

NEA activities supporting accident tolerant fuels development

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Enhancing innovation in nuclear

- Reducing the time required to deploy evolutionary and novel fuel technologies, while maintaining/strengthening and demonstrating safety
- Topics to be explored include:
 - Drivers in the area of safety and economics
 - Mechanisms to enhance exchanges between industry, regulatory bodies, TSOs, research organisations to define and implement a validation/qualification route
 - Improving technical capacities: research infrastructure, experimental technology, data and advanced modelling and simulation
 - Role of the international co-operation and of NEA

Experimental support for advancements in nuclear fuels and materials

- Initiative from the NEA Nuclear Science Committee (NSC) aiming at efficiently utilising experimental capabilities for testing/deployment of fuels/materials.
- Towards this goal, NSC organised a workshop on 8-10 January 2018.
 - High-level speakers representing utilities, fuel vendors, TSOs, regulatory bodies, research organisations and experimentalists.
 - Participants agreed on the importance of few points
 - Alignments for the use of material test reactors
 - International frameworks facilitating transport and disposal
 - Multi-national co-ordination of experimental programmes
 - Workshop follow-up: NEA is currently establishing a framework and collecting proposals aimed at optimally co-ordinating experimental activities



Development of accident tolerant fuels: technology readiness

- NSC Expert Group on Accident Tolerant Fuels for LWRs
 - Chair: Kemal Pasamehmetoglu (INL, USA)
- Participants from 32 organisations from 14 countries
 - R&D, utilities, fuel vendors, academia and TSOs
- Report will be published in March 2018, summarising
 - Fuel/core materials' fundamental properties/behaviour under normal and accidental conditions and expected impact on fuel cycle facilities
 - Compatibility of fuel and cladding
 - Maturity of fabrication processes
- Next step: identification/prioritisation of experimental needs for fuel/material testing

Innovation and regulation

- Related NEA Committees
 - CNRA: Committee on Nuclear Regulatory Activities
 - CSNI: Committee on the Safety of Nuclear Installations
- CNRA and CSNI discussed ways to enhance collaboration among the research, industry and regulatory communities to support deployment of innovative technologies such as:
 - Digital technologies
 - Advanced reactors and SMRs
 - Accident tolerant fuels etc.
- CSNI Working Group on Fuel Safety: to identify research for ATF deployment
 - With a technology neutral focus and by using existing facilities

- Development of Accident Tolerant Fuels is a good show-case for acceleration of the innovation process.
- The NEA urges the nuclear community as a whole to revise in depth its innovation process
 - Important to match with societal needs
 - Important for the Safety and the Economy
 - Important for managing skills and attracting talents