Stepping down the nuclear ladder
Options for UK nuclear weapons policy

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A Part-Time Deterrent?
The Case of Continuous-at-Sea Deterrence (CASD)

Discussion paper by Commodore Tim Hare

1. Introduction

For the UK, the cost of our independent nuclear deterrent capability has always been a particularly sensitive issue. Indeed more so than for any of the other declared nuclear weapon states. This is partly due to the continuing debate surrounding our possession of nuclear weapons which is perhaps more polarised than in other nation states. In the midst of a global recession, it is not surprising therefore that commentators should be revisiting the nature of our capability and its related cost. The inherent danger in this is that cost becomes THE driver and the underlying strategic case for an independent nuclear deterrent becomes eclipsed. Indeed in a very short time we could become seduced by the perceived fiscal benefits of a "part time" deterrent at the expense of our core strategic requirement which serves a sole function to deter aggression and in particular nuclear aggression. Promotion of that strategic case therefore warrants some urgent airing in light of some of the reduced capabilities now being assessed by the political and academic establishment.

2. Policy Overview

There is general agreement of the need for a strategic review to define Britain's future role in world affairs and specify both the military capabilities and budget required to meet that role. However the conclusions of such a review are some way off and in the meantime some critical decisions on the nature of the future UK nuclear deterrent will have to be made. For the want of any strong alternative , these decisions will have to be based on two broad premises: First that Britain will continue to actively engage in world affairs. And second that the nation will continue to be a (the?) principle ally of the US and play a continuing major role in NATO (and EU) foreign policy initiatives. With these roles come not only duties, responsibilities and military commitments but a wide spectrum of threats. It is from an analysis of these potential threats that our need for an independent nuclear deterrent capability - as defined in the excellent 2006 White Paper - stems. Unfortunately our nuclear deterrent requirement is often placed alongside other military capabilities in the wider

debate over the huge gap between government commitment and resources. However, these are not military weapons, they are political weapons whose sole purpose is to deter nuclear aggression. Their justification and rationale should not therefore be debated alongside clear military capabilities such as aircraft carriers and Eurofighters in the grab for an overstretched military budget. Embracing Trident in the wider defence debate has already led to both government and the recent IPPR report (*"Shared Responsibilities"- June 2009*) to conclude that somehow we might be able to make do with a "different type" (ie cheaper) of deterrent capability however the strategic case for such a change remains obscure.

Coupled with this is a laudable desire to demonstrate the UK's absolute commitment to the NPT and the global disarmament process. Both these conflate together to re-enforce a view for a reduced or alternative capability. We have not time here to consider land or air based systems, however for the submarine based capability, numbers of hulls and reductions in missile tubes both have perceived cost savings and NPT benefits and are therefore attractive to politicians desperately looking for areas to cut government expenditure with which the country might be comfortable. Both these parameters have led to promotion of alternative options for our nuclear posture and questioning the need to sustain CASD (Continuous At Sea Deterrence - whereby one submarine is at sea at all times with missiles, warheads and a fully worked up crew embarked) which was argued as the fundamental to assured deterrence in the 2006 White paper.

3. Options for deterrence posture

What would be the implications of a reduced nuclear posture in strategic terms ? If we are to pay such a large sum of money for a nuclear weapon capability to deter potential nuclear threats then it is a given that such a capability should be effective ie it should deter a potential aggressor. For a deterrent to be effective, it must be credible. To be credible there must be a clear declaratory policy by government demonstrating its will to use those weapons under certain circumstances coupled with a proven, assured capability so that a potential adversary can be **absolutely certain** of retaliation in the event of nuclear aggression. Anything less and the ability to deter is seriously diminished. CASD underpins both those core requirements demonstrating the will of government to support a posture that ensures that our single deterrent capability is invulnerable to attack (and therefore "assured") and is available to government at all times at a variable notice to fire. There have been a number of arguments put forward- primarily cost driven - questioning the need to maintain such a posture. The strategic case for these requires some careful scrutiny as does the related assumption that money would be saved.

1. **TRIDENT LITE.** This argues for a 2 or 3 submarine force (against the baseline of 4), with a smaller missile compartment with fewer tubes than the standard 16 (already down to 12) and reduced warhead numbers (from the current 160).

Attractive though reductions in missiles and warhead numbers might be in terms of the disarmament agenda, the sole criteria for these numbers must be an analysis of the UK nuclear deterrent criteria and the firepower necessary to meet that criteria. By that we mean, in terms of retaliatory power, what missiles/warheads are required to inflict unacceptable damage and therefore deter all possible nuclear threats over the lifetime of the submarines. Missile/warhead numbers must be based on an assessment of deterrent effectiveness (ie what we need) rather than driven by a disarmament agenda which might render the UK's capability ineffective and therefore not worth having at all. The government has always stated that "when conditions are right then we shall reduce our warhead numbers accordingly". Implicit here is that the nuclear threat will have reduced (through multilateral disarmament measures) and that therefore the UK can afford to reduce its capability accordingly and contribute to disarmament. In the meantime we need to maintain an effective deterrent or better not have one at all.

The wider 2/3/4 submarine debate is driven primarily by the chosen UK deterrent posture (currently CASD). Whilst CASD could probably be sustained with a 3 submarine force for a limited period; guaranteeing that one submarine could be at sea at all times over the 30+ year lifetime of the force would carry some risk. However the related myth is that three submarines will be cheaper than 4. This is not so. If availability criteria is to be maintained throughout the life of the SSBN force (to 2050+ ?) and the risk against catastrophic failure contained, then a 3 submarine force will have to be designed and built to higher standard than 4 resulting in at least equal cost. In any event the cost of 4 submarines is not pro rata with the majority of expenditure actually focused on class design and the first of class vessel.

2. **REDUCED ALERT**. This option envisages an end to CASD and acknowledges that there will be periods of weeks and perhaps months when there is no Trident submarine on operational patrol. Sometimes a Trident submarine would be at sea conducting non-deterrent, conventional submarine operations. The perceived advantages are a more relaxed posture, thereby building confidence and reducing tension, and savings in manpower. However such an option would severely reduce deterrent effectiveness to such an extent that the credibility of our deterrent capability would be bought into question. There are a number of reasons for this:

(i) The primary flaw is the lack of clarity of purpose of the SSBN and therefore its efficacy as a credible deterrent force. Combining deterrent and conventional roles will lead to confusion as to whether the nation has an effective deterrent or not; the answer being: Sometimes we do, sometimes we don't. Would such a

posture deter an adversary? Some argue "yes"; a submarine could in theory be bought to a high state of (nuclear) readiness quickly. However, there is a relatively short limit to readiness extension beyond which the time taken to achieve deterrent alert status would be very long and indeed too long to impact on a modern international crisis. Extensive experience with nuclear submarine operations has clearly demonstrated that changing from an extended readiness posture to operational status is non-trivial and fraught with difficulties – both technical and human – such that regeneration always takes much, much longer than expected. As an example: A submarine deployed on conventional operations would have to return to base port, load and test the missile system, train the crew to operational readiness standard and deploy again – a matter of some weeks or even months, by which time the crisis could well have come and gone.

(ii) Crisis evolution would invite increased visible activity to ready the SSBN force from extended readiness to operational status (ammunitioning, logistics, training etc.). This in turn could destabilise the crisis through misinterpretation by a potential adversary, soliciting unwarranted escalation. In extremis such activity could prompt pre-emptive attack rendering the force inoperative. A highly dangerous consequence of this option.

(iii) An implicit proposition is that the SSBN does not need to go to sea at all and could launch missiles alongside. This argument misses the key point that the primary purpose of the SSBN force is to deter aggression and only in extremis fire its missiles. The question is therefore would a SSBN alongside, in whatever state of readiness, truly fulfil the deterrence criteria particularly in the context of the UK's singular system?

(iv) Crews. The oft forgot "human factor". The SSBN force relies on highly skilled, well trained and motivated men. Detracting from this exacting standard and combining roles with other submarine operations reduces effectiveness. The recent US "Schlesinger" Report re-enforces this view that if you do not continuously train in a realistic manner (i.e. CASD) you lose expertise and focus thereby inviting reduced operational standards and system effectiveness. Furthermore, to sustain harmony and the sea/shore ratio the projected "irregular and unpredictable" patrol routines would very quickly become "regular and predictable".

(v) The option of single submarine crews has major attractions as a cost saver and would be a welcome measure for the Royal Navy. However it has been tried

before and proven to be very difficult to ensure CASD and the continuing effectiveness of the deterrent capability. This latter factor must be the driver. Certainly imaginative manpower models should be considered and single crews may be possible but only as a consequence not as a driver of our nuclear posture.

3. **DE MATED ALERT**. This option calls for SSBNs to operate without warheads embarked. Again the primary danger here is again the impact on deterrent effectiveness. There are elements of nuclear policy where uncertainty can enhance deterrence. Maintaining some level of secrecy over the exact status of missile and warhead combinations (within declared limits eg 48 warheads per submarine) embarked is one. Mystery and uncertainty can in itself cause an adversary to pause and think more carefully about future aggressive action. De-mating would therefore negate this factor of deterrence. Furthermore re-mating of warheads to missiles could be misinterpreted by a potential adversary and accelerate crisis escalation. At the same time, the SSBN would be highly vulnerable to pre-emptive attack once visible measures to embark warheads were started.

4. **CRUISE MISSILES**. A more draconian step would be to abandon Trident and move to a cruise missile based system. It is questionable whether a cruise missile truly represents a strategic weapon (like Trident). Conventional cruise missiles are subject to wide military use and their utility as political instruments of deterrence could be confused. Notwithstanding this, current cruise missiles remain vulnerable to modern defences and do not have the range to prosecute all potential targets. There would therefore have to be major development programme not only to increase the range and minimise the vulnerability but to design and mate the related warhead and provide the necessary storage and launch facilities. In short a programme of huge cost – much more than sustaining Trident.

4. Assurance

Unlike all the other NWS, the UK has only one system, the submarine based Trident missile, on which its nuclear deterrent capability is based. It is vital therefore that this singular system remains effective is able to deter nuclear aggression. If an adversary felt able to disable the capability (and there are a large number of ways that this might be achieved) then the ability to deter is impaired and its purpose lost. Basing the capability in a submarine deployed at sea reduces this risk enormously. The capability is virtually invulnerable to attack before retaliation can be effected and its ability to deter sustained at all times. In the Cold War, assurance was accepted as a necessary prevention measure to a "bolt from the blue" attack. Future scenarios will of course be very different and whilst the emotive language of the Cold War mitigating against a "bolt from the blue attack from the

Soviet Union" may indeed have gone away, SSBNs alongside and their supporting infrastructure do remain very vulnerable to attack by conventional means rendering at best a reduced capability or one at finite risk. Some argue that such a risk – offering 80% or even a 50% chance of successfully launching missiles - would suffice as a deterrent. But such an assumption carries huge risk. We are talking about increasingly desperate situations managed by equally desperate men who might well assume that a sluggish, low readiness, vulnerable force does represent a convincing deterrent at all. With a CASD posture there is no doubt. Maintaining one submarine at sea at all times with the full spectrum of deterrent capability embarked therefore remains the minimum insurance policy required to ensure that our deterrent remains effective. Anything less will invite an aggressor to look very differently on the UK and increase the risk of conflict with potentially catastrophic results.

6. Nuclear Disarmament

Some argue that the proposed posture changes will constitute a positive contribution to global nuclear disarmament. Globally, there remain a very large number of nuclear weapons and a number of countries continue to promote nuclear ambitions. Whilst the recent global disarmament initiatives are very welcome, it is universally agreed that the "zero option" will take a very long time to achieve. The UK already has a minimum capability and operates at a reduced alert status with missiles de-targeted. It is questionable therefore whether any fine tuning of the UK's nuclear posture will really make a difference and impact on the Nuclear Weapon States or other nations with nuclear capabilities or ambitions. Better surely to ensure the continuing effectiveness of the UK's minimum capability while nuclear threats remain, be active in the global disarmament arena and focus on reducing international tension thereby negating the need for nuclear weapons in the long term. When global numbers have reduced considerably such that the corresponding threat is eased; then and only then, should the UK offer cuts in missile, launcher and warhead numbers. To do so now could put us in "no man's land" with reduced effectiveness and no tangible impact on global disarmament.

7. Costs

Proponents of the above measures assume that their implementation would reduce costs. However there is little evidence to support this. Indeed maintaining Trident in line with US policy reaps enormous financial benefits for the UK such that we are able to maintain an operationally independent minimum nuclear capability at relatively low cost. The alternative French example supports this. Once we depart from common ground with the US, particularly in terms of a common design, then costs will rise. Certainly if you choose to expand the roles of SSBNs to embrace other nuclear submarine activity and manage and train the crews accordingly; increased cost will result. The warning here is obvious that the devil lies in the detail and reduction measures that have initial political benefits often have hidden costs which will diminish that benefit. The premise therefore that cost benefits will

arise with these measures is therefore at best not proven and re-enforces the view that only a strategic review should lead to any alteration in nuclear posture. Any alternative system (e.g. land or air) would almost certainly cost more than Trident as brand new warheads, delivery and control systems and shore infrastructure would be required which together with the stringent safety criteria imposed on such a development would render the costs truly prohibitive.

It is also a somewhat naive view that the more extreme decision to cancel the Trident programme would yield strong financial benefits for defence. There are three core reasons against this: First the funding profile is all wrong. Politicians and army generals are looking for funding now and over the next five years to support operations in Afghanistan (e.g. helicopter, armoured vehicles etc.). The main expenditure for the Vanguard class replacement submarines does not kick in until 2014, outside the timeframe and too late for political expediency. Second, the decommissioning costs of dismantling the submarines, warheads and the supporting infrastructure will be significant and eat up much of the Trident budget for years to come. Finally there is absolutely no guarantee that the Treasury will redeploy any savings that might arise from a cancelled nuclear programme to other areas of defence. Indeed the Treasury's view is that Trident expenditure is ring fenced and savings would be taken to support the national economy and not redeployed to support defence.

8. People

The one aspect that is rarely if ever considered in discussing nuclear posture is people. Irrespective of posture, the stewardship of the UK deterrent depends solely on the skill and motivation of our young men and women who man and support the SSBN force. They remain absolutely critical to maintain an effective deterrent and present a real risk factor for the future. The recent US Schlesinger report underlines this time and again. In the UK we invite young men to deploy to sea for 2/3 months at a time, with no communication with home, to train and work very hard to develop the specialist skills required to operate the highly complex Trident system. To ensure generation of this vital resource the nation must offer its unequivocal support to the task that they do and in recognition ensure that they are suitably rewarded in terms of pay and conditions. Maintaining the skills base and Attracting young men to conduct this specialist and taxing task in the future remains a major challenge especially in view of competition from the civil nuclear sector where reward and lifestyle may be perceived to be more beneficial. In any consideration of deterrent posture; the "people factor" will be vital. Any combination of deterrent and other submarine roles will call for highly imaginative manpower models against the more simple approach of focus and dedication to a singular deterrent role implicit in CASD.

9. Conclusion

The UK maintains a single deterrent capability vested in the submarine based Trident system. If such a system is to deter nuclear aggression it must be credible and able to demonstrate the will and capability of government to use those weapons in certain extreme circumstances. To remain effective, the minimum system that we have must remain invulnerable to attack, have the necessary capability to deliver unacceptable damage to a potential adversary and deploy a well motivated and trained crew to execute that capability. The only way to achieve this is through CASD. Anything less would reduce our capability to a "part time" deterrent whose effectiveness - that is the ability to truly deter an adversary from aggressive action - would be seriously impaired to the extent that it is questionable whether it is worth have at all. Furthermore it remains at the very least questionable as to whether any of the 'posture reduction' measures involved would generate major cost savings or make a significant contribution to global disarmament. The ultimate danger is that the UK will spend a very large sum of money in generating a "part time" deterrent which will not deter and that would be a criminal waste of public money. In short the decision is simple: CASD or nothing. A "part time" deterrent just will not do.