

Advanced Power Reactors Need for New Regulatory Framework

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Adrian Heymer, NEI



Need for New Nuclear Power Plants

- Need for 300GW of new generation by 2025
- Increase energy security
- Help reverse adverse economic impact of high and volatile energy prices (natural gas & electricity)
- Alleviate air quality and Greenhouse gas concerns
 - Public health & environment
- Manufacture hydrogen as a future fuel
 - Nuclear needed to meet cost & environmental goals

Prime Issues for New Nuclear Plants

- Funding and financial (not unique to nuclear)
- Current plant safety & operational performance record restoring confidence in nuclear
- Uncertainty over untested licensing process
 - Need to prove the new Part 52 processes
 - Need new regulations for advanced non-LWRs
- Time to market – Decision to operations
 - Resources & priorities

Support of Hydrogen Economy

- The use of hydrogen as a major fuel source
 - Additional and new challenges to natural gas markets & environment
- Use of nuclear technology in cogen or process capacity requires
 - New nuclear technologies
 - New regulatory requirements
- Need a new regulatory regime for advanced reactors
 - Risk-informed, performance-based, technology-neutral set of requirements

Regulatory Framework for Advanced Reactors

- Risk-informed
 - Requirements take into consideration insights from PRA
 - Build on ROP structure
- Performance-based
 - Describes what is to be achieved, not how to achieve the objective
 - Objective safety performance metrics
 - Reliability & condition monitoring

Timeline for New Regulatory Regime

- Urgent need for ANPR in 2005 if NRC 2009 goal for enacting new framework is to be achieved
 - NEI 02-02 identified potential issues
 - NRC Draft Regulatory Framework issued for comment
 - Opportunity to assess draft regulations against new advanced design submittals
- First advanced reactor design submittals ~ 2007
- NOPR - 2008