



Contribution ID: 93

Type: Oral

VALUING FLEXIBILITY AND INTEGRATING RISKS IN USED NUCLEAR FUEL MANAGEMENT

Thursday, 27 June 2019 17:50 (20 minutes)

As the first phase of the worldwide nuclear fleet is now approaching 40 years of operation, the Back end of the fuel cycle is becoming a forefront focus for utilities having to deal with pool saturation, reactor shutdowns, and requirements for extended periods of interim storage following significant deferral in the implementation of centralized interim storage or geological disposal facilities. As generated radioactive by-products are increasingly being seen as the Achilles heel of our industry, implementation of responsible used fuel management is a condition to ensure sustainability and expansion of nuclear as a low carbon energy source. Given the dynamic and uncertain market environment, cost of electricity and financial performance are not only important to historical utilities but are also key for the development of new capacities in large mature nuclear countries, expanding countries or new comers. In this context, Back end management with its long term liabilities and associated risks has a growing impact on utilities' financial performance and risk, development potential and market value.

Used fuel and related waste management requires an overarching long-term multi-dimensional system approach which is implemented in stages. A suite of options could be available over the long term, allowing integrating future informed decisions which provide safe, economic solution mitigating risks and uncertainties could be deployed.

Used fuel management system involves multiple decisions over time encompassing conflicts of drivers, uncertain factors and alternatives arising as the market or environmental conditions evolve. Uncertainty and risks are of different natures: technological, environmental, socio-political, economic and financial. Therefore, flexibility in back-end options offers mitigation for the uncertainty of risks. Valuing flexibility and integrating risks when assessing decisions will allow utilities and their stakeholders to decide which option to develop and when.

Orano, providing industrial and innovative back-end solutions and services for over 40 years, will share its developments allowing implementing various alternatives to manage used fuel matching a NPP-operator's specific financial cost and risk objectives.

Do you wish to enter the YGE SFM19 Challenge?

Country or International Organization

France

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Session Classification: Session 7.2

Track Classification: Track 7: Challenges in an integrated approach for the back-end system (including storage, transport, recycling and disposal)