Nuclear waste governance in the UK

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Inventory and waste classification in UK

• Historically, spent fuel, plus separated Pu and U were regarded as resources in the UK, not wastes
• From 2003, this view was revised, and Pu has been confirmed as a waste

Three main categories of waste recognised:

• Low level (LLW) – uncontroversial, not considered further
• Intermediate level (ILW) – higher and/or longer lasting activity than LLW
• High level (HLW) – heat generating: can be either reprocessing [products or spent fuel
## Inventory of UK wastes/potential wastes to 2120

<table>
<thead>
<tr>
<th>Material</th>
<th>% volume</th>
<th>Activity (TBq)</th>
<th>% of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLW</td>
<td>less than 0.3</td>
<td>39 million</td>
<td>50</td>
</tr>
<tr>
<td>ILW</td>
<td>73.9</td>
<td>2.4 million</td>
<td>3</td>
</tr>
<tr>
<td>Separated Pu</td>
<td>0.7</td>
<td>4 million</td>
<td>5</td>
</tr>
<tr>
<td>Uranium</td>
<td>15.7</td>
<td>3,000</td>
<td>less than 0.01</td>
</tr>
<tr>
<td>Spent fuel</td>
<td>1.7</td>
<td>33 million</td>
<td>42</td>
</tr>
</tbody>
</table>

Storage policy

• Long official/industry advocacy of DGD as final destination
• In 2003 a new process, CoRWM, starting with ‘blank sheet of paper’
• CoRWM report in 2006 – reiterated DGD but wanted more robust storage and – most important - a voluntarist, participatory decision process
• Government endorsed this and produced White Paper in 2008
• Invitations for ‘Expressions of Interest’ only from Sellafield area, but came to a halt in early 2013
• Open question about whether retrievability should be built in to design process – less enthusiasm now than in 1990s
Financing

Two current schemes and one future scheme

1) All public sector wastes owned by NDA (since 2005) which gets annual funding from Treasury + some commercial income
   • Total undiscounted cost expected to be £104 bn. with Sellafield around £67 bn. Annual spend c. £2.5 bn.

2) Private sector wastes (owned by EDF) have external segregated fund (NLF) worth £8 bn.+
   • This may or may not be adequate to meet all liabilities

3) If or when new nuclear build a new external segregated system will be set up – front-end loaded to minimise risk of taxpayer liability
Legal framework

- Nuclear Installations Act 1965 – safety
- Radioactive Substances Act 1993 – environment
- Energy Act 2004 – established NDA and new system of managing wastes and decommissioning
Institutional framework

- Complex – DECC took over from Defra the ministerial brief after 2008
- Scotland has own devolved powers and has different policy
- NDA owns sites containing public sector liabilities (Nirex abolished and staff integrated into NDA)
- NDA lets contracts to site license companies, ownership of which is competed every few years
- Regulators:
  - ONR for safety/security/transport in UK
  - EA for environment (England and Wales); SEPA for Scotland

Local authorities critical for site negotiations, and many other stakeholders involved – e.g. trades unions, business groups, religious groups, and (in principle) environmental groups – as well as the public
Siting procedures

Main effort is attempt to find a DGD site, in staged process;

• Expression of Interest
• Decision to participate (no commitment)
• Community Siting Partnership
• Engagement Package (after decision here, no further right of withdrawal)
• Benefit package (to be negotiated later)

Since 2003 a much higher level of transparency and openness/deliberation in processes. Information access much improved and NDA formally manages all stakeholder/public issues
Plutonium management

A relatively recent process after Pu (120 tonnes separated) declared a waste – attempt to find a cost-minimising route

Three alternatives under consideration
- A new MOX plant – fuel to be used in any new UK light water reactors
- New and untried reactors to consume Pu – the PRISM fast reactor (GE/Hitachi) or a version of CANDU
- Immobilisation in ceramic waste-form

Government currently favours MOX despite disastrous past experience, absence of new reactors to date and no evidence of public acceptability. Immobilisation much more promising and straightforward
Lessons learned

• After 20 years of decide-announce-defend-(abandon), old policy came to a halt in 1997
• The establishment of CoRWM in 2003 marked a major change in policy process – a much wider range of actors involved in a public and transparent process designed to try and gain trust
• Government has in principle, and significantly in practice, continued the deliberative, inclusive process though Sellafield area withdrew
• However Government’s new-found enthusiasm for nuclear new build casts a significant shadow over efforts to find a host community – legitimacy at risk