Regulatory approaches for licensing of SMRs: Regulatory collaboration going forward

ENSREG Conference

Brussels 24.-25.6.2024

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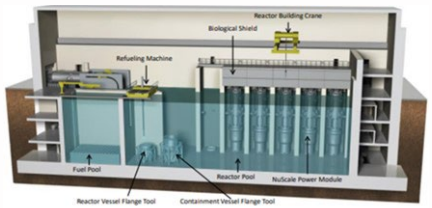
Expectations for the use of nuclear energy

How do we prepare for the future expectations in Finland?

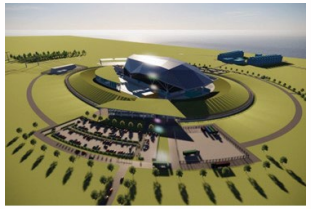
- We are renewing our legislation and regulations
- We are developing a streamlined licensing process
- We are building up our expertise on new reactors
- We are actively engaging with utilities, vendors, start-ups and communities interested in nuclear energy
- We are working with our colleague regulators and international organizations

LDR-50 reactor in the reactor pool. (Source: https://www.ldr-reactor.fi)



VOYGR (Source: NuScale)

According to STUK's new regulation, nuclear power plant's precautionary action zone and emergency planning zone are defined on a case-by-case basis



UK SMR (Source: Rolls-Royce)

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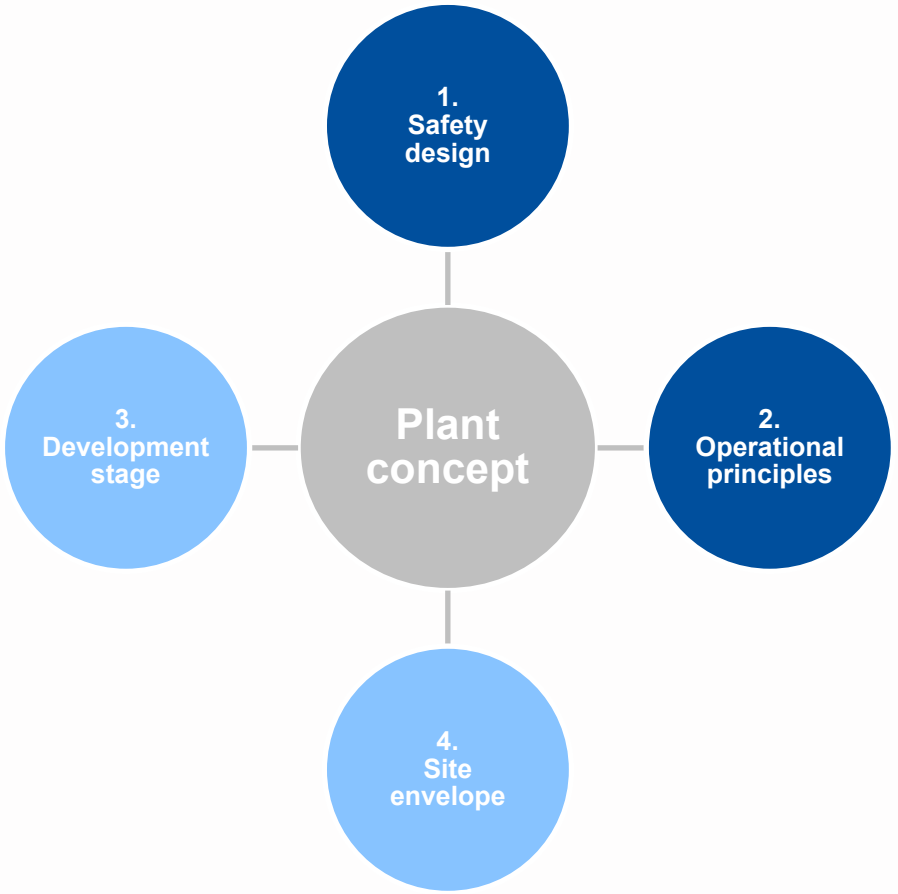
Plant concept evaluation – Finnish development

Four major areas for evaluation or observation:

1. **Safety design**: evaluate the basis for nuclear and radiological safety, and defense in depth in particular
2. **Operational principles**: evaluate the basis for operation, lifecycle, and waste management
3. **Development stage**: observe the design maturity and technology development stage
4. **Site envelope**: observe the possibility of different types of sites, consumers, and applications



Plant concept evaluation – place for regulatory collaboration

- Confirming the acceptability of conceptual design solutions
- Decreasing supplier's and license applicant's project risks
- Creating the basis for an effective licensing process

The best opportunity also for cross-country regulatory collaboration

Perspectives	Concept evaluation	Site approval	Construction license	Operating license
Safety	Safety design	People and environment	Safety demonstration	Verified information
Supply	Development stage	Final design parameters	Supply capability	Validated performance
Operation	Operational principles	Operational conditions	Licensee organization	Operational readiness
Site	Site envelope	Site characterization	Site operations	Site monitoring
Overall	**Plant concept & technology**	**Site & production concept**	**Plant design & supply**	**Safe operation & lifecycle**

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Bilateral, multilateral and international collaboration on SMRs

- Regulatory collaboration on SMRs
  - joint reviews
  - observing a review
  - participating in a review
  - …

- NHSI – process development for
  - design review
  - sharing review results
  - mutual recognition
- SMR Regulators Forum

- New initiative
  - Regulators participation to be decided

- CNRA and CSNI activities on SMRs
- Multinational Design Evaluation Programme

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Are we able to meet the expectations?

- Yes …
  - Regulators are taking actions nationally to be prepared for SMRs
  - There are many good initiatives ongoing to enhance collaboration among regulators
- … but is it enough – focused and resourced?
  - Timeliness and focus – are we interacting proactively and focusing on most safety (and design) significant topics?
  - Use of resources – are we using our collective resources efficiently?
  - Way of working – should we work more interactively with the industry?
- Need for a high(er) level commitment
  - To agree and share a common goal – to make sure SMRs are safe
  - A mandate and resources to work towards goals

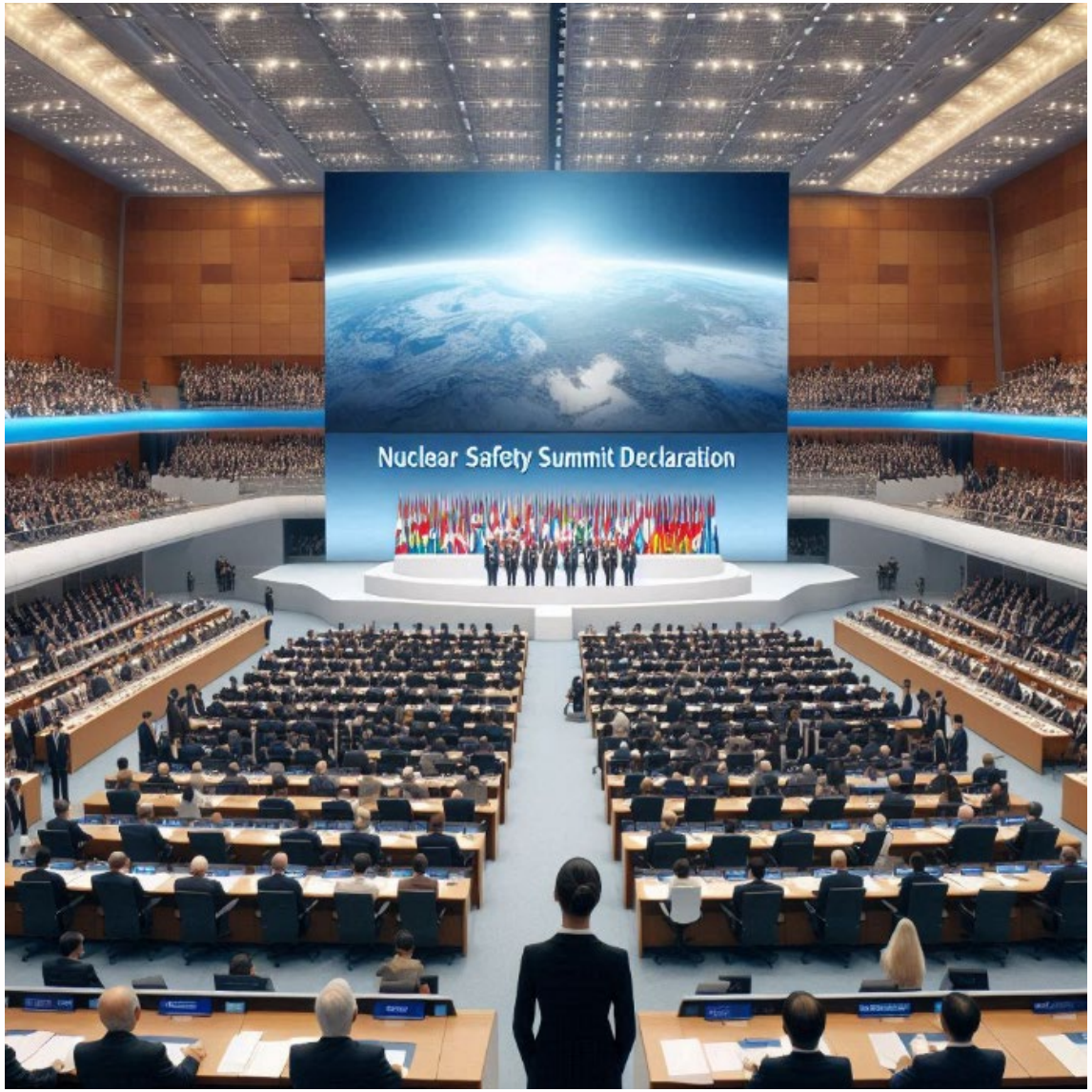

Figure created by Copilot

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