Modernisation of UK nuclear forces

The UK is sometimes seen as being more open and transparent than other Nuclear Weapon States. However, as someone who tries to carry out detailed research into this area, through questions in Parliament and Freedom of Information requests, I often find getting answers is like trying to get blood out of stone.

Trident is an Anglo-American nuclear weapon system. All aspect of this Anglo-American system are being modernized. In each case what is happening in the UK is linked to developments across the Atlantic.

With regard to nuclear warheads there is a two stage programme. The current warhead is similar to the US Mk4. The US Navy is upgrading their warheads to Mk4A and there is a parallel programme in the UK which is at an advanced stage today. The second stage is the development of a new warhead which is due to enter service in the 2030s.

Britain has been reluctant to acknowledge the existence of the Mk4A programme. I drafted questions for MPs which were asked in Parliament in 2002, 2006 and 2007. In each case the respective minister failed to acknowledge the existence of the programme.

In 2007 the nuclear weapons factory at Aldermaston were recruiting a Warhead Engineer. The advert on their website only referred to the engineer working on a system. But the version circulated to several recruitment agencies included the words Mk4A. As a result of media coverage of this, the government were forced to acknowledge that the upgrade was taking place. But even today they are trying to conceal the true scale and cost of the programme.

There is a considerable amount of information in the public domain on the equivalent American Mk4A upgrade, and this shows that it is a significant change to the warhead. The new version will have a near-ground burst capability, meaning it can be detonated lower than 250m. The original Mk4 could be used in a ground burst, but this was not reliable – this reliability issue has been resolved in the new version. The combined effect of these changes is to make Mk4A much more effective against hardened targets such as command bunkers and missile silos.

Aldermaston are also developing a new warhead, which has a working title of the successor. The government are keen to say that they have not yet taken a decision on building this new warhead. I suspect that if they were being more honest what they would say is “we are going to build a new warhead, but we have not yet decided between a number of possible designs”.

In June 2007 David Gould, who was in overall charge of all aspect of the UK nuclear modernization programme gave a talk to industry leaders. I obtained a copy of his speech. In the initial version several words were redacted. After a Freedom of Information review these words were disclosed – and this showed that the plan is “to replace the entire Vanguard class submarine system including the warhead and missile.”

The American defence budget reveals some of the work which is being carried out for this new warhead. Aldermaston are working with the US Navy and the US Air Force on a new Arming, Fuzing and Firing System. There is also Anglo-American research into new Gas Transfer Systems, new Neutron Generators, and new surety features.
There is also a two stage development with regard to missiles. Britain does not have its own ballistic missiles, Trident is borrowed from the US Navy. The Americans are upgrading D5 in a Life Extension programme, to DSLE. DSLE will have a new guidance system and a new flight control system with advanced electronics. The new missiles will be able to “support new missions” and “allow for mission adaptability”.

If we look at the total effect of the short term changes, between 2010 and 2018, we see that while the number of warheads per submarine will reduce, from 40 to 48, this is offset by upgrades to the warhead and missile. There are also upgrades to the fire control and navigation systems. The combined effect is to improve accuracy and reliability. The modernized system will be more effective against hardened targets. So fewer warheads can destroy the same number of hardened targets.

The second phase is the development of a new missile. Trident D5 is due to be withdrawn from service around 2040, whereas the Ministry of defence are planning to have a new submarine in service until the 2060s. This means for most of its life it would be armed not with Trident, but with a new missile.

In December 2006 Tony Blair’s government revealed their plan to build a new class of nuclear-armed submarine. They claimed that his was all they were doing – playing down the intention to develop new warheads and new missiles. The plans for a new “successor” submarine were taken forward by David Cameron’s government. In 2010 the Ministry of Defence announced that the successor submarine would have a new reactor, PWR3, this will have the effect of extending the possible life of the new vessels, well in to the 2060s. PWR3 is based on a US design and several other major sections of the submarine will also be of American origin.

The modernization programme has also included redevelopment of the infrastructure supporting nuclear forces. The main element has been the comprehensive rebuilding and refurbishment of the Atomic Weapons Establishments two sites at Aldermaston and Burghfield, which is taking place from 2005 until 2020.

Over the past 10 years Uk governments have tried to pretend that all this has nothing to do with any plan for a new warhead. However a document has surfaced from 2002, which clearly refers to some of the new buildings as “facilities for a successor system”.

In the face of this massive modernization plan it would be easy to feel pessimistic, but there are two reasons to be more positive. One is that today, in a time of economic crisis, Britain taxpayers are being asked to fork out 2 billion pounds a year on nuclear weapons. The current plan stretches over 50 years – and over this timescale they could be wasting 100 billion pounds, before inflation.

The second reason for optimism is that there has been a political earthquake in Scotland. The Scottish National Party have a clear majority in the Scottish Parliament. They will hold a referendum on Scottish independence in 2014. Trident will be a major issue in the independence campaign. The Scottish National Party, the clear majority of the population, and most organisations in civic Scotland are firmly opposed to nuclear weapons. I wrote a paper at the start of this year which shows conclusively that there is no realistic alternative site for Trident in England, Wales, France or the United States. Because there is Nowhere for Trident to Go, Scottish independence would mean nuclear disarmament for the United Kingdom.