

# Stepping down the nuclear ladder Options for UK nuclear weapons policy

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## **Trident: Beyond Continuous-at-Sea Deterrence (CASD) and Strategic Stability**

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### **1. Introduction**

The topic of this paper begs two major questions. One is what does “going beyond CASD” mean both in theory and practice? Another is what is implied by the term “strategic stability”? Many of those who discuss these issues would regard “going beyond CASD” as implying taking steps to strengthen nuclear deterrence, with CASD and its attributes as the yardstick to measure whether these steps enhance it. It is also often regarded as a *sine qua non* for sustaining strategic stability (whatever that may mean). However, this paper will address a somewhat different issue: is CASD the result of decisions taken some decades ago which has conditioned (and imprisoned) our thinking and evaluations of the UK’s current strategic nuclear options (i.e. made the UK “path dependent” in thinking about its strategic choices)? And if this is so, can we disentangle and free ourselves from the constraints of the past and generate different ideas about its strategic doctrines that are more appropriate to the context and challenges of the present and future? This will involve identifying ways to escape the institutional prison of the “sunk costs” and commitments from the past, and moving to new concepts and policies which are no less credible than CASD in sustaining a situation of “strategic stability”.

### **2. Institutionalism<sup>1</sup>**

Political science, in common with the other social sciences, is said to have taken an institutionalist turn in recent years. Institutionalism can be broadly defined as an approach that argues that individuals make decisions within an institutional context which shapes their perceptions and constrains their freedom of action.<sup>2</sup> However, there are a variety of different flavours and each offers a subtlety different account of the causal mechanism which underpins human decision.

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<sup>1</sup> I am grateful to my colleague, Keith Baker, for the substance of this section and educating me in the latest conceptual ideas arising from the Public Administration literature.

<sup>2</sup> Hall, P. and Taylor, R. (1996). Political Science and the Three Institutionalisms. *Political Studies*, 44: 958 - 962

Normative or sociological institutionalists argue that institutions are value structures which impose, through the process of socialisation, 'logics of appropriateness.'<sup>3</sup> These logics provide a normative guide for individuals to determine what is considered to be an appropriate action in a given situation. Rational Choice institutionalists suggest that institutions are created to solve collective action problems and to permit interaction between self-interested individuals whilst allowing them to guard against the risk of exploitation.<sup>4</sup> Historical institutionalists focus on the way in which individuals shape the structure of organizations. For historical institutionalists, individuals create structures which enable and constrain their future actions and this imposes path dependency.<sup>5</sup>

However, Vivian Lowndes<sup>6</sup> points out that normative, rational choice and historical institutionalism offer rather poor accounts of how institutions and policies undergo change. Normative institutionalism claims that social pressures dictate action and therefore individuals will avoid acting in inappropriate ways. Rational choice institutionalism would argue that institutions persist as long as they serve the interests of their members but this does not explain the persistence of organizations. Historical institutionalists also have trouble explaining change as they suggest that action is subject to path dependency. This is particularly important when discussing CASD because the three variations of institutionalism detailed above would simply argue that it is unlikely that the UK could break away from the posture of the Cold war and its associated institutions that mandated the existence CASD.

This dilemma can be resolved by considering a fourth form of institutionalism - discursive institutionalism.<sup>7</sup> Discursive institutionalism argues that ideas constitute an explaining variable in institutional change. In a discursive institutional approach, individuals create and are embedded within institutions which enable and constrain their actions. Although individuals are embedded within an institutional context, their actions are not dictated by the institution. Individuals are deemed to be engaged in a process of sense-making in which they develop a reflective understanding of the world around them. This process of understanding is partially, but not entirely, shaped by their institutional context. As such, individuals are capable of developing new ideas and world-views and these allow them to determine whether or not they should seek to maintain or change institutions.

A discursive institutionalist reproach offers a rather bold assertion: If the understandings that informed the policy of CASD remain valid, then discussion as to the continuation of CASD is moot. However, if it is accepted that the world-view of the Cold war is no longer relevant, then it is necessary to develop new understandings of challenges that Britain faces. This will allow new policies to be developed and political institutions changed accordingly.

### **3. Background**

<sup>3</sup> March, J. and Olsen, J. (1989). *Rediscovering Institutions: The Organizational Basis of Politics*. New York: The Free Press.

<sup>4</sup> Weingast, A. (1996). Political Institutions: Rational Choice Perspectives. In R Goodin and H. Klingemann (eds.) *A New Handbook of Political Science*. Oxford: Oxford University Press

<sup>5</sup> Hall and Talyor, op. cit.

<sup>6</sup> Lowndes, V. (2002). Institutionalism. In D. Marsh and G. Stoker (eds.) *Theory and Methods in Political Science* 2<sup>nd</sup> Edition. Basingstoke: Palgrave Macmillan.

<sup>7</sup> Schmidt, V. (2008). Discursive Institutionalism: The Exploratory Power of Ideas. *Annual Review of Political Science*, 11: 303-326.



CASD as the optimal concept for basing nuclear missiles at sea arose in the mid-1950s from a very specific context: the experiences the US and USSR had of being subjected to a devastating surprise conventional attack in the previous decade, as well as their evaluation of the consequences of nuclear war. The vulnerable above ground missile and aircraft delivery systems they then possessed appeared to offer a major incentive for mounting a pre-emptive disarming first strike against each other either before or during a security crisis, in the belief that this would significantly reduce nuclear retaliation against its territory and that of its allies. CASD was seen as the solution to this crisis instability, as submarine missile platforms offered a guarantee of them being invulnerable to pre-emptive attack. This in turn meant the survival of a retaliatory force sufficient to negate the anticipated advantages of such an attack, and thus act as an effective deterrent to it. One consequence was the initial deployments at the end of the 1950s of the US Polaris force, and the UK decision in December 1962 to move its national strategic deterrent force to a submarine based Polaris one by the end of that decade.

The invulnerability of missile submarine platforms while at sea (except for unanticipated collisions with other SSBNs) has continued to this day. Indeed from the mid 1960s onwards the vulnerability issue became focussed on their missiles and warheads in flight, rather than the submarine platform. The concerns generated by the slower and lower least energy trajectories of the UK Polaris force and the vulnerability of its warheads to x-ray effects was reduced initially by the Chevaline programme, and then ameliorated further by the deployment of new submarines armed with the faster and higher trajectories of Trident in the 1990s. The submarines with their 16 missile tubes and the missiles with the potential to carry up to 14 warheads appear to be largely future proof, as well as having in theory a global reach.

In parallel to these developments, the forces of the Warsaw Treaty states were perceived to have a conventional advantage over those of NATO, and US and UK nuclear weapon were deployed on NATO territory in Europe to negate that advantage. The relationship between the roles played by these sub-strategic (or tactical / battlefield) nuclear forces and the strategic ones was a subject of considerable debate, and remains so. However, in the European context a major role of NATO's sub-strategic nuclear forces was that of a credible security assurance that the US would be prepared to defend its allies and deter its enemies with nuclear weapons in the event of conventional aggression.

The UK and US missile submarine forces were already 30 years old when the Cold War ended, and are now nearing their half-century. Their inter-relationship has been enhanced in recent years by the relative lack of funds provided for the US force compared to the past. This has been allied to the willingness of the UK government to move ahead of the US in refurbishing its military nuclear infrastructure, especially its human resources, and starting design work on a new fleet of submarines and their reactor. At the same time, the role of the UK Trident fleet "assigned" to NATO in providing assurances to its NATO allies appears to have been enhanced in relative terms by the reductions in the numbers of US missile submarines based on its Atlantic coast and the reluctance of France to join the NATO Nuclear Planning Group. And although some US nuclear gravity bombs are reported to remain on European soil, albeit at a low state of readiness for use, the UK made it clear in its White Paper on the replacement of Trident in 2006 that it now regards its Trident force as having a

purely strategic role in both the national and NATO context. In short, it is a backstop to be deployed only in extreme crisis situations.

#### **4. How has the strategic environment changed and what might the implication of these changes for CASD?**

50 years after the deployment of US SSBNs and 40 years after UK ones, the institutional arrangements under which they operate in the European region, including CASD, remain largely unchanged, together with the conceptual ideas underpinning their operations. This leads one to ask a number of pertinent strategic and practical questions:

- ***Should the conceptual basis for the UK / NATO nuclear deterrent force continue to be the maximisation of the invulnerability of its missiles to destruction in a pre-emptive strike, and thus to sustain crisis stability?***

The Cold War period represented a step change in warfare, as prior to 1941 the assumption had been that war would be formally declared during, or followed by, a process of mobilisation, and initial UK planning of storage for its initial nuclear bombs assumed that they would be held in two central stores, and released for use as a conflict escalated. Under current circumstances it appears reasonable to assume that any war in Europe or direct threat to the UK, as against a terrorist strike, would involve a period of increasing political tensions and escalatory conventional conflict. In such strategic circumstances the main advantage of CASD appears to rest in sustaining the need for four platforms and maintaining three in progressive states of operational readiness, rather than in having only one, if possibly two, at various states of readiness for immediate action (i.e. keeping the “fleet in being” operational).

- ***If the current fleet is on several days notice to fire under CASD, what is the difference between this situation and having it docked at Faslane on several days notice to surge into the Atlantic or fire from Loch Long?***

Arguably there is very little difference in theory, and there has been no suggestion that the change after 1998 has resulted in any loss in the credibility of the deterrent or in an enhanced threat to strategic stability. In practice, however, there may be a significant difference in the balance of advantages and disadvantages. CASD is a system proven to sustain the capabilities of three missile submarines at a high operational level over long periods of time. Its abandonment could lead to problems of manning, sustaining operational efficiency and crew morale, as well as pressures to reduce numbers of boats in operational condition as against in various stages of reserve. The advantages of abandonment on the other hand may be that individual boats are at sea for lesser periods of time each year, and thus the life of the boat and its reactor might be open to a significantly extension beyond that assumed on the basis of CASD, dependent on the specific technical considerations that determine the safe operational life of the boats.

- ***How might the current Trident submarines be deployed on a basis other than CASD?***

##### **a. UK Aircraft Carrier Operations as a Template**



An alternative to CASD could be the way the *Illustrious* class aircraft carriers have been operated over the last two decades, with one operational, one in refit and one in reserve. In the case of Trident this would mean having either:

- two boats operational, one in refit and one in reserve; or
- one boat operational, one in refit and two in reserve.

It might also imply increasing the warhead loading of the operational boats (with possible consequent problems for US-Russian Federation arms control arrangements if it was believed necessary to test the new loading), and that a replacement system would only need three boats (or perhaps only two, as with the new aircraft carriers) and possibly an increase in missile loads. Also, as with the aircraft carriers, the patrol periods could be varied and procedures put in place to either ensure that operational boats are at sea or move to positions close to Faslane where they would be capable of firing their missiles in an emergency.

*b. Placing Trident in Reserve*<sup>8</sup>

At the extreme end of the range of options is the one hinted at in the 2006 White Paper of the entire UK force being “in reserve” (i.e. not needed for deterrent purposes in the immediate future, but able to be regenerated at some point in the future). At least one French writer suggested this status for the French force in the mid-1990s. The obvious issue here is how in practice such a “care and maintenance” situation could be sustained beyond one or two decades, not only in terms of the technology and industrial infrastructure itself but also the human skills involved.

*c. Converting the Trident fleet to either attack or conventional cruise missile operations with a capability of reverting to nuclear operations at short notice*

This is an option implemented by the USN for the *Ohio* class submarines decommissioned from their nuclear deterrent role under existing US-Russian Federation arms control agreements. In the US case, all the missile tubes have been converted to launch cruise missiles, together with their associated fire control systems. There appear to be three options if the UK decided to go down this path in order to sustain a full operational capability to re-deploy its nuclear deterrent out of “reserve” at short notice:

- to follow the US lead, and convert all the tubes in all or some of the UK boats for cruise missile launch and place nuclear warheads capable of equipping them in reserve or “escrow” at Coulport or elsewhere ready for uploading in a crisis situation;
- to convert only a proportion of the tubes to be capable of cruise missile launch, and retain the remainder in their existing Trident missile configuration, but with no missiles embarked; and with a boatload of missiles and nuclear warheads stored at Coulport or elsewhere. This dual-role (or triple role if its residual attack submarine capability is included) capability might generate issues of the need for additional space for new equipment and increased complexity, but it would sustain an operational missile submarine fleet into the indefinite future, and one that could be converted to Trident nuclear missile use at relatively short notice. It might also be possible to envisage monitoring of the emptiness of the missile tubes as part of any future disarmament negotiations;

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<sup>8</sup> I am grateful to William Walker for discussing this option with me a few months ago.

- to retain the whole or a proportion of the missile tubes for Trident operations, but equip the missiles with conventional warheads for rapid global strike in association with the US, and store nuclear warheads for them at Coulport and elsewhere. Although arguably this is the simplest way of placing the nuclear deterrent “in reserve”, much may depend on the outcome of the current US nuclear posture review and the degree to which both the US and the UK choose collectively to move down this path. This could be especially relevant if it was seen as a way of sustaining the UK’s extended deterrence “assignment” to NATO.
- ***Does the attack submarine fleet fitted with cruise missiles offer the possibility of an emergency nuclear deterrent pending the regeneration of the Trident submarine fleet***

This is the least attractive option for moving from CASD, although it may offer an emergency solution to regenerating a UK nuclear force at short notice in a situation where the Trident force was “in reserve” on a care and maintenance basis. The latter might itself release some attack submarine capacity for such a role, but it would generate both technical and arms control issues. The technical ones will arise from the problems of storing the warheads in the submarine; its probable enhanced vulnerability to anti-submarine attacks compared with the Trident boats; and the complications it would generate for future arms control negotiations and agreements, unless stringent verification measures were in force to assure others that in normal circumstances none of the UK attack submarines were carrying nuclear warheads.

## **5. Three Collateral issues: Nuclear Threats, NATO and the US 2009/10 NPR**

### *The enhanced threat to a more static deterrent force*

Any counterforce targeting of the UK under CASD may involve Plymouth where Trident boats are refitted, but this is unlikely to significantly affect the UK’s immediate deterrent capability. With adequate warning, it has to be assumed that in a crisis at least two boats will be absent from Faslane, and possibly all three, and thus Faslane and Coulport will also not be targets to greatly affect the UK’s ability to mount a counter-strike, and thus sustain nuclear deterrence. Without CASD, however, the situation may be different. If submarines are in reserve at Faslane they may be seen as attractive targets for a nuclear damage limiting strike, as could be Coulport and any other bases where submarines, missiles or warheads are believed to be stored. In the same way, any switch to a cruise missile force based on the attack submarine force could expand the number of targets, and thus widen the size of a potential counterforce attack. Thus whereas under current arrangements such an attack can be assumed to focus on Faslane and Coulport and the three operational submarine platforms, under other arrangements the threat to targets in Scotland could in theory increase (three / four submarines in reserve tied up to the quay at Faslane or at Rosyth) to a much wider range of potential targets (all attack submarines being potential nuclear cruise missile carriers, with basing in Plymouth and Faslane, as well as possible other sites (and to cover Asia from the Indian ocean with a depot ship?).

### *The assignment of the Trident Fleet to NATO*



Although politically the UK Trident fleet is characterised as a national deterrent force, and operationally the chain of command for use has to pass through the UK PM before orders to fire, including NATO ones, will be implemented, the immediate direct inter-state (as against terrorist) threat to UK territory appears remote. Moreover, in peacetime the force has been assigned to NATO via SACEUR and SACLANT or their successor commands for the last 40 years. One implication of this is that the UK force acts as a nuclear security guarantor (alongside the US Atlantic force and to some extent the French one) to all NATO (and EU?) countries, especially those like Turkey on its periphery and bordering unstable zones of crisis such as the Middle East. Thus any change in the operational mode of the fleet away from CASD could in theory detract from or reinforce the security assurances NATO offers to these states. Judgements on this could be heavily dependent on the state involved (e.g. the Russian Federation or Iran); the nature of the dispute generating the crisis; and the ability of the force to send a direct message to any aggressor state (e.g. by surging a submarine force or moving sea or land based air launch platforms for cruise missiles closer to the area of crisis).

The impact of any UK changes in CASD will be affected by the nuclear-related elements of the review of NATO strategic doctrine currently being undertaken in Brussels. Indeed one key issue in this situation is the degree to which the UK should think of its deterrent in national or alliance terms, and if the latter make any decisions on it in terms of the threat to NATO states collectively, rather than to the territory of the UK. There seems little doubt that if the force is thought of in collective NATO terms, the threat of an effective surprise attack on the UK force is significantly reduced, as the geographical distances between the European and US based elements of the force make the concept of a surprise attack very difficult to implement given modern communications. This proposition would be further strengthened if missile defences were to be deployed in Europe.

### 3. The US 2009/10 NPR

This review is currently underway, and part of its remit will be to evaluate the desirability and practical possibilities for reducing the role of nuclear weapons in US strategic thinking, and also the types of high-alert and deployable nuclear forces the US requires through to the next decade. Two specific decisions may be relevant to the future of the UK CASD: the future of the remaining US gravity bombs in NATO Europe and the numbers of operational *Ohio* SSBN's on the Eastern seaboard (currently five). On the one hand if the US itself decided to abandon CASD in the Atlantic as a consequence of the review, this might make it easier politically for the UK to follow in its footsteps. At the same time it would suggest the need for closer co-operation between the two states (and France) to reduce its impact by co-ordinating the scheduling of its patrols to ensure a minimum number of allied SSBNs are operational in the Atlantic at any one time. Also, any removal of US nuclear weapons from Europe would place greater weight on the NATO SSBN forces to provide a credible nuclear security guarantee for all its members in all circumstances, which may reinforce the argument for sustaining CASD. Thus any UK decision will almost certainly be influenced by the contents of the US NPR, but to what extent and in what way will have to await the release of the sanitised version of this document.

## **6. Some Initial Conclusions: CASD and Deterrence Stability**

UK CASD persisted initially because the nuclear strategic environment, and the threat perceptions inherent in it, remained relatively unchanged from its inception in the US in the late 1950s to the period after 1991. At that stage bureaucratic inertia and the sunk costs of the Trident fleet (path dependency) continued to sustain it, despite the UK Strategic Review in 1998 which reduced the numbers of warheads carried by the nuclear force, foreshadowed its reduction to an SSBN force alone, and removed it from an immediate alert status while on patrol. As the UK embarks on a new strategic review in 2010, it is thus appropriate to ask the question whether CASD is a necessary condition for sustaining the UK's nuclear deterrent capabilities in the next decade.

What is clear from the brief analysis above is that the practical distinction between having a CASD on several days alert and having a force operating on a basis other than CASD may not be great. In the one case it may be days before a submarine received an order to fire and / or moves to a suitable firing position. In the other, it may take a similar time for a submarine to travel down Loch Long and move to a suitable firing position. The key differences may be their vulnerability to a pre-emptive first strike "out of the blue" with no intelligence warning. A key judgement therefore is whether this scenario continues to be valid for planning purposes, and thus determines how the Trident fleet is operated.

Perhaps more interesting and significant, however, are the number of options which can be identified which fulfil the essential infrastructure, operational and human resource requirements currently fulfilled by CADM without operating the Trident fleet in this way. Four distinct options are listed above which arguably fulfil these requirements. All are based on templates from RN operations in other areas in the past, in particular adapting existing hardware to new roles, such as the creation of Commando carriers out of Light Fleet carriers in the 1960s. The key requirement appears to be to either to convert the Trident submarines to non-nuclear roles, while retaining an ability to revert to their previous nuclear missions, or converting submarines with dedicated conventional roles to having an emergency capability to perform nuclear ones. At this stage, the possibility of a nuclear role for the surface fleet, and particularly its new carriers, has been excluded.

All the options listed above have both advantages and disadvantages. At this stage, the purpose of this paper is not to arrive at any conclusions, but to open out the debate as to how the future of the UK nuclear deterrent and the path to global nuclear disarmament might be "imagineered". However, converting the current Trident submarines into hybrid "arsenal ships", with an immediate role of being a cruise missile carrier, and a reserve position of being able to re-role as a nuclear missile carrier at short notice, may be one which deserves further examination, particularly in terms of its consequences for the UK's disarmament stance in relation to the nuclear non-proliferation regime.