not fully satisfied with arrangements: on 24 June 2011 two formal Safety Directions were issued to the Nuclear Propulsion Project Team on control of organisational change and on construction and installation of new plant, with a requirement for implementation by the end of 2011⁴⁵. Safety management arrangements of the reactor designer (Rolls Royce) have also been identified as an emerging issue⁴⁶.

39. A serious incident involving the military nuclear programme, apart from the obvious safety and environmental consequences, could be expected to have a major impact on public trust in the armed forces and public opinion on the need for the UK to have nuclear weapons. The clean-up costs in the aftermath of such an incident might also be considerable. Malcolm Chalmers and William Walker point out that Scotland's tolerance of the Trident operating facilities at Faslane and Coulport is contingent upon the highest standards of safety, and that a serious accident in Scotland could not only jeopardise the future of the UK's nuclear weapons programme, but open deep rifts between Edinburgh and London which might threaten the Union itself⁴⁷.
40. In the current economic climate the Ministry of Defence will face significant challenges in managing its nuclear programmes with due regard for the protection of the workforce, the public, and the environment. Over the years ahead the Ministry is likely to face increasing difficulty in ensuring that the nuclear weapons programme is resourced and regulated so as to meet the highest safety standards.

Question 1: Conclusion

41. Our overall conclusion in response to the question 'Should the UK remain a nuclear weapon state?' is that there is no need for the UK to retain nuclear weapons. The nation's security can be maintained through membership of the NATO alliance, to which we could perhaps contribute more meaningfully as a non-nuclear member. Although nuclear weapons are sometimes said to act as insurance against uncertain future risks, their possession also poses risks to the nation. Our view is that, instead of replacing Trident, the UK should move down the 'nuclear ladder' over the next decade with the aim of becoming a non-nuclear weapons power.

⁴⁴ 'Safety Improvement Notice on Nuclear Propulsion Project Team (NPPT): Organisation for delivery of Nuclear Safety by the Approval Authority role'. Defence Nuclear Safety Regulator – Nuclear Propulsion Regulator. 26 May 2010. Copy provided to Nuclear Information Service under the Freedom of Information Act.

⁴⁵ 'Naval Reactor Plan Authorisee (NRPA) Safety Improvement Notice (SIN) – Update'. Defence Nuclear Safety Regulator – Nuclear Propulsion Regulator. 24 June 2011. Copy provided to Nuclear Information Service under the Freedom of Information Act.

⁴⁶ '2010 Annual Assurance Report'. Defence Nuclear and Environment Safety Board, 2010. <http://robedwards.typepad.com/files/dnesb-2010-assurance-report.pdf>. Paragraph 28, page 9.

⁴⁷ 'Uncharted Waters: The UK, Nuclear Weapons, and the Scottish Question'. Malcolm Chalmers and William Walker. Tuckwell Press, 2001. Page 66.

Question 2

If it should, is Trident renewal the only or best option that the UK can and should pursue?

42. Public debate on nuclear weapons is frequently framed as a choice between two polar alternatives: maintaining the status quo with a 'like for like' replacement of Trident, or complete unilateral renunciation of nuclear weapons. In fact, there is a wide spectrum of alternative options between these two positions. As a first step in identifying feasible options the criteria for a minimum deterrent need to be set. Platform and posture requirements can be assessed from this base to support a credible minimum deterrent.
43. Nick Ritchie has conducted a comprehensive analysis of how the UK could step down the nuclear ladder by adopting various options short of like for like replacement of Trident⁴⁸. Rather than reproduce his analysis, this paper focuses on three specific options where we feel further deliberation would be useful.

Nuclear armed cruise missiles

44. There has been some discussion as to whether modified Astute class submarines equipped with nuclear armed cruise missiles would represent a credible submarine-based alternative to Trident. The terms of reference for the Trident Alternatives Review currently being conducted by the Cabinet Office specifically refer to this option.
45. To be a feasible, this option would require more effort than appears necessary at first sight. The planned fleet of seven Astute class submarines has been sized to meet the Navy's fleet submarine requirement, and so further hulls would need to be constructed if a modified Astute class design was to replace the current Vanguard class Trident submarines. The US Navy's submarine launched nuclear cruise missiles were withdrawn from service in 1992⁴⁹ and will have been phased out by 2015, and it is unclear how the UK would procure a cruise missile delivery system which will remain operational for the anticipated 40 year span of the Trident replacement programme. A new warhead would almost certainly need to be designed and built to fit onto a cruise missile, which would be smaller than the Trident D5 missile. As a result of these factors, there may be little cost advantage to pursuing a cruise missile option.
46. Cruise missiles have a shorter range than ballistic missiles such as the Trident D5 missile, and fly at a low altitude, making them more vulnerable to anti-missile defences and unable to guarantee destruction of their targets. Because of these characteristics the US Navy's nuclear cruise missiles were assigned a tactical warfighting role rather than as a strategic deterrent. Development of a tactical nuclear weapon would appear not to meet the UK's deterrence purposes and does not sit easily with the UK's declaration that nuclear weapons would only be used in self-defence and even then only in extreme circumstances. A future system based on nuclear armed cruise missiles would not represent a positive progressive move forward from the current Trident system and would send out the undesirable message that the UK's nuclear weapons were not for genuine deterrence purposes.

⁴⁸ 'Stepping down the nuclear ladder: Options for Trident on a path to zero. Nick Ritchie. Bradford Disarmament Research Centre, University of Bradford. May 2009.
<http://www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing5.html>

⁴⁹ 'Pentagon to Phase Out Nuclear-Armed Tomahawk Cruise Missiles'. Global Strategy Newswire, 8 April 2010.
<http://www.nti.org/gsn/article/pentagon-to-phase-out-nuclear-armed-tomahawk-cruise-missiles/>

From continuously at sea to randomly at sea

47. Rather than move from Trident to a different nuclear weapon system, a more constructive and less risky step would be to move to a more relaxed nuclear posture. The UK's nuclear posture is based on having a nuclear armed submarine at sea at all times – a policy known as continuous at sea deterrence.
48. The following reasons are commonly given to explain the need for the UK to maintain a continuously at sea nuclear posture⁵⁰:
- Assurance: constant deployment of submarines means that the UK can absolutely guarantee to launch a nuclear strike at short notice from an invulnerable platform without the risk of submarines being trapped in their home port.
 - Crisis stability: the risks of escalating a crisis might be increased with disastrous effect by deploying submarines during a time of tension.
 - People: constant deployment is needed to maintain crew readiness, proficiency, and morale and demonstrate to crew members that the sacrifices they are called to make are worthwhile.
49. The late Sir Michael Quinlan, for many years a primary advocate for the UK's nuclear weapons, wrote shortly before his death: "The case for having a boat at sea used to centre, in my long-ago DUS(P) days, on the argument (paras 13-15 of DODG 80/23) that in the Cold War setting we must maintain this ultimate level of insurance against the admittedly-remote hypothesis of super-power bolt from the blue. That hypothesis has surely evaporated. Can we not now assume, for any realistic scenario, that we would have some warning."⁵¹ Quinlan was sceptical of the argument that deploying a submarine during a crisis might heighten tension at a critical moment, and suggested that under such circumstances the UK might want to deliberately deploy a submarine as a means of demonstrating resolve to an opponent.
50. He also questioned whether constant at-sea patrols were necessary to act as a credible deterrent, arguing that "Even a modest chance of a huge penalty can have great deterrent force."⁵² A state contemplating an out-of-the blue attack on the UK would need to be certain not only that there was no submarine at sea at the time of the attack, but that the UK's entire nuclear capability could be destroyed and that there would be no response from the UK's NATO allies.
51. The potentially adverse impact upon crew morale of moving away from a posture of continuous patrols is another factor to consider. It is said that the knowledge that the UK is 'not serious' about maintaining an effective nuclear deterrent may discourage submarine crew members from making the personal and family sacrifices needed to put submarines to sea when needed, and may also result in short cuts being taken which could compromise safety. But this argument underestimates the professionalism of military personnel. A clear announcement has been made that UK forces are

⁵⁰ 'Nuclear policy at sea: A part-time deterrent will not do!' Tim Hare. RUSI Journal Vol. 154 No. 6, pages 54-58. December 2009.

⁵¹ Letter from Michael Quinlan to Patrick Turner, Ministry of Defence policy director, 18 June 2006. Quoted in 'On nuclear deterrence: the correspondence of Sir Michael Quinlan' edited by Tanya Ogilvie-White. Adelphi Paper 421-3, International Institute of Strategic Studies, 2011. Page 257.

⁵² 'Deterrence and Deterrability'. Michael Quinlan. In 'Deterrence and the New Global Security Environment', edited by Ian Kenyon and John Simpson. Routledge, 2006. Page 5.

scheduled to withdraw from Afghanistan in 2014 but there is no suggestion within government that soldiers who risk being killed during duties in Afghanistan until 2014 are wasting their time, suffering from low morale, or lowering the professional standards of their work. Special forces personnel play a unique role in national security but are not constantly in action and supplement the period when they are not in action with a rigorous training schedule and readiness to deploy at short notice. Before the Polaris nuclear system came into service the V-bombers which carried the UK's nuclear weapons were not on constant patrol, but were on notice for instant deployment. A nuclear posture which combined notice for instant deployment, randomly or at times of crisis, with a rigorous training routine could probably substitute at a low risk for the current posture of continuous deployment. A random pattern of deployment would also help to mitigate against 'critical mass' issues which might make it hard to resume patrols after an extended period in port.

52. A credible policy of random deployment might have the following characteristics:

- It would be operated in parallel with a rigorous training regime when submarines are not deployed at sea to ensure that essential skills are not diluted or lost.
- It could start with short, infrequent periods when submarines were not at sea and gradually build up to longer on-shore periods as confidence in the regime increased.
- It would be a clearly declared step towards disarmament, with the government making it clear that it expects to see reciprocal steps taken by other nuclear-weapon states and working to achieve such gains.
- The government could also reserve the right to reverse the policy and return to continuous patrols if it was felt prudent to do so in future.
- It might also be possible to work in partnership with France to provide a further level of security. Although France has shown little interest to date in co-ordinating submarine patrols on a joint basis, the possibility warrants further exploration in the light of recent moves towards closer Anglo-French co-operation on defence and security, and acknowledgment by both nations that there could be no situation in which the vital interests of either of the two nations could be threatened without the vital interests of the other also being threatened⁵³.

53. Like the UK, China claims to operate a minimum nuclear deterrent but unlike the UK, China does not operate a policy of continuous at sea deployment for its nuclear submarines and currently has no operational submarine launched ballistic missiles. China's nuclear deterrent is not thought by its opponents to lack credibility, demonstrating that a policy of continuous at-sea deterrence is not the only way of maintaining a credible nuclear posture. China relies principally on mobile land-launched ballistic missiles to launch its nuclear weapons, and of these it is estimated that up to 40 have sufficient range to reach the continental United States⁵⁴.

54. Moving away from a posture of continuous deployment would reduce the salience of nuclear weapons in the UK's security posture and represent a tangible step towards the UK meeting disarmament obligations in the action plan from the 2010 Non-Proliferation Treaty Review Conference. It could also be expected to extend the life of the current Vanguard class submarines, allowing the replacement decision to be

⁵³ 'Presentation of SSBM 'Le Terrible' – Speech by M. Nicolas Sarkozy, President of the Republic. Cherbourg, 21 March 2008. http://www.ambafrance-uk.org/President-Sarkozy-s-speech-at_10430.html

⁵⁴ 'Chinese nuclear forces 2011.' Hans M Kristensen and Robert S Norris. Bulletin of Atomic Scientists, November 2011. <http://bos.sagepub.com/content/67/6/81.full>

delayed, spending to be deferred, and fewer submarines to be constructed. Operational spending, however, would be unlikely to drop and might face a short-term increase over the period when new arrangements were put into place.

A virtual nuclear power within NATO

55. In theory, at least, membership of a security alliance with other states which share similar values is a safe bet for the effective defence of the UK. Political realities suggest that, regardless of any future decision on the replacement of Trident, the UK will remain a member of the NATO alliance for the foreseeable future.
56. The UK could decide to abandon Trident and join the 25 NATO states which feel no need to develop their own nuclear arsenals, considering that the nuclear security guarantees given to NATO members by the USA provide them with adequate protection. Alternatively, France has offered to provide an 'extended deterrence' guarantee to other nations. As both the British and French governments consider that there are no circumstances in which the vital interests of either of the two nations could be threatened without the vital interests of the other also being threatened, the UK could shelter with confidence under a French 'nuclear umbrella'.
57. Unlike other non-nuclear NATO members under such circumstances, the UK, as a state which had renounced its nuclear arsenal, would retain a significant repository of knowledge about nuclear weapons technology. This would allow the UK to remain a 'virtual' nuclear power – one which is able to develop an improvised nuclear weapon at relatively short notice and rebuild its nuclear weapons capability over a longer period if the international situation deteriorated to such an extent that this became necessary. This would act as a kind of safety net to hedge against concerns that the UK was irreversibly abandoning its nuclear weapons and might find itself vulnerable in future. Marvin L. Adams and Sidney D. Drell contend that the critical asset in sustaining a nuclear enterprise is the quality of expertise available and that: “Expert personnel constitute more of a deterrent to evolving threats than do facilities or even existing weapons. Given sufficient resources, people with the appropriate expertise can respond quickly to unanticipated problems or changes in requirements and can provide confidence in the solutions they produce”⁵⁵. A move to a “virtual” nuclear posture would allow the UK to remain a credible power whilst taking a major step towards global nuclear disarmament.
58. The role of the Atomic Weapons Establishment (AWE), where the UK's nuclear weapons are developed, manufactured, and dismantled, would be pivotal if the UK decided to become a virtual nuclear power within NATO. AWE would need to remain a repository of nuclear weapons technology, be able to assess the nuclear threats posed to the UK, and verify that other states were meeting their disarmament and non-proliferation commitments. The Establishment could also expect its activities to face a high degree of scrutiny as other nations sought to verify that the UK had indeed decommissioned its nuclear weapons.
59. Some encouraging work on verification has already been undertaken by AWE within the context of Margaret Beckett's proposal that the UK should become a disarmament

⁵⁵ 'Technical Issues in Keeping the Nuclear Stockpile Safe, Secure, and Reliable'. Marvin L. Adams and Sidney D. Drell. 2008. cstsp.aas.org/files/DrellAdamsBrief.pdf

laboratory⁵⁶ and the UK – Norway Initiative⁵⁷. At the same time, however, a major infrastructure investment programme is underway at AWE to allow the Establishment to maintain the capability to design and build nuclear weapons and options studies are underway to enable AWE to design a successor to the current Trident warhead if asked to do so by the government.

60. In a study of future requirements for the US nuclear weapons construction complex, John D. Immele and Richard L. Wagner have considered how the short-term need to maintain a nuclear deterrent can be balanced with the long-term aspiration of low numbers or zero nuclear weapons⁵⁸. They conclude that, as the number of nuclear weapons in the world decreases, nuclear infrastructures will have a greater role than nuclear stockpiles in dissuading future threats and that neither the major powers nor current and potential proliferants can be secure at very low numbers without understanding and managing the roles of latency (sufficient capability to revive a nuclear weapons programme in the future) and infrastructure.
61. To help in both sustaining the responsiveness of nuclear laboratories over the long term and in moving toward a stable regime, Immele and Wagner propose extending the mission of nuclear laboratories to encompass national nuclear security, including the science and technologies for threat-reduction, non- and counter-proliferation, verification and confidence-building, countering nuclear terrorism, and nuclear material controls. Extensive international collaboration, where possible, would increase transparency and build confidence for a stable non-proliferation regime.
62. AWE has a significant and growing role in national nuclear security. This should be developed in a planned and systematic way so that, if the UK were to dismantle its nuclear weapons, AWE would be able to play the verification and threat reduction role needed to prevent other nations from cheating on disarmament pledges and maintain a latent nuclear capability within the UK which did not destabilise global disarmament initiatives.
63. Immele and Wagner state that explicit attention should be given to designing nuclear production facilities transparently, so that processes taking place within them can easily be subject to international verification. It is not clear whether transparency has been adopted as a design criterion for new facilities under development at AWE, nor whether new production facilities will have the same manufacturing capability, greater, or lesser, than current facilities. Ministers should take steps to ensure that new facilities at AWE are designed to allow verification and are built to allow a throughput no greater than is needed to match requirements to build and maintain a warhead stockpile of the current size.

⁵⁶ 'A World Free of Nuclear Weapons?' Speech by Margaret Beckett at the Carnegie International Non-Proliferation Conference, Carnegie Endowment for International Peace, 25 June 2007. www.carnegieendowment.org/files/keynote.pdf

⁵⁷ 'UK – Norway Initiative on Nuclear Warhead Dismantlement Verification'. <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/SecurityandIntelligencePublications/InternationalSecurity/UkNorwayInitiativeOnNuclearWarheadDismantlementVerification.htm>

⁵⁸ 'The U.S. Nuclear Weapon Infrastructure and a Stable Global Nuclear Weapons Regime'. John D. Immele and Richard L. Wagner. Draft report LA-UR-09-00339, Los Alamos National Laboratory. January 19, 2009. www.lanl.gov/conferences/sw/2009/docs/Immele_Wagner_2009.pdf.

Question 2: Conclusion

64. There is a range of options that would seem to provide as much of a guarantee to the UK's security as Trident and would apparently be viable policy options. Deeper consideration and increased public debate on such options is needed before the government makes an irreversible decision to replace Trident.

Question 3

What more can and should the UK do to more effectively promote global nuclear disarmament, non-proliferation and nuclear security?

65. The UK's position as a depository state for the Non-Proliferation Treaty gives us a special responsibility to promote global nuclear disarmament, non-proliferation and nuclear security. Although the UK has taken a number of very constructive steps towards nuclear disarmament over the past 15 years and considers itself to be a leader in this respect among the recognised nuclear weapon states, it should be remembered that other recognised nuclear weapon states also claim credit for steps that they have taken in support of disarmament and non-proliferation. The United States and Russia will point to successful negotiation of the New START Treaty; France and China can both claim to have minimum deterrent forces, and France has dismantled facilities for the production of fissile material for nuclear weapons and eliminated the land-based element of its nuclear triad whilst China has a long-standing 'no first use policy' for its nuclear weapons. Those who wish to criticise the UK's record will point out that the UK is currently modernising its nuclear weapons, that many of the disarmament initiatives highlighted by the government date from the 1997 Strategic Defence Review and were announced nearly fifteen years ago; and that initiatives announced in the 2010 Strategic Defence and Security Review were driven by the desire to reduce spending as part of the Trident Value for Money Review and to bring the UK's declaratory policy into line with that of the USA following the Obama administration's Nuclear Posture Review, rather than as acts of global leadership on behalf of the UK. Without wishing to undermine the significance of any of these steps, the UK cannot afford to be complacent about its previous record and will need to maintain momentum towards global nuclear disarmament if its commitment to a world without nuclear weapons is to be seen as credible.

66. We consider that the UK could undertake the following realistic, 'easy steps' towards disarmament over the next five years (ie for the term of the current government and the current Non-Proliferation Treaty review cycle), which build on established initiatives, without departing significantly from current policies.

67. The government must work towards implementing commitments outlined in the Action Plan published as part of the final document published at the end of the 2010 Non-Proliferation Treaty Review Conference. We take it for granted that the government will work towards meeting these actions in good faith to demonstrate commitment to the aims of the Non-Proliferation Treaty.

68. Among the actions agreed at the 2010 Non-Proliferation Treaty Review Conference was a commitment to greater transparency among nuclear weapon states. Franklin Miller, former US Deputy Assistant Secretary of Defense for Nuclear Forces, has

succinctly summarised the importance of nuclear transparency in pointing out that “Transparency enhances predictability; predictability enhances stability”⁵⁹.

69. The UK has made a baseline statement on the number of nuclear weapons in its arsenal, but regular reporting of more detailed information, such as locations of warheads and the status of the warhead inventory and nuclear infrastructure, would help demonstrate the UK’s commitment to transparency and show a lead to other nuclear-weapons states, particularly France and China. James Acton has presented proposals for a voluntary transparency regime which could be adopted by the UK and other nuclear weapon states, based loosely on the START 1 and New START transparency regimes⁶⁰. Increased transparency over the costs of the UK’s nuclear weapons programme would also help in informing domestic political debate on the opportunity costs of nuclear weapons.
70. The UK should publicly support the recommendations of the International Commission on Non-Proliferation and Disarmament (ICNND)⁶¹. On the initiative of the Australian and Japanese governments, the Commission brought together senior statespeople from around the world to reinvigorate international efforts on nuclear non-proliferation and disarmament in the context of both the 2010 Nuclear Non-Proliferation Treaty Review Conference and beyond. It drew on a wealth of experience and expert knowledge in preparing its report and sought to deliver “hard-headed and realistic analysis and prescriptions” and a roadmap for disarmament. The government should declare that it supports the Commission’s recommendations and will work towards fulfilling them. As a step towards its stated commitment to achieving a world without nuclear weapons, the government should map out its own view of the path to achieve this goal.
71. The government should use the UK’s diplomatic influence to urge others to support and encourage steps towards disarmament by other parties, and in particular:
 - Push the USA and Russia to negotiate a further START Treaty which would reduce each side’s warhead numbers to below 1000 – and hopefully much less - by 2020 (as recommended by the ICNND)⁶², and repeat the pledge to include the UK’s nuclear forces in any subsequent disarmament negotiations beyond that.
 - Push NATO to remove tactical nuclear weapons deployed in Europe, and make this demand a key and public feature of the UK’s position at the 2012 NATO Summit in Chicago.
 - Use the UK’s influence with the USA to push for the USA to ratify the Comprehensive Test Ban Treaty, building especially on cordial personal relations between UK Conservative Party and US Republican Party politicians.

⁵⁹ ‘Sustaining Nuclear Deterrence After New START’. Franklin C. Miller. Testimony before the House Armed Services Committee, Subcommittee on Strategic Forces, 27 July 2011. http://armedservices.house.gov/index.cfm/files/serve?File_id=55d3c2d6-d31c-4422-9a90-19983a53f444

⁶⁰ ‘Low Numbers: A Practical Path to Deep Nuclear Reductions’. James M. Acton. Carnegie Endowment for International Peace, April 2011. Pages 56-61. <http://carnegieendowment.org/2011/03/28/low-numbers-practical-path-to-deep-nuclear-reductions/duf>

⁶¹ ‘Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers’. Gareth Evans and Yoriko Kawaguchi (Co-chairs). Report of the International Commission on Non-Proliferation and Disarmament, 2009. www.icnnd.org

⁶² ‘Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers’. Gareth Evans and Yoriko Kawaguchi (Co-chairs). Report of the International Commission on Non-Proliferation and Disarmament, 2009. Paragraph 17.13, Page 166. www.icnnd.org

- Explore how to work with the extensive UK-based Indian and Pakistani diaspora to extend dialogue on disarmament issues with these states.

These goals should be diplomatic priorities for the UK and should be seen as key policy objectives for the Foreign and Commonwealth Office and Ministers.

72. The Atomic Weapons Establishment has a close working relationship with the US nuclear laboratories and this relationship could be directed more productively to work towards disarmament. In particular, AWE should explore extending its disarmament laboratory and verification initiatives through co-operation with the US nuclear weapons laboratories and, in due course, with weapons laboratories of other P5 members to build on initiatives agreed at the P5 follow-up meeting to the NPT Review Conference which was held in Paris in June-July 2011.
73. The UK should indicate clear support for the long-term goal of a Nuclear Weapons Convention – even if it considers that the time is not yet right to commence negotiations on such a treaty – and give a commitment that it will not block the commencement of negotiations on a Nuclear Weapons Convention. As a step towards mobilizing and sustaining political will for global nuclear disarmament, the ICNND recommended that work should commence on further refining and developing concepts in the model Nuclear Weapons Convention which is currently in circulation⁶³. The scepticism currently shown by the UK government towards a Nuclear Weapons Convention appears from the outside not as pragmatism in the face of international circumstances which do not support the introduction of a such treaty, but as obstruction and foot-dragging to prevent the introduction of a treaty which is seen to be contrary to the UK's nuclear interests.
74. The UK should declare as a national policy that it would treat any use of nuclear weapons as a crime against humanity, and initiate steps to introduce this principle formally into international law⁶⁴. Such an approach would help in establishing an international norm that nuclear weapons must never be used, and would help to stigmatize nuclear weapons, reducing their symbolism as objects of political status and power. It would be an effective measure not only against the state-sanctioned use of nuclear weapons, but also against their use by terrorists or non-state actors. Suppliers and traffickers of technology used in a nuclear attack should be held to account for their actions as well as those who planned and implemented the attack. There should also be a parallel legal obligation on all states to provide assistance to a state which is attacked with nuclear weapons, and bring all those responsible to justice - participants in delivery and decision-making behind the attack and suppliers or facilitators of the bomb-makers and nuclear materials.
75. More significant steps towards disarmament would require a departure from current government policies. There would be undoubted risks in doing this – but as stated above, there are also risks in maintaining the current course. Obvious tangible actions which the UK could take as part of a declared strategy of reducing the importance of nuclear weapons in defence policies, with the eventual aim of renouncing them, would

⁶³ 'Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers'. Gareth Evans and Yoriko Kawaguchi (Co-chairs). Report of the International Commission on Non-Proliferation and Disarmament, 2009. Paragraph 18.47, Page 201.

⁶⁴ 'Security Assurances for Everyone: A New Approach to Deterring the Use of Nuclear Weapons'. Rebecca Johnson. Disarmament Diplomacy, Issue 90, Spring 2009.
<http://www.acronym.org.uk/dd/dd90/90sa.htm>

be to move away from a posture of continuous at sea patrols and to halt the current Trident replacement programme. In order to maximise the value and international influence of these steps, they should be undertaken as part of a high profile initiative to turn the UK into a disarmament ambassador and centre of disarmament expertise aimed not only at accelerating progress towards the goal of a world without nuclear weapons, but also at maintaining the UK's influence on the international stage which is valued by many in government and significant numbers of the public.

Question 3: Conclusion

76. UK government decisions about nuclear weapons since the 1960s have focused on the argument that “now is not the time” to disarm. Sir Michael Quinlan said that decision-makers over several decades have produced “a set of rationales to clothe that gut decision”⁶⁵. The Commission should recognise this, and be willing to challenge assertions that there is nothing further that the UK can do at this time to promote disarmament and non-proliferation without jeopardising security.
77. Momentum towards the goal of a world without nuclear weapons appears to be flagging since the 2010 Non-Proliferation Treaty Review Conference, but there are a number of steps the UK can take to play a constructive role in helping to maintain progress. If the UK is serious in its support for the goal of a world without nuclear weapons, it should make action in support of this goal a Ministerial and diplomatic priority.

⁶⁵ 'Cabinets and the Bomb'. Lord Hennessy of Nympsfield. Inaugural Michael Quinlan Lecture, House of Lords, 2 February 2011. Quotation from Sir Michael Quinlan on page 14.
<http://www.parliament.uk/documents/lords-information-office/2011%20Lord%20Hennessy%20Robing%20Room%20Lecture%20.pdf>