

# REPLACING TRIDENT TWO YEARS ON: WHAT HAS HAPPENED?

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In December 2006 the British government released a White Paper announcing its intention to begin the process of replacing its current Trident nuclear weapons system, thereby enabling it to retain nuclear weapons well into the 2050s. The decision to begin this process was endorsed by parliament on March 14, 2007. Two years on and the programme is well underway with important and expensive decisions looming that require parliamentary scrutiny and oversight.

This fact sheet sets out key developments affecting the Trident replacement programme since parliament voted in March 2007 and highlights future decisions for parliamentary scrutiny and debate.

## 1. Successor submarine programme

### Parliamentary vote:

On March 14, 2007 Parliament voted in favour of initiating a process to procure a new fleet of ballistic missile submarines to carry Trident missiles. The Ministry of Defence procures new weapon systems according to its CADMID cycle of Concept, Assessment, Demonstration, Manufacture, In-service and Disposal. The decision endorsed by parliament in March 2007 to begin the process of commissioning new submarines to carry the Trident missile into the 2050s authorised the first 'Concept' phase only. Prime Minister Tony Blair stated during the Commons debate that "we need to take the decision today if we want to get parliamentary approval for the work that has to begin now on the concept and design phase – of course, the actual contracts for the design and construction are to be left for a later time" and that "It is absolutely right that this Parliament cannot bind the decisions of a future Parliament and it is always open to us to come back and look at these issues."<sup>1</sup> The government plans to complete the first new submarine by 2022 so that it can enter service in 2024 after two years of sea trials.

### MoD team set up:

In October 2007 MoD's Defence Equipment and Support (DES) department formally established a Future Submarines Integrated Project Team (FSM-IPT) to develop a concept design for a new submarine over two years. It is based in Barrow at the BAE Systems Submarine

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Solutions site and manned by 128 people from MoD, BAE Systems, Rolls Royce and Babcock Marine and works with the FSM IPT office in MoD's Abbey Wood offices.<sup>2</sup>

The procurement of the new submarines is being managed by MoD as part of a wider programme to manage the future provision Britain's nuclear arsenal. Responsibility for delivering the overall 'future deterrent capability' rests with the Director General Equipment in MoD's Defence Equipment Support (DES). The Director General Equipment chairs the Strategic Deterrent Programme Board and is accountable to the Defence Management Board for the integration and delivery of Britain's nuclear force. He allocates the budget for the future submarine programme through the FSM-IPT as well as the UK's contribution to the Trident II (D5) missile life extension programme in the United States and the ongoing programme of investment in facilities and skills at the Atomic Weapons Establishment in Aldermaston.<sup>3</sup>

### **MoD funding:**

MoD's Investment Approvals Board approved a budget of £309.45 million for the concept phase work on the submarine platform and propulsion plants (£130.5 million from 2007-2007 to 2009-2010 on platform and £179 million on propulsion plant).<sup>4</sup> Overall spending on the Trident replacement programme is expected to be £200 million in 2008-09, £300 million in 2009-10, and £400 million in 2010-11.<sup>5</sup>

In 2006 the government's cost estimates at 2006/07 prices for replacing the Trident system were:

- £11-14 billion for four new submarines.
- £2-3 billion for the possible future refurbishment or replacement of the warhead.
- £2-3 billion for infrastructure over the life of the submarines.
- Costs of around 5-6% of the defence budget (£1.6-2 billion/year) for In-service costs for a four-submarine fleet and the costs of AWE Aldermaston.
- £250 million to participate in the US Trident II missile life extension programme.<sup>6</sup>

In November 2008, however, MoD's Permanent Under Secretary Sir Bill Jeffrey stated that the costings set out in the 2006 White Paper on Trident replacement were only 'ballpark estimates'.<sup>7</sup>

### **Vanguard submarine life extension:**

MoD initiated a Vanguard Life Optimisation Programme (VLOP) to examine the planned five-year life extension of the submarine fleet. The programme "remains an area of considerable uncertainty, with the potential for rapid cost and risk growth" according to the National Audit Office. MoD's Chief Strategic Systems Executive has so far spent £3 million on preparatory studies.<sup>8</sup> Bill Jeffrey later stated that the life extension could be much longer than five years.<sup>9</sup>

### **New submarine nuclear power reactors:**

MoD began considering nuclear reactor propulsion requirements for future submarines in 2005 and agreed a 10-year partnering contract worth up to £1 billion with Rolls Royce in May 2007. Lord Drayson, Minister of State at MoD, stated that "the contract sustains the UK's capability to support nuclear steam raising plants, as stated in the [2005] defence industrial strategy".<sup>10</sup> The government reported in mid-2008 that it was involved in extensive discussions with Rolls Royce to determine the requirements for the Next Generation Nuclear Propulsion Plant.<sup>11</sup>

## 2. US Trident submarine decisions

The future of the British nuclear weapons programme is intimately linked to the United States. Britain purchased the rights to 58 of the American-designed and built Trident missiles from a common fleet maintained in the US and has 50 left after test firings. The nuclear warheads and ballistic missile submarines are British built but with substantial American design assistance, the warhead being an Anglicised version of the 100 kiloton American W76 warhead deployed aboard the US Trident fleet.

### **A new US Trident Submarine:**

The British Trident replacement programme is out of synch with its American counterpart. US Trident missiles are deployed aboard 14 Ohio-class ballistic missile submarines. The US decided in the mid-1990s to extend the service life of its submarines from 30 to 42 years: two 20-year operating cycles separated by a two-year refuelling overhaul. The UK plans to introduce its first Successor submarine in 2022 but the US only provisionally plans to introduce a new submarine to replace the Ohio-class in 2028. In November 2008 the US Navy initiated an 18-month concept study to develop and assess the capabilities required and to undertake preliminary conceptual work ahead of more detailed research and design to begin in 2010.<sup>12</sup> Current plans envisage a detailed blueprint for a next generation submarine by the end of 2018 with construction beginning in 2019 for seven years, followed by two years of sea trials.<sup>13</sup>

The Trident II (D5) missile carried by the UK Vanguard-class submarines and US Ohio-class submarines is undergoing a life extension programme to ensure the missile remains in service until 2042, when the last Ohio-class submarine is due to retire. It is not yet clear if the US plans to introduce a new 'Trident III' missile with its planned new ballistic missile submarine in 2008. It is possible that new US submarines could be back-fitted with a new missile in the 2030s or 2040s (the seventh Ohio-class submarine, the USS Alaska, entered operational service in 1986 armed with the Trident I (C4) missile and was back-fitted 14 years later to take the Trident II (D5) during a planned engineering overhaul from 2000-2002).

It is also possible that a new nuclear arms reduction treaty between the US and Russia due to be negotiated in 2009-10 could lead to a reduction in US ballistic missile submarines. If, for example, the number were reduced from the current 14 to 8 the US may not require a replacement submarine until 2032 or 2033 thereby pushing the UK Trident replacement further out of synch with its US counterpart.<sup>14</sup>

### **UK participation:**

MoD has already begun working with the United States on possible new submarine designs. In February 2008 it set up a programme office in the US alongside key American officials to facilitate liaison to influence the design process in the US for an Ohio-class successor.<sup>15</sup> MoD reported in December 2007 that since March 2007 UK and US experts in the Joint Steering Task Group that oversees the Polaris Sales Agreement had already met three times during which concept studies for a new Successor submarine were discussed.<sup>16</sup>

MoD is also contracting out aspects of its own concept studies to US companies. In May 2008 a new contract opportunity was announced through the US Defense Contract Management Agency to "perform impacts assessment on the Weapons Training System Missile Compartment

Lab and deliver a Training Impact Summary Report in support of Future Hull Concept studies” for the UK at General Dynamics Advanced Information Systems, Pittsfield, MA.<sup>17</sup>

In December 2008 it was reported that General Dynamics Electric Boat Corporation had been awarded a contract to perform studies and design of a Common Missile Compartment (CMC) for UK Vanguard-class replacement submarines and US Ohio-class replacement submarines paid for by the UK but run through the Naval Sea Systems Command in Washington.<sup>18</sup> Guy Lester, MoD’s ‘Senior Responsible Owner’ for the Trident successor programme, stated in November 2008 that “we hope very early in the new year to reach an agreement with the Americans both on our financial contribution and on the exact specification of the missile compartment to provide us with the long term guarantee of compatibility”.<sup>19</sup> The purpose is to ensure that whatever missile the US Navy procures to replace the Trident II (D5) it will be compatible with Britain’s new Successor submarines.

### **3. AWE Aldermaston and the Trident warhead**

#### **Warhead decision:**

A decision is likely to be needed on whether to refurbish or replace the current UK Trident warhead during the next parliament (2010-2015).<sup>20</sup> Defence Secretary John Hutton stated on March 31, 2009 that he expected a parliamentary vote before a decision is taken.<sup>21</sup>

In July 2008 it was revealed that a senior defence official (David Gould, chief operating officer at the Defence Equipment and Support organisation) told the arms industry that the government plans to spend £3 billion replacing the current warhead arsenal even though the government insists it has made no formal decision on whether the warhead can be maintained as they are or whether a new warhead will be built. He reportedly stated that “the intention is to replace the entire Vanguard class submarine system. Including the warhead and missile”.<sup>22</sup>

#### **Warhead studies:**

In 2005 then-defence secretary John Reid announced an additional £1 billion investment at Aldermaston for a Nuclear Weapons Capability Sustainment Programme to ensure it can continue to support the Trident warhead and build a replacement if needed. This amounted to investment of around £350 million per year from 2006-07 onwards.<sup>23</sup>

In November 2007 it was revealed that studies on the potential need for a new warhead were being undertaken by a Warhead Pre-Concept Working Group at AWE at a cost of £10 million over 2007-08.<sup>24</sup> Some of the work is being undertaken in co-operation with the US under the terms of 1958 US-UK Mutual Defense Treaty that facilitates wide-ranging cooperation on nuclear weapon matters.<sup>25</sup>

US weapons laboratories have been exploring options for a Reliable Replacement Warhead to replace the W76 warhead for its Trident missiles since 2005. Congress has stripped the programme of all funding for the past two years and it is currently on hold and being reconceptualised.<sup>26</sup> It has been suggested that the UK is also exploring options for a new warhead that could be developed without nuclear testing, a so-called High Surety Warhead.<sup>27</sup> MoD officials deny any UK involvement in the American programme. David Overskei, chair of the Secretary of Energy’s Advisory Board reportedly said in 2006 that “as far as I know they [the British] are not involved with the RRW...but they are keenly, keenly interested”.<sup>28</sup>

The US is also undertaking a Life Extension Program (LEP) to upgrade two thirds of 3,200 the W76 Trident warhead stockpile and extend its life by a further 30 years. The programme was initiated in 2000 with the first W76-1 LEP warhead delivered in 2008 and the last scheduled for 2021.<sup>29</sup>

### **Failings at AWE:**

Work at AWE was halted at the end of 2008 owing to failure to fix over 1,000 'shortfalls' with equipment and procedures highlighted in a 2006 report by the Nuclear Installations Inspectorate.<sup>30</sup>

### **New warhead facilities:**

Plans were also revealed in 2008 for AWE planning applications for a number of new facilities for warhead design and manufacture. These include a new Conventional Manufacturing Facility, a new warhead assembly/disassembly facility, a new uranium handling facility to store, cast, machine and recycle enriched uranium for Trident warheads and submarine reactor fuel, and a new Hydrodynamic facility for non-explosive nuclear testing.<sup>31</sup>

## **4. Scotland**

### **Calman commission:**

In April 2008 the Scottish Parliament established a Commission on Scottish Devolution, known as the Calman Commission, after its Chair, Sir Kenneth Calman, to conduct an independent review of the experience of Scottish devolution since 1998. Many groups in Scotland have called on the Commission to investigate ways in the Scottish parliament or government can prohibit the deployment of British nuclear weapons in Scotland.<sup>32</sup>

### **SNP actions:**

On May 3, 2007 the Scottish National Party gained a majority in the Scottish Parliament. The SNP and the majority of Scottish MPs are committed to a nuclear weapon-free Scotland. On June 14, 2007 the Scottish Parliament voted overwhelmingly against the British Government's decision to replace Trident by a vote of 71 to 16 with 39 abstentions. Opinion polls show a majority of Scots opposed to Trident replacement.<sup>33</sup>

The Scottish Parliament currently has no say in national defence matters, a subject that was 'reserved' in the devolution settlement set out in the 1998 Scotland Act, but in October 2007 the SNP government vowed to use all powers devolved to it block the Trident replacement programme.<sup>34</sup>

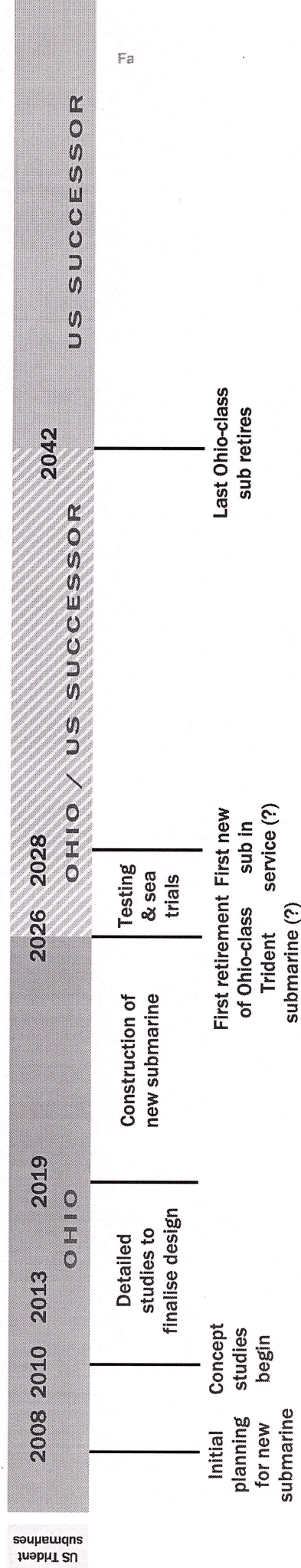
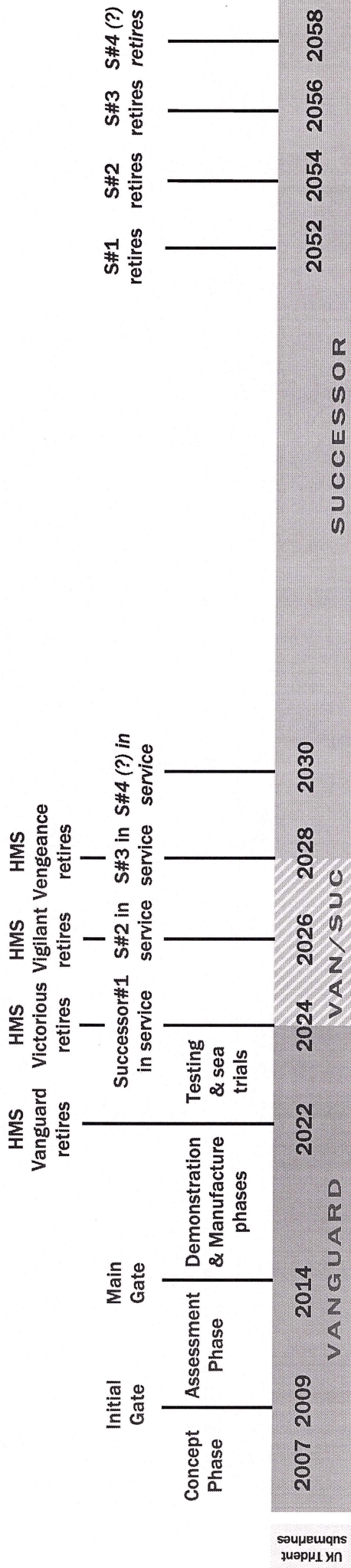
In February 2008 the SNP established a "Scotland Without Nuclear Weapons Working Group" to explore ways and means in which the Scottish government could remove British nuclear weapons from Scotland.<sup>35</sup> In August 2008 Alex Salmond announced that his government will draw up official Scottish Government foreign policy positions independently of the rest of the UK even though foreign and defence matters are reserved under the terms of the 1998 devolution settlement. This includes Trident.<sup>36</sup> Former head of the British Army General Sir Michael Jackson expressed alarm in August 2008 at the possibility of a Scottish government

removing the Trident system from Scotland and the difficulty of replicating facilities at Coulport and Faslane.<sup>37</sup>

## 5. Forthcoming decisions

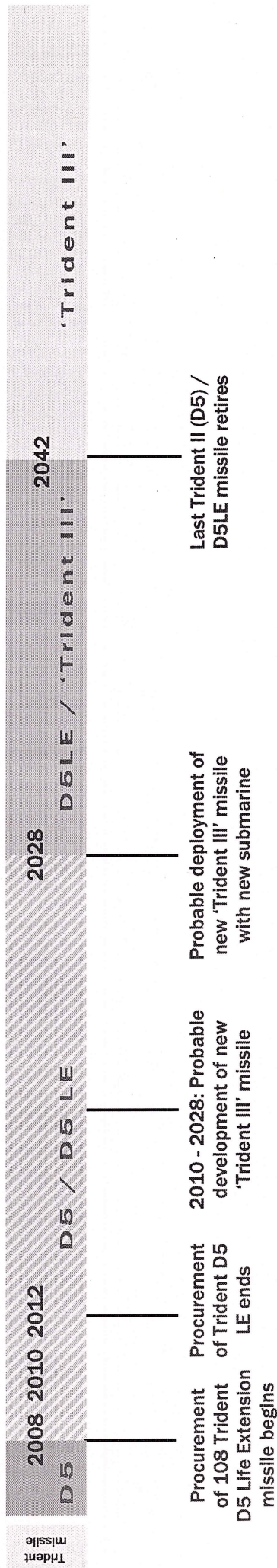
1. **Assessment phase ‘Initial Gate’ decision:** The next decision to move to the ‘Assessment’ phase is scheduled for September 2009. This is referred to as the ‘initial gate’ decision. The Assessment phase involves further detailed refinement of a set of options to enable selection of a preferred solution.<sup>38</sup> Parliament will be in recess at the time and pressure is growing to delay the decision until parliament is sitting in mid-October to ensure it can be scrutinised. An Early Day Motion sponsored by Jeremy Corbyn MP that “requests that the Initial Gate decision be delayed until Parliament is in session and can be presented with the report for scrutiny” had gathered 125 signatories by April 15, 2009.<sup>39</sup>
2. **Nuclear reactor decisions:** The National Audit Office states that the nuclear reactor design needs to be completed by the middle of the next decade to ensure new submarines are delivered on time. A decision about facilities at the Rolls Royce reactor core manufacturing facility in Derby are needed around 2009 with work expected to begin on a new reactor core in 2012.<sup>40</sup>
3. **Demonstration and Manufacture phase ‘Main Gate’ decision:** A decision to move to the Demonstration and Manufacture phase, known as the ‘Main Gate’ decision is expected no later than 2014 with approval for the procurement of long-lead items for the new submarine by 2011. It is at this point that the submarine design is finalised, contracts to build the new boats are tendered, billions are committed and the process becomes politically difficult to reverse. Main Gate approval is required no later than 2014 if the first Successor submarine is to be ready for operational service by 2024.<sup>41</sup> This timeline, however, is predicated on the questionable need to maintain a ‘continuous-at-sea deterrence’ posture that requires at least one submarine at sea at all times ready to fire its missiles within days, or even hours, of a decision to do so. Lord Guthrie, former Chief of the Defence Staff, urged the government in March 2009 to “seriously examine the number of submarines that we have and whether we always need to have one boat at sea”.<sup>42</sup>
4. **Warhead decision:** The government has stated that a decision is likely in the next parliament between 2010 and 2015 on whether to develop a new nuclear warhead for the Trident missile or to extend the life of the existing warhead. Defence Secretary John Hutton has promised a vote on the decision.

# Appendix I: Timelines for UK and US Trident submarine successor programmes



## Appendix II: Timelines for the Trident missile

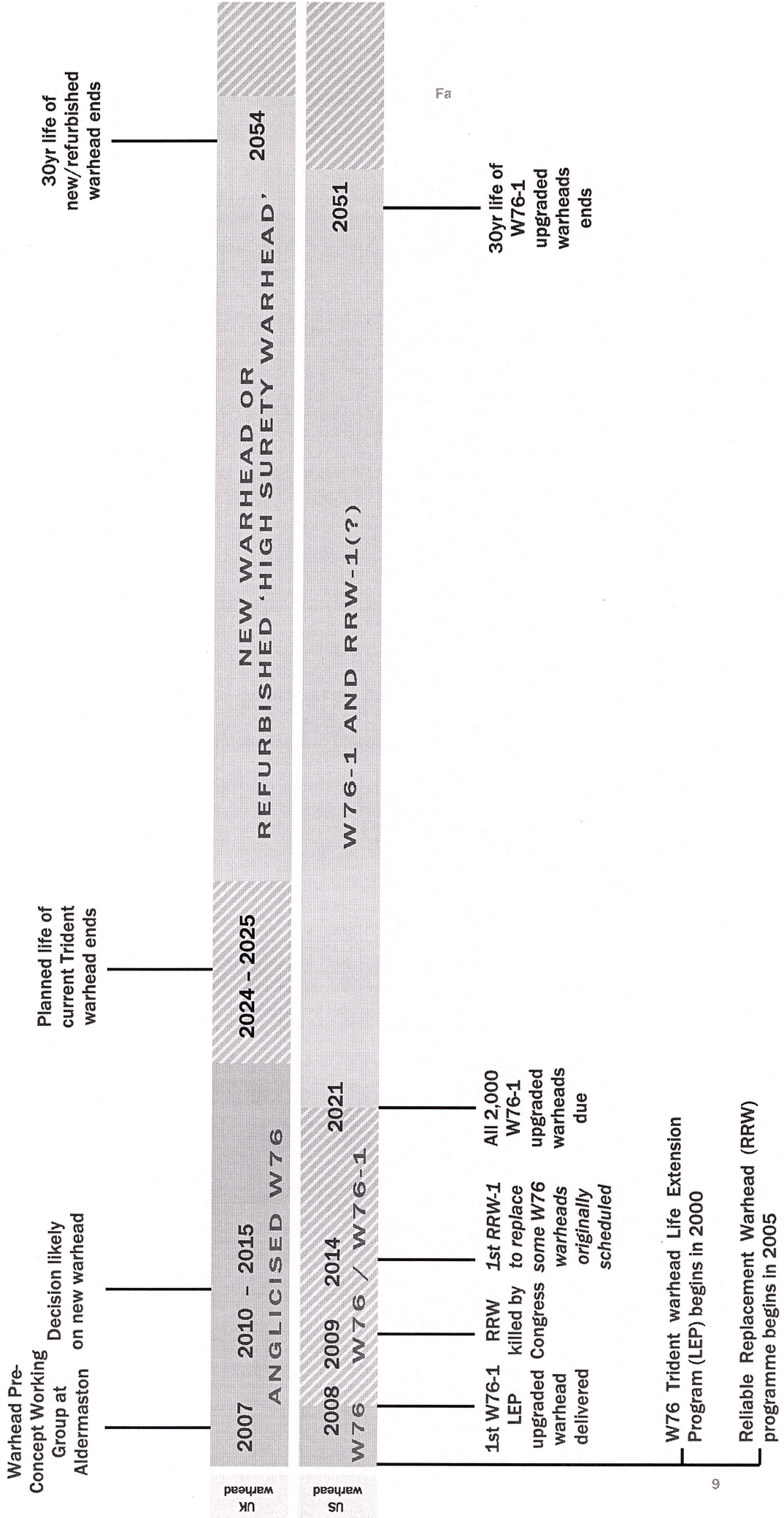
on



Trident  
Missile



# Appendix III: Timelines for UK and US Trident warhead replacement/refurbishment



## Notes

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11. House of Commons, *Official Report*, June 16, 2008, Column 729W.
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24. Defence Secretary Des Browne, House of Commons, *Official Report*, November 28, 2007, Column 452W.
25. Defence Secretary John Hutton, House of Commons, *Official Report*, October 27, 2008, Column 640W.
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