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SIR – As outlined in your editorial and news pieces on the UK nuclear weapons replacement debate (*Nature* 445, 459 and 464; 2007) it is indeed regrettable that the UK government is not willing to draw upon scientific advice outside that of its Ministry of Defence employees and chosen commercial suppliers. However, the debate as currently phrased (whether to renew now or later, based on “broad engineering arguments”) ignores the elephant in the room: the issue of whether retention of the UK’s “independent” stock of nuclear weapons of mass destruction is safe, credible, or legal ¹. Indeed, the end-of-life status of Trident offers an opportunity for the UK to meet its obligations under the Non-Proliferation Treaty ², and become a non-nuclear weapons state.

In briefings to Parliament, and in the White Paper and so-called ‘Fact Sheets’ posted on the MoD website, the case for retention has been phrased as a need for security in an uncertain world. However, during the time in which it has had the nuclear “deterrent”, the UK has been involved in many overseas conflicts, and has faced internal conflict in Northern Ireland, none of which has been halted by deterrence. In terms of security against acts of terror, the nuclear threat is patently unusable (whom do we threaten to bomb?). The White Paper also, worryingly, does not rule out first use of nuclear weapons by the UK in response to

perceived threats to UK interests at home or abroad, nuclear or not. As evidenced at the academic seminar held in early January at the Faslane base (see http://www.faslane365.org/en/academics_and_scholars), political, social, biological and physical scientists have very clear assessments of the lack of any positive role for nuclear weapons in the current global situation, where (as ever) the crises that should be the focus of major scientific, technical and political effort - such as conflict between local power groups, poverty, global health issues, threats to biodiversity and natural disasters - require sustained, committed, fine-grained and careful interventions.

Local concerns should also be addressed in any consideration of the future of the UK nuclear arsenal. A Ministry of Defence spokesperson claims “we have been running the submarines safely for 40 years”, ignoring defects in submarine reactors, fires on submarines, collisions with other vessels in the Clyde and the longstanding problem of large volumes of highlevel radioactive waste³. Trident warheads are transported on a 1000-mile round trip between the submarine base at Faslane on the Clyde and the weapons factories at Aldermaston-Burghfield near London, along public roads. While no major accidents have yet happened, the vulnerability of this system to accident or terrorist attack is obvious.

While the headline cost of the replacement programme favoured by the UK government is ~£20 billion (\$40 billion), the lifetime cost of the system is estimated at ~£76 billion⁴. Strikingly, this is the same as the estimate made of the cost to the UK of reducing its greenhouse gas emissions to below 1990 levels. If the UK government has £76 billion available for an illegal and unusable weapons system, the money would be better spent on the urgent scientific, technical, social and political challenges posed by climate change and other real threats to our global security.

sincerely

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- 1 International Court of Justice, 1996, Legality of the threat or use of nuclear weapons, 105.2.E
- 2 The United Nations Conference on Disarmament, Non Proliferation Treaty, <http://www.un.org/Depts/dda/WMD/treaty/>
- 3 see <http://banthebomb.org/militaryscotland/74.html> for a summary of information on accidents at Faslane and other sites associated with the Trident programme.
- 4 Campaign for Nuclear Disarmament, 2006, Safer Britain, Safer World. The Alternative White Paper, <http://www.cnduk.org/pages/altwhitepaper.pdf>