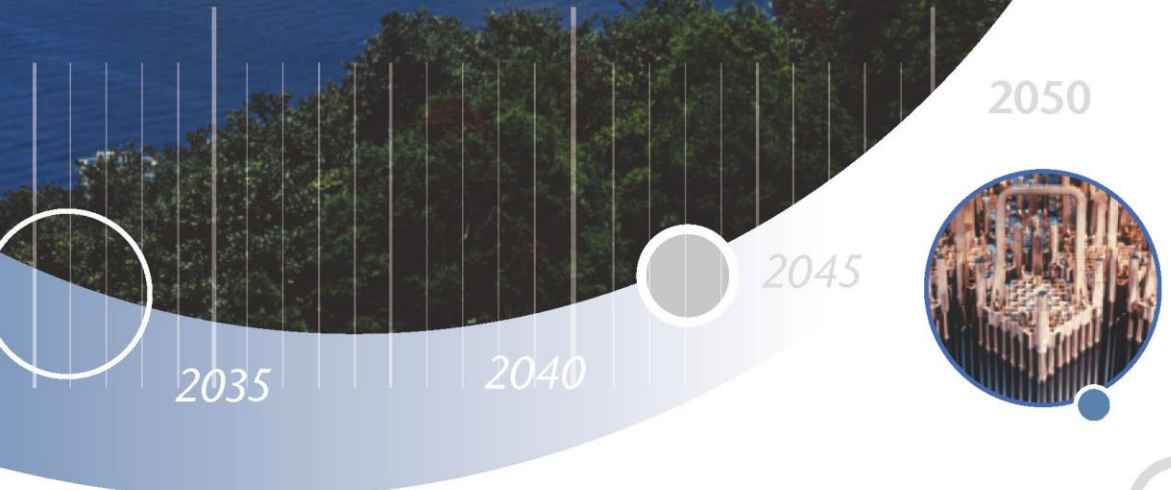


DRAFT Milestones and Recommendations: Safety & Regulation

Technology Roadmap

Nuclear Energy





■ Scope:

- **Nuclear safety, especially with respect to post-Fukushima safety upgrades**
- **Safety culture**
- **Regulation – “safety authorities”, and other institutional infrastructures, especially in newcomer countries**
- **Role of international cooperation – among operators, regulators, technical support organisations – to promote safety**



Milestones / metrics (1)

■ Fukushima Daiichi accident:

- IAEA Safety action plan, safety evaluations of existing NPPs (“stress tests” in the EU), peer review of assessments
- post-F safety upgrades, emergency preparedness, severe accident research programmes
- Implementation of post-F safety upgrades by 2015?
- Renewed attention to extreme external events (including weather) and impact on siting of new plants
- Enhanced safety requirements (e.g. new safety standards in Japan)

CASE STUDY?



Milestones / metrics (2)

■ Newcomer countries:

- IAEA guidance on how to set up infrastructures, staff, etc... including regulatory bodies (Milestones)

CASE STUDY?

■ Nuclear regulators (safety authorities)

- Need to be strong & independent (from industry & gov)
- Need to be sufficiently staffed, and staffed with competent/skilled personnel. Policies must be in place to ensure adequate pay conditions.
- Some concern by industry about “over regulation” becoming a burden. More coordination and harmonisation is needed between different regulatory requirements → efficient regulation rather than over-regulation.

→ Harmonisation of safety requirements?



Milestones / **metrics** (3)

■ Safety culture:

- Needs to be shared at across the nuclear sector (operators, regulators, industry incl. supply chain), at all levels of staff

■ Role of international fora & peer review processes to promote/improve safety:

- Operators (WANO)
- Regulators (IAEA, WENRA, MDEP)

CASE STUDY?



Recommendations:

	Timeline
Governments should ensure that post-Fukushima safety upgrades are implemented in a timely manner in all nuclear power plants	On-going
Governments should ensure that regulators are strong, independent, and staffed with enough skilled personnel to carry out their missions, putting in place adequate pay conditions if necessary	
Governments should ensure that safety culture is shared across the nuclear sector and all levels of staff.	
Governments should ensure that more efforts are devoted to safety research, and that results are communicated to a wide audience.	On-going
International cooperation should continue to be promoted, whether among operators (e.g. WANO) or regulators (IAEA, WENRA, MDEP, NEA/CNRA) or technical organisations. (resource leveraging, experience sharing, harmonisation of requirements)	On-going