

## **BASIC Special Briefing**

# **Trident**

## **Do we really need to make the decision now?**

By Paul Ingram, Senior Analyst, BASIC 24 July 2006

### **Summary**

The current rush to decide on Trident replacement is unnecessary, reduces military flexibility and interoperability with the United States, further undermines the nuclear Non-Proliferation Treaty (NPT) and stymies an open debate. It also entails commitment to spending when the public finances are likely to come under increasing pressure. There are technical reasons for believing the life expectancy of the existing submarines could be greater than currently estimated, and that the replacement costs could be reduced by avoiding a full replacement programme.

The recent Defence Committee Report called for a full and properly informed debate. It also highlighted that a final decision need not be taken before 2014, provided any delay was for a purpose. This briefing supports that conclusion, while making the case that the 2014 deadline is a conservative estimate and that a longer delay is possible. We also suggest that the purpose of the delay should be:

- To have a proper debate informed by a Green Paper;
- To maximise military flexibility with regard to future uncertain threats, and to avoid premature redundancy of follow-on systems caused by the UK being out-of-step in its procurement timelines with the United States, upon whom we rely for the missile systems; and
- To enable the UK Government to mount a high-profile UK leadership initiative in the international arena to strengthen the NPT and move towards multilateral disarmament (much as the UK has led on climate change and Make Poverty History).

### **Reasons for Delay**

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

- Maintaining maximum flexibility of response makes military sense: if we were to delay we would have a clearer idea of the threats the UK is likely to face when the current system comes nearer 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 Americans and currently planned to run until 2042. 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 was introduced in time to operate alongside.

- 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. 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 to many within the international community.
- Linked to this, one of the key reasons given by some to retain (and replace) the UK nuclear deterrent is to enter international negotiations from a position of strength. Delay, however, 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.
- 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 is going to be dominated by short-term spending concerns. Although the bulk of the procurement spend 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, however, 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 we already know that there is likely to be insufficient procurement budget to meet existing plans for 2011-2020 (Aviation Week & Space Technology estimate a funding gap of £11.6 bn over this period, *Britain Faces Long-Term Military Procurement Crunch*, Douglas Barrie, 16 Jul 06).
- Discussion over this decision has until now been stifled by an information blackout within Whitehall, and a widespread prejudice and political hyper-sensitivity based in the polarised debates of the 1980s. If a White Paper (announcing the government's formal position) is hurried out, and a formal, brief debate held afterwards on its contents (effectively after the decision), the public will feel cheated of any chance to properly influence the issue.

## **The submarines: the weakest link**

It is generally agreed that while the UK will need to involve itself at some point this year or next with the current US plans to upgrade parts of the Trident D5 common missile pool (it is not thought this would incur a large expenditure), the missiles and warhead systems will perform their tasks and not need replacing before 2042. The weakest link of the Trident system is the Vanguard-class submarines. The timetable for decision is based upon their life-expectancy, and upon the lead-time required to replace them.

### **Life expectancy**

The original life-expectancy of the Vanguard-class submarines was determined when they were designed in the 1980s during the Cold War. In its memo to the Defence Committee in January 2006 the MoD stated this to be 25 years for each submarine. Prior to this evidence it had been assumed that the lifetime of the Trident system was 30 years, a figure referred to in the Strategic Defence Review (SDR) of 1998. In evidence to the select committee it was suggested that the *minimum* life expectancy would be 25 years, but that this could be extended to 30. The first boat, HMS Vanguard, was commissioned in 1994, so one could expect it to be in service until 2019, or 2024 with an extension.

However, this does not appear to account for operational changes introduced with the 1998 SDR. These operational changes should lead to reduced stress on both the hull and the reactor steam-raising plant – the two vital elements in the submarines.

Prior to the SDR the stated operational policy was to have either one or two boats out at a time (three in extreme circumstances), and to maximise the number of days at sea. For a significant proportion of time, with the procurement of four submarines, this would mean two boats out at sea. While Britain retained a policy of Continuous-at-sea Deterrence (CASD) under the 1998 SDR, it announced that the UK "will have only one submarine on patrol at a time". While this requires two boats out for short hand-over periods, it significantly reduces the number of at-sea hours for each submarine, in turn significantly reducing the stresses and increasing the life expectancy.

In the Defence Committee's hearing on 28 March 2006, Commodore Tim Hare (former MoD Director of Nuclear Policy and now at Thales) and Mr Peter Whitehouse (Corporate Development Director for Devonport Management) were asked why the Americans could extend the estimated life of their (similar) Ohio-class submarines until 2042, when several had been commissioned prior to our own Vanguard-class. Hare replied that he considered the safety regime for UK reactor plants to be much stronger than for US counterparts, and that the UK safety regime would prohibit any extension beyond 30 years. It is difficult to see how Cmdr Hare can be so certain of this since his own evidence earlier pointed out that the design for the Trident nuclear steam-raising plants was heavily influenced by the failures of those within the predecessor Polaris submarines (which had a similar life-expectancy). If the MoD is certain that the life-expectancy of the nuclear reactors will not be longer than 30 years, they need to inform parliament and the public of their reasons.

Mr Whitehouse replied by pointing out that once the US Administration has completed its current plans the United States will have 14 SSBN boats, seven based on each seaboard. He stated that "the fundamentals, therefore, are that they have a rather less stressful deployment regime. They have far more submarines with more missile tubes deployed more widely geographically. That means their work is less hard". But this makes little sense. The number of missile tubes and the geographic area of operation are irrelevant to life expectancy, while the strain on each submarine depends upon the deployment policy. US operational policy with respect to the number of submarines deployed at any one time is not public, but it would not be unreasonable to assume that they would generally have more than one boat out from each seaboard at any one time. This would place a similar strain on each submarine to those on the UK's, with just one submarine out of four on patrol at any one time.

The main point to draw from the answer given by Whitehouse (representing the company responsible for refitting Trident submarines) is that life expectancy IS affected by operational posture, and we do know that that posture has become significantly less stressful after the changes announced in the SDR.

Not only did the SDR announce that only one boat would be out at sea at any given time, but that readiness would be reduced significantly. This would imply reduced hours at depth, longer hours on the surface, and thus reduced pressures on the reactors and the hulls. The expected life of the submarines, with life-extension measures, could actually be similar to those in the US – more like 40 years rather than the 25 claimed by MoD. At a minimum, the MoD should be pressed to explain this discrepancy between US and UK life expectancy rates.

### **Redundancy and CASD**

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.

The Defence Committee report highlights the option of dropping the CASD requirement. If CASD were dropped then the life expectancy of the existing system would be further extended. While this would be resisted strongly by MoD, as CASD is seen to be fundamental to the British deterrent posture, this needs greater justification in an age where there is no current first-strike military threat to Britain. It is usually said that the UK needs to ensure it has a continuous stealthy capability, as the launch of a submarine in crisis could escalate tensions. However, UK policy appears to value the ability to escalate short of a full-scale attack to send a signal of intent, not least in statements made by ministers in support of the sub-strategic capability (firing

a shot across the bows). Launches of additional boats are likely in a crisis in any case, to increase the number of boats on patrol and maximise flexibility. A full justification of the retention of a policy of CASD is required before a decision is made to replace Trident.

### **A lead-time of six to seven years?**

Britain's nuclear weapons were one of the hottest domestic issues of the 20<sup>th</sup> century. It is inconceivable that the political implications would not have been considered in minute detail by everyone involved before any public announcement was made.

If the purpose of the UK's nuclear weapons is indeed a minimum effective deterrent at greatest value for money, it is surprising that the government perceived a need for a major political debate over replacing Trident in this decade. Even assuming that (a) the stated MoD timelines are accurate (and for the reasons already outlined above, this is doubtful), and (b) the option to replace is considered to be the best option for Britain's security needs (something we dispute, but space precludes a further discussion here), then it would be a great deal cheaper and quicker simply to build three to four replacement submarines based upon existing designs. This could have been termed 'extension' of the current system, rather than replacement—a less controversial formulation both domestically and internationally. It would also mean a dramatically reduced development period, and a shorter time between initial and main gate decisions. Hence, the lead-time would not be 14 years, but more like six to seven, as it takes roughly five years to construct a Vanguard-class submarine. Yet the decision was trailed in the 2003 Defence White Paper, in evidence before the Defence Committee in 2004, was referred to several times in the 2005 General Election. The message was clear that the decision would need to be taken in this current Parliament. This is clearly not the case.

## **Conclusions and recommendations**

The recent Defence Committee Report called for a full and properly informed debate. It also highlighted that a final decision need not be taken before 2014, provided any delay was for a purpose. This briefing supports that conclusion, while making the case that the 2014 deadline is a conservative estimate and that an even longer delay is possible. We also suggest that the purpose of the delay should be:

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## **Appendix**

Questions we would like to see MoD answer formally include:

1. Why is a decision needed so quickly? What sort of lead-times are MoD operating on?
2. What is the current life expectancy of the submarines, and has this life expectancy increased as a result of operational changes since the SDR? (if not, why not?)
3. Why is there such a large discrepancy between US Ohio-class and UK Vanguard-class life expectancy rates?
4. What kind of life-extension work would be required to ensure the submarines were serviceable for a longer period of time?
5. Has there been a recent review of the policy of CASD, and why has the option of reforming the policy been rejected when UK faces no first-strike threat?