Nuclear **Information** Service

Management of the UK's plutonium stocks: A consultation on the long-term management of UK owned separated civil plutonium.

Comments from Nuclear Information Service

Nuclear Information Service (NIS) is a not-for-profit, independent information service which works to promote public awareness and debate on nuclear weapons and related safety and environmental issues (see http://nuclearinfo.org for more information). Our research work is supported by funding from the Joseph Rowntree Charitable Trust.
NIS commented on the government's pre-consultation papers on key factors relating to long term plutonium management and is grateful for the opportunity to comment on this consultation paper.

Responses to consultation questions

Q.1 Do you agree that it is not realistic for the UK Government to wait until fast breeder reactor technology is commercially available before taking a decision on how to manage plutonium stocks?
Yes. A decision in principle on management of plutonium stocks should not be put off indefinitely and should be made within a contemporary timeframe. There is no indication that fast breeder reactor technology will ever become commercially available and so a decision cannot be deferred until such a time. NIS's view is that that efforts to develop fast breeder reactor technology would be misguided and that we should be seeking more sustainable, less complex routes for securing future energy supplies based around renewable energy technology.

Q.2 Do you agree that the UK Government has got to the point where a strategic sift of the options can be taken?
NIS advocates an incremental, step by step approach to decision-making on complex issues, with a premium placed on stakeholder dialogue at all stages. In our response to the DECC pre-consultation paper on plutonium management we advocated that irreversible choices should not be made at early stages in the process and that there should be scope for reconsidering options if the need arises. We consider that more evidence is needed to help advise on the most appropriate option to take, particularly on the feasibility of techniques for the immobilisation of plutonium for disposal as waste. Research into this area should be undertaken as a priority within DECC's plutonium management strategy – not least because it appears that some parts of the UK's plutonium stockpile may not suitable for conversion into mixed oxide fuel, and will therefore need to be disposed of as waste regardless of what happens to the remainder of the stockpile.
Our view is that there is no need to rush to a final decision in this area, and that plutonium stocks can remain in safe and secure storage for another few years while such research is undertaken. However, we consider that a decision in principle can be taken on the direction of travel of plutonium policy, and that it is right to consider policy options now.

Q.3 Are the conditions that a preferred option must in due course meet, the right ones?
The conditions outlined in the plutonium management consultation paper are sensible basic criteria for selecting a preferred option. In due course more detail will be required on what exact standards should be met to fulfil each condition. A decision to select a preferred option for management of plutonium stocks must also recognise intergenerational equity issues. Any plutonium management option selected will have potential costs to future generations, who would not benefit from our generation's use of plutonium in the way that we might. As far as possible the legacy costs of managing plutonium should be paid up-front, rather than passed on to future generations. This must explicitly be taken into account in selecting the preferred option for plutonium management. As part of the consideration of the health, safety, and environmental matters the social impacts of the preferred option on local communities at any sites affected by the choice of option must also be taken into account.

Q.4 Is the UK Government doing the right thing by taking a preliminary policy view and setting out a strategic direction in this area now?
As indicated in response to question 2, the government should set the general direction of travel for policy in this area, subject to the caveats given in our answer above. Plutonium reserves should continue to be held in safe and secure storage whilst research is undertaken to inform a long term decision.

Q.5 Is there any other evidence government should consider in coming to a preliminary view?
We are disappointed that the government has indicated a preferred option in its plutonium management consultation paper. Our view, expressed to DECC at the pre-consultation stage, was that no preferred option should be given and that the government should refrain from coming to a view until it had considered the opinions expressed during the consultation process. This has not happened, and it appears evident that the government has already come to a decision on the course of action that it intends to take and is only paying lip service to consultation in seeking comments on its plutonium management paper. The government's preferred option for plutonium management must have the support and confidence of the public if it is to be successful. However, the approach taken by DECC in handling this matter has undermined the consultation process and also risks damaging public confidence in both the decision-making process and the option eventually selected for the long term management of plutonium.

Q.6 Has the UK Government selected the right preliminary view?
In our view the government would be wrong to take a preliminary view that plutonium stocks should be converted into mixed oxide fuel. We consider that plutonium should be treated as waste. Our reasons for these views are as follows. The woeful performance of the existing Sellafield MoX plant has demonstrated that there are formidable technical and economic problems associated with fabricating mixed uranium and plutonium oxide reactor fuel. There is no indication that the production of mixed oxide fuel will become economically viable in the short to medium term, and no reason to believe that this situation will change in the longer term as it is far from certain that there will be a market for mixed oxide fuel. Production of mixed oxide fuel would therefore commit the government to providing

a potentially open-ended level of taxpayer subsidy over the life of the fuel fabrication project, as has been the case with the current Sellafield MoX plant.

The DECC plutonium management options paper mentions “successful operation” of a mixed oxide fuel plant in France by Areva, but we would caution against using this single example as an indication that mixed oxide fabrication is a viable process. In the USA a mixed oxide plant under construction by Areva is reported as costing five times as much as originally anticipated and is considerably behind schedule. There are reportedly no customers for fuel from the plant as a result of poor fuel performance during trials. We are not convinced that the fabrication and sale of mixed oxide fuel is feasible or deliverable, and thus it fails to meet one of DECC's proposed criteria for a suitable plutonium management option.

The proposal to sell mixed oxide fuel to customers overseas is also a cause for concern as it may add to the proliferation risks that the government is keen to avoid. At the simplest level, movements of plutonium or mixed oxide fuel provide increased opportunities for the misappropriation of these materials. Perhaps more importantly, the international sale of mixed oxide fuel sanctioned by the UK government would give legitimacy to a global trade in nuclear materials and complicate and undermine attempts to control and limit the movements of proliferation-sensitive materials.

At present no long-term disposal route for mixed oxide fuel has been identified, so at best measures to convert plutonium into mixed oxide fuel would only delay the need to find a solution for dealing with unwanted plutonium, rather than provide a permanent solution to the problem. DECC's plutonium management consultation paper seems to be suggesting that wastes from mixed oxide fuel sold to overseas customers would stay overseas and would cease to be the responsibility of the UK. If this is the case, it would amount to a back-door attempt to export the UK's current unwanted plutonium liabilities overseas, contrary to the 'proximity principle' for waste disposal.

Limited research has been done into means for disposing of spent mixed oxide fuel, which is expected to be a much more hazardous waste form to deal with than conventional spent reactor fuel. Mixed oxide fuel waste is likely to require cooling for an extended period before disposal and is also expected to require a higher storage volume than conventional fuel wastes, which would have an impact on the footprint size of any future geological disposal facility. Fabrication of the fuel is likely to give rise to discharges with an associated environmental impact. All of these factors increase the risks and costs of managing the current plutonium stockpile for future generations, which in our view is unethical.

As stated in our response to DECC's pre-consultation papers on plutonium management, NIS's view is that unwanted plutonium should be blended down or otherwise immobilised and managed as waste. The material should remain under international safeguards until it can be shown that it would be impossible to reuse it. We agree with the consultation paper's assessment of the difficulties in going down this route, but feel that these are no more formidable than the risks in converting plutonium stocks into mixed oxide fuel, and that treating plutonium as waste is the

only sustainable solution to the long term management of the UK's plutonium stocks.

Q.7. Are there any other high level options that the UK Government should consider for long-term management of plutonium?
We are not aware of any further options.

Nuclear Information Service
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