Cumbria County Council response to the DECC consultation on the Management of the UK's Plutonium Stocks

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, there are a number of significant drivers for change including:

- the need for the ongoing refurbishment or replacement of specialist and costly plutonium storage facilities;
- the radioactive decay of plutonium to americium, which is more challenging from a dose and heat perspective, thereby making the plutonium more complex and costly to handle over time;
- the finite life of packaging and the likely need for periodic re-packaging;
- the inherent long-term unsustainability of long-term storage with site clearance at Dounreay by 2078 and Sellafield by 2120;
- the early need to more accurately characterise the inventory for eventual disposal to a geological disposal facility; and
- the responsibility of this generation not to defer difficult decisions and costs to the next generation.

These drivers provide significant reasons to implement options other than the continued storage of separated plutonium.

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

Yes. We agree with Government that "MOX fuel fabrication is a proven and available technology that offers greater certainty of success" in disposing of the UK civil plutonium stockpile. We therefore urge Government to now undertake a full generic sustainability assessment for public examination that sets out the case for plutonium recycling and why it is preferable to the immobilization options. Such an assessment should include costs, environmental, socio-economic, intergenerational, safety, security, proliferation, political, international, technical, transportation, radiological, disposability, and carbon emission impacts to fully underpin a plutonium recycling policy. Much of this work has already been done by the Nuclear Decommissioning Authority.

We also urge Government to consider the case for constructing one or more dedicated MOX burning reactors on available land beside the Sellafield and NuGeneration Ltd sites. Estimates suggest there is sufficient plutonium in the UK stockpile to supply two new build reactors, of the type currently considered for construction in the UK, with 30% MOX fuel loading for 60 years. For example, a European Pressurised Reactor (EPR) would generate about 12.7 Terrawatt/hours (TWhr) per year of electricity. Twin MOX burning EPRs could add about 25 TWhr per year for 60 years, with the MOX contribution over twin reactor lifetime being about 450 TWhrs. This would be a significant contribution to the supply of low carbon electricity in the UK, assisting the achievement of Government carbon reduction and energy security targets. It would reduce demand for natural uranium extraction, transportation and processing potentially producing a very positive net CO2 benefit.

Consuming the plutonium stockpile 'in situ' could also provide very significant safety and security benefits and further build Britain's Energy Coast as a globally recognised centre for leading nuclear, environmental and related technologies.

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

We note the proposed conditions, that the preferred option:

- must be achievable and deliverable
- must be shown to be capable of meeting health, safety and environmental requirements as well as meeting non-proliferation and security objectives
- must demonstrate that it provides value for money and is of overall benefit to the UK.

We consider that the MOX fuel option meets all these objectives and now urge Government to underpin its preliminary policy view by fully making the case for plutonium recycling while addressing the practical implementation issues.

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?

Yes, but Government must now progress to a fully evidenced policy commitment to plutonium recycling.

We recognize that a small proportion of the UK civil plutonium stockpile that is unsuited to recycling will need to be directly disposed to a geological repository and therefore we agree it is also important to continue work on immobilization and disposal options.

5. Is there any other evidence government should consider in coming to a preliminary view?

We believe any other evidence could be captured through a public consultation on a generic sustainability assessment of the MOX option and why it is preferable to immobilization and disposal.

We recognize that all the options for management of the UK plutonium stockpile will impact on development of a geological disposal facility (GDF). As one of the principal local authorities currently engaging with Government through the Managing Radioactive Waste Safely process we need to understand the implications of reuse and immobilization options for (i) the design of a GDF and surface facilities, (ii) the increase in a repository footprint, (iii) the period of operation of the GDF, (iv) the developing GDF safety case, (v) the number of required GDFs and (vi) the use of alternative disposal methods.

We consider a Government commitment to consume MOX in dedicated reactors adjacent to the Sellafield site would avoid the need for commercial utilities to develop the safety case and licensing requirements for MOX use; avoid the security issues associated with the transport, receipt and storage of fresh MOX fuel and avoid the interim storage of spent MOX fuel at nuclear new build sites, and avoid the transport of spent MOX fuel to long term storage prior to encapsulation and disposal.

6. Has the UK Government selected the right preliminary view?

Yes, the MOX route for consuming the civil plutonium stockpile appears the least cost option which can also assist other Government policy objectives (security of energy supply and low carbon generation). We urge Government to now fully demonstrate why a plutonium recycling policy has clear advantages over a plutonium immobilization and disposal policy while taking forward other work to address the practical implementation issues.

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

None that are considered by the nuclear industry to be viable.