

# Nuclear dependency

*John Ainslie*

*John Ainslie is coordinator of the Scottish Campaign for Nuclear Disarmament. These excerpts are from The Future of the British Bomb, his comprehensive review of the issues raised by nuclear-armed Trident missiles carried on four British submarines, and their possible replacement, or not. He begins by examining Britain's dependence on the United States for parts for Trident's warheads. Published by the WMD Awareness Programme, the full report is available online ([www.banthebomb.org/future.doc](http://www.banthebomb.org/future.doc)).*

The British Government acknowledges that Trident missiles are leased from the United States but claims that they carry British warheads. This description is questionable. The warhead is a copy of the US W76. A report by the Public Records Office refers to the Anglicisation of an American design. Several key components are produced in America. The warheads on Royal Navy Trident submarines could be more accurately described as Anglo-American rather than British.

The Neutron Generator is one vital part. It contributes to the initiation of nuclear fission. The MC2989 Neutron Generators initially deployed on British warheads were overhauled in the US in 1999. This implies that they were built there. A replacement Neutron Generator, MC4380, was manufactured in America and supplied to Britain in 2002. The Gas Reservoir in the warhead supplies tritium to boost the fission process. The reservoirs on British warheads are filled with tritium in the US. These are difficult components to build. This suggests that the reservoirs in British warheads are manufactured in America. The Arming, Fusing and Firing System triggers the warhead. The model used on British warheads was designed by Sandia Laboratory and almost certainly procured off-the-shelf from America.

The Trident system operated by Britain is not identical to that deployed by the US Navy, although it is very similar. One difference is the type of high explosive in the British warhead. US nuclear weapons laboratories are playing a critical role in assessing the long-term performance of this British explosive. A second difference is the Fire Control System. British submarines carry a slightly different model. But all the hardware and software for it is created in America. It is significant that, even where the British Trident system differs from the American version, US support is essential.

The US role in handling tritium and making the Neutron Generators is known from publicly

available American sources. Yet when asked about these issues in Parliament the Defence Minister refused to answer, on grounds of national security. Successive governments have withheld information to conceal dependence. There is a deliberate attempt to create ambiguity over the extent of dependence. The true limitations of independence are concealed. This is consistent with the policy of uncertainty that lies at the heart of British nuclear policy.

Reliance on American support is not only of historical and current significance. It will remain a crucial factor so long as Britain remains a nuclear-weapons state. The terms of the Mutual Defence Agreement [between the United Kingdom and the United States] constrain how information and material that has been exchanged can be used. The British nuclear weapons establishment today is almost entirely dependent on this information. Any future nuclear programme will build on what exists today. It will be subject to the same limitations and must be in the mutual defence interest of both Britain and the United States.

A truly independent nuclear weapons programme is not an option. A future system might be more or less dependent on US support than at present. Current and future US Administrations will determine the degree of independence. Also, the US can probably restrict the independence of the system in service, should there be a change in policy in Washington.

### **Targeting systems**

In 1988, the National Audit Office reported that it was essential that Trident targeting software be produced in Britain. As Trident entered service it was revealed that 'contractor support' had been required to complete this work. This contractor support almost certainly came from the United States.

Targeting data on British Trident submarines is processed in the Fire Control System by software produced in America. This data is created in the Nuclear Operations and Targeting Centre in London. The centre relies on US software. In 2002 the Fire Control Systems on British and American Trident submarines were modified. Just before this the computers in the London targeting centre were upgraded. The American applications used for target planning and for fire control are complex and unique. It would be possible for US programmers to modify the software supplied to Britain, either openly or covertly, to restrict how Trident could be used. Even those who operate the system may not have an accurate perception of its dependence. The British Trident system is only as independent as Washington wants it to be. It could be argued that constraints on independence would be consistent with the Mutual Defence Agreement.

British warheads can be integrated into US attack plans. There are special arrangements for supplying US nuclear targeting information to Britain. The United Kingdom Liaison Cell at STRATCOM [Strategic Command] headquarters in Omaha plays a central role in this process. US support may also be required to produce plans for an independent attack.

The Nato Nuclear Planning System is a mechanism for preparing attacks by nuclear-armed aircraft. The crucial systems for targeting Britain's Trident force

are bilateral. While there will be links between the British system and Nato headquarters, the essential networking is between London and the headquarters of STRATCOM. The instructions to order the use of British weapons are not issued in the form of Nato Emergency Action Messages, but through a unique system.

Trident missiles can only achieve the required level of accuracy if a special forecast of the weather over the target is available. This is supplied to British and American submarines in compressed messages transmitted every 12 hours by the US Navy. Trident also relies on gravity information from US sources. Without this weather and gravity data the missiles would be less accurate.

British Trident submarines are normally on a state of alert measured in days. There is a substantial American presence at the Northwood headquarters from where British submarine operations are controlled. If the alert state of British Trident were raised, the US would almost certainly know. This would give them several days' notice of any British nuclear attack.

Communications with British Trident submarines can be made through British or Nato systems. In addition there are bilateral systems. These are likely to be used for key data. Submarines can receive messages on a wide range of frequencies. In future it will be possible to use Extremely High Frequency (EHF), but only through a transmitter on an American satellite. EHF is important because it is considered to be less vulnerable than other systems during a nuclear war.

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### **The effects of nuclear use**

A single Trident warhead used against a military installation, such as a naval base in Northern Russia, could cause around 23,000 civilian fatalities. If the target was inside a city then there could be 150,000 – 200,000 deaths. If the warheads from one British submarine were exploded at military targets in the Moscow area, most of them outside the city, this could result in around 3 million deaths. This figure would rise to between 9 and 30 million if the warheads on all three armed submarines were detonated. These figures only include short-term fatalities. The long-term effects of radiation, environmental damage and the destruction of infrastructure would substantially increase the death rate. Studies have shown that a US counterforce attack on strategic military targets in Russia would result in massive civilian casualties. The raw figures do not give a true picture of the horror that would be inflicted on individual women, men and children. The photographs and accounts from Hiroshima and Nagasaki provide a glimpse of the monstrosity of nuclear weapons.

#### *Accident*

A US study distinguishes three types of nuclear accident scenario. The first situation is an unauthorised launch of a weapon by a rogue commander or a terrorist. The second is where a launch takes place by mistake, as a result of a training accident or a system malfunction. The third scenario is where incorrect information results in an intentional launch.

A number of situations fall into this third category. There could be an error or malfunction in the early-warning systems which are designed to detect a missile attack. A non-threatening event could be misinterpreted. There could be a false perception that another country had launched a nuclear attack, or a misperception that a nuclear weapon had detonated within the homeland. Lastly, a training attack could be misinterpreted as a real attack.

The report touches on the connections between the possession of nuclear weapons, relations between Russia and the US, and the risk of accidental use. It suggests that de-alerting moves could improve relations between the two countries and so provide a basis for more substantial measures. It recommends that several immediate unilateral measures be taken within 6 to 12 months. One proposal is to move Trident submarines further from Russia. Britain's Trident force is not mentioned, but for geographical reasons it could be seen as a particular threat because of the proximity of patrol areas to Russia.

The analysis concludes, 'The risk of accidental or unauthorised nuclear use is too high given the markedly improved relationship between the United States and Russia. This is in part because nuclear weapons now play a role out of proportion to other aspects of the relationship'. Adherence to nuclear deterrence is an obstacle to progress towards lowering risks and improving relations – 'A central reason for the phased approach is that some options for improving safety would push too far beyond current deterrence practices and orthodoxies to be acceptable'.

The risk of a nuclear weapons accident has been considered particularly in the context of the large American and Russian arsenals on a high state of alert. But the dangers also apply to other nuclear powers. For Britain's part there is a need to recognise that our nuclear weapons contribute to the risk of an accident. Also each step that we take towards disarmament will contribute to building a better relationship with Russia. What is blocking progress is continued adherence to outdated and dangerous theories about nuclear deterrence.

### **Financial costs**

Cost will be a major factor determining the future of British nuclear weapons. Michael Quinlan [civil servant] concedes that if today he had to decide whether or not to embark on the Trident programme then the cost would not be justified. Admiral Sir Raymond Lygo suggested that the cost of Trident should be capped at a level relative to the threat from Russia and China.

A complete rebuild of a Trident-like system would cost over £15 billion. If the submarines are replaced, each one would come with a price tag of more than £1 billion. A substantial warhead upgrade would be very expensive and building a new weapon would cost more again. A significant proportion of any new expenditure would go to American contractors.

The official estimate of the annual cost of the nuclear weapons programme is between 2 and 3 per cent of the defence budget. This is equivalent to between £700 million and £1 billion each year. Taken over the 30-year life of a system this adds up to between £21 billion and £30 billion, more than the capital cost.

The substantial overheads of the nuclear-powered submarine programme are partly due to Trident and partly to the conventionally-armed force. The primary mission of the latter is the protection of Trident. There are huge potential savings to be made by giving up nuclear-powered submarines. Estimates of the cost of decommissioning defence nuclear facilities have increased several times in recent years. The long-term costs of storing nuclear waste will increase with each year Britain continues to have nuclear weapons and nuclear-powered submarines.

In assessing the cost of upgrading Trident, or acquiring a replacement, the budget should include not only capital costs but also the total revenue cost throughout the planned life of the system, including decommissioning.

*References available on request*



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# **Campaigning Against Nuclear Replacement to Trident**

**Billy Hayes**  
General Secretary

**Andy Kerr**  
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