Management of the UK's Plutonium Stocks

Submission by Prospect to the Department of Energy and Climate Change

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Introduction

1. Prospect is a trade union representing 121,000 scientific, technical, managerial and specialist staff in the Civil Service, related bodies and major companies. In the energy sector we represent scientists, engineers, and other technical and professional staff including 15,000 members in the nuclear and waste management industries. We are fortunate to be able to draw on their expertise in responding to this consultation.

2. This response builds on the principles of our various responses to consultations by the Committee on Radioactive Waste Management (CORWM)[1] on 'Managing Radioactive Waste Safely' and on our joint response with other nuclear unions, in September 2007, to the Government's consultation on 'The Future of Nuclear Power – Reprocessing'. It also builds on our responses to the Nuclear Decommissioning Authority's 2008 consultation on 'Plutonium Options' and the pre-consultation by the Department of Energy and Climate Change (DECC) in 2009 on 'Options for Long-Term Plutonium Management'.

3. We have previously argued that the prospect of a global upturn in new nuclear build merits reappraisal of economic and environmental assumptions on which the extant presumption against reprocessing and recycling is based. In our view, the recent events at Fukushima reinforce the case for reassessing for processing spent fuel rather than storing it on site. The report published on 29 March by the Smith School of Enterprise and Management at Oxford University could provide a valuable contribution to deliberations in this regard. The need for a substantive decision about radioactive waste management predated the events in Japan, though in our view they have added weight to a solution based on recycling uranium and plutonium rather than long-term storage on site or geological disposal.

4. The Smith Institute identifies 'an opportunity to develop a holistic approach to nuclear power – combining the assessment of backend legacy materials with the opportunities offered by new-build development'. This is too important to be ignored, and is in sharp contrast to concerns currently surrounding the implications for modification of the MOX plant at Sellafield given that Japan is the main customer for MOX fuel. There are fears that if this major funding stream is lost or substantially reduced, there will be an adverse impact on funding for decommissioning and waste management projects - in particular at Sellafield- which could have very serious consequences for employment.

5. Prospect is of course mindful of concerns relating to the expense, technical difficulty and security implications of handling plutonium over the longer-term. In our view, these concerns will need to be addressed

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1 January 2005, June 2005, June 2006. Smith School report is at:

irrespective of the option selected for management of the UK's plutonium stocks and will require continued and increased investment in a highly skilled workforce to ensure the UK's long-term capability in this area.

Q1. Do you agree that it is not realistic for the UK Government to wait under fast breeder reactor technology is commercially available before taking a decision on how to manage plutonium stocks?

6. Yes, UK stocks of plutonium are safely stored at present, but continued storage will involve considerable cost because stores need to be properly managed and eventually replaced. Prospect's view is that long-term storage is not a sustainable solution and that long-term solutions should not pass on burdens to future generations. It is important to note in this regard that the quality of plutonium degrades over time due to natural radioactive decay processes. It is therefore appropriate that optioneering work should focus on reuse via a MOX plant rather than unrecoverable disposal, but options around reuse should also include the capability to create fast reactor fuel.

Q2. Do you agree that the UK Government has got to the point where a strategic sift of the options can be taken?

7. Yes, decisions on management of plutonium should be part of a coherent and strategic approach to nuclear policy more generally. In essence, there are only two long-term solutions to the management of plutonium stocks: re-use and disposal. Recycling and reprocessing have advantages in relation to technical maturity and practicability as compared with disposal. There will be benefits in tackling these issues early as delay inevitably increases costs. In our view, there is sufficient internationally recognised evidence and experience to allow decisions to be taken now.

Q3. Are the conditions that a preferred option must in due course meet, the right ones?

8. We agree that the conditions identified in the consultation document should be satisfied before a final decision is taken to implement the preferred solution. It is of the utmost importance to meet the highest standards of safety, environmental protection, security and non-proliferation. Despite the technical issues that have arisen relation to the Sellafield MOX Plant (SMP), it is demonstrably safe and environmentally benign and complies with all international security requirements. Our understanding is that other MOX fuel manufacturing plants in operation or under construction in other parts of the world meet similar standards. Further, an early decision to reuse plutonium as MOX fuel (or in the longer-term as fast reactor fuel) would certainly be of benefit to the UK economy. This would be in sharp contrast to the concerns currently

surrounding the implications for modification of the MOX plant at Sellafield given that Japan is the main customer for MOX fuel. There are fears that if this major funding stream is lost or substantially reduced, there will be an adverse impact on funding for decommissioning and waste management projects - in particular at Sellafield- which could have very serious consequences for employment.

Q4. Is the UK Government doing the right thing by taking a preliminary policy view and setting out a strategic direction in this area now?

9. Yes, as already indicated Prospect's view is that there are clear benefits to be had from early action and we fully support the setting of clear direction in this area. The Government must now follow through and provide the NDA and National Nuclear Laboratory with appropriate resources to conduct the necessary research.

Q5. Is there any other evidence Government should consider in coming to a preliminary view?

10. We do not believe that further evidence is needed to enable a preliminary review to be undertaken, though Government should give consideration to the civil nuclear plans of 'friendly' nuclear power states, including those that have fast reactor programmes. Whilst Prospect is aware of the Government's desire to engage the private sector in finalising and implementing a reuse option, the management of the UK's stocks of plutonium is ultimately the responsibility of Government.

Q6. Has the Government selected the right preliminary view?

11. Yes, there is evidence to show that reuse as MOX fuel is technically and economically viable. At present plutonium is regarded as a zero asset but commercialisation of the plutonium and depleted uranium stockpiles through conversion into MOX fuel would be likely to stimulate significant inward investment and job creation in the North West of England. Recycling plutonium and uranium would also contribute to reduced CO_2 emissions and produce a substantial cost saving compared with safe disposal. In reality a disposal option is likely to be needed over time, but geological disposal should be carefully managed for technical, economic and social reasons.

Q7. Are there any other high level options that the UK Government should consider for the long-term management of plutonium?

12. As some degree of disposal is likely to be required, consideration should be given to the costs of 'simple' disposal against waste arisings from the reprocessing option