An international perspective on future spent fuel management

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The real question - Safety

- How can spent nuclear fuel:
  - be safely managed
  - in a practical way
  - in the best way to protect future generations
  - while complying with the international conventions &
  - being commercially viable?

- Safety!!!
- Sound practices planned and implemented for safety
- Promote and effective nuclear safety culture worldwide
- Ultimate responsibility rests with the State
- Reprocessing
- Affirms international co-operation
- Mindful of the needs of developing countries
- As far as compatible be disposed of in the State in which it was generated ...
- ... certain circumstances, safe and efficient management of safe fuel and radioactive waste might be fostered through agreements to use facilities in one for the benefit of others (particularly if joint projects)
- Right to import/ right to ban imports
- Countries chose their own policies
Historically

- Leasing agreements
- Still considered by some countries when looking at their fuel strategy for new plant
- Therefore effect on some companies fuel business – not a level playing field
- Countries struggling due to change in policy when e.g. joined the EU so leasing agreements but now not allowed to send fuel back to country of origin

- Reprocessing and storage
- Fuel stored long term in country where reprocessing to take place
- Isotopes and waste returned to country of origin
- Waste volume much lower and therefore less risk to the planet long term
- Asset management
Global perspective
World nuclear power reactors - potential

- Reactors Operable
- Reactors Under Construction
- Reactors Planned
- Reactors Proposed
- Total by Region
European nuclear power reactors - potential
Costs/ benefits of repositories

• Essentially a complex mining project
• Large costs for construction
• Costs in continuous monitoring
• Economies of scale in adding on some additional storage v building an additional repository
• Charging on a commercial basis as volumetric charge
• International/ regional repositories – help with non-proliferation?
Risk & structuring issues

• Meaning of “transfer”
• Clear liabilities regime - Paris/Vienna – transfer to the licensee
• Could not differentiate between different waste in the same facility in NE
• Clear charging mechanism – based on one off payment per volume
• Transportation covered by State sending the SNF
• Reprocessing - international fuel banks hold the assets?
Public acceptance

“not in my back yard”
Conclusion
**Summary**

- Convention support the idea of transfer
- For many countries regional or international repositories would make sense
- Help with non-proliferation
- Reduce costs for the industry
- Transfer needs to be definite – cannot change the position
- Need certainty on liability – third party liability with the licensee
- Fixed fee rather than continuous payment
For over 20 years Fiona has been involved with projects in the nuclear industry. She remains a highly regarded specialist, particularly by industry, in the nuclear market. She is familiar with and has worked on all aspects of the nuclear cycle from new build and licensing to decommissioning, fuel storage and waste management.

She has a detailed understanding of the international regulatory framework within which the nuclear industry works and frequently advises on liability regimes and nuclear insurance, regulatory and reporting requirements, the development of regulatory regimes, feasibility studies and structuring as well as the financing, development, construction, operation and maintenance of nuclear stations and the fabrication, reprocessing and storage of nuclear fuel and waste.

She is recognised as an expert in the development and financing of nuclear projects by the International Atomic Energy Agency (IAEA) and has served as a designated expert on the financing, development and structuring of nuclear projects at special meetings of the IAEA.

She is co-author of the chapter on the resolution of disputes in the nuclear industry in “Dispute Resolution in the Energy Sector: A Practitioner’s Handbook.”

She is a Non Practising Solicitor Advocate (civil) and is a Member of the International Bar Association, member of the International Nuclear Lawyers Association, member of Women in Nuclear among other organisations.

Fiona has worked on nuclear new build projects in the UK, Central Europe, Russia and the Middle East and has worked on life extension, decommissioning and fuel management project.
CP&I Global Delivery Framework - services

for further details see the document attached
Understanding of the nuclear market

- We advise on nuclear new-build, operational nuclear issues and on decommissioning and waste management.
- We understand policy, regulatory and financing issues associated with the nuclear sector and why certain solutions are not universally applicable.

- We know participants and stakeholders across the globe.
- We understand the risks faced by participants in different countries and different parts of the value chain.
PwC’s nuclear team – works on projects around the world ...

The financing of new build projects in CEE, Western Europe, the Middle East and Russia (including the use of export credit agency and multilateral borrowing sources)

PPA and CfDs, and other revenue models, eg regulation

Structuring projects to achieve an optimal finance solution while satisfying the requirements of local nuclear regulators

Regulatory compliance advice

Government support mechanisms including guarantees

Decommissioning funding assessments and review

Construction and operational support

Organisation development

Procurement support
Thank you ...