

Session 2 Strategic issues and challenges in spent fuel management

The papers in this session provided an overview of the strategies, infrastructures, and regulations in major nuclear power countries related to spent fuel management.

The presentations revealed that Russian Federation, Japan, India and France plan to reprocess their spent fuel and to recycle the products in LWRs or fast breeder reactors while Germany, Spain, the United Kingdom (in relation to its planned new reactors), and Canada plan to dispose of spent fuel directly without reprocessing. It is evident that despite the plans of countries, at the present time there is limited reprocessing capacity in the world.

In most countries, the majority of the spent fuel is being stored at the nuclear power plants where it has been generated. National plans often involve the establishment of centralised interim facilities for dry spent fuel storage or vitrified high-level waste storage until geological repositories become available. The expected times at which geological repositories will be available are often quite far into the future and interim storage periods of in excess of 100 years are being planned.

As part of the design approval process for new reactors in the UK, proponents are being required by the regulators to describe plans for decommissioning and radioactive waste management at the outset. As part of this 'Generic Design Assessment Process' they are required, amongst other things, to explain how spent fuel can be stored, recovered and transported for periods in excess of 100 years and how such facility lifetimes can be substantiated.

The issue of whether spent fuel should be regarded as a 'resource' or a 'waste' is a regular topic in the context of conferences such as this one. However, it was pointed out that in the longer term perspective it is more a question of when the spent fuel will come to be regarded as a resource.

It was noted that, at a time when nuclear energy is undergoing a renaissance, spent fuel management can be seen as an 'Achilles heel' because in the minds of many people it is unresolved. Furthermore, a Eurobarometer survey recently indicated that public opinions about nuclear energy would be boosted favourably if the waste question was seen to be solved.