



Multinational Design Approval Program for New Nuclear Power Plants

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Multinational Design Approval Program for New Nuclear Power Plants

Primary Objectives

Enhance the protection of public health and safety, and the environment, for the beneficial use of civilian nuclear energy by:

- Ensuring the effectiveness and efficiency of nuclear power plant:
 - Design
 - Review
 - Safety analysis
 - Associated programs
- Providing a practical forum for multinational cooperation and ultimate convergence on safety:
 - Standards
 - Practices
 - Implementation



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Other Objective

- Improve clarity and transparency of nuclear safety regulation across international borders, starting at the design safety issues
- Improve communication on safety issues resolution
- Improve standardization in reactor designs
- Improve convergence on regulatory approaches, including standardization at the design approval stage
- Enhance safety, security, and preparedness coordination among user countries



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Other Objective

- Improve public confidence
- Achieve convergence on acceptability of:
 - Engineering codes
 - Quality assurance requirements
 - Safety research acceptance and codification
- Achieve reciprocity on:
 - Component manufacturing oversight
 - Regulatory verification and oversight modules, and
 - Other key components of the regulatory safety framework



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Benefits

A multinational design approval program would be implemented in several stages, with the following key attributes:

- Enhanced multinational collaboration in reactor safety reviews
- Convergence on safety standards and approaches – where possible and appropriate
- Broadly accepted design approvals to facilitate national regulatory decisions
- National regulators retain the sovereign authority for all licensing and regulatory decisions including siting, environmental assessments, and operational oversight



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Stages

The signatory nations would follow a three-stage process for developing implementing the Multinational Design Approval Program:

- **Stage 1** - Transition and Formation
- **Stage 2** - Consolidation and Initial Implementation
- **Stage 3** - Implementation and Expansion



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Stage 1

Stage 1 - Transition and Formation (New Reactors for Design Certification by NRC)

- Uses the NRC technical review portion of the U.S. Design Certification Process (i.e., the Final Design Approval Process) for existing or pending applications (new Generation III and Generation III+ applications)
- Incorporates the expertise of the regulator of the country-of-origin to expedite and improve the safety review



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Stage 2

Stage 2 - Consolidation and Initial Implementation (Reactors Certified or Undergoing Certification)

- After the completion of the first year of the Transition and Formation Stage, we would begin the Consolidation and Initial Implementation Stage
- During this Stage a substantial degree of standardization and multinational acceptance of safety-approved designs could be achieved
- This Stage also would lead to convergence on:
 - Acceptable engineering codes
 - Quality assurance requirements
 - Safety research acceptance and codification
 - Reciprocity on component manufacturing oversight
 - Pertinent sharing and utilization of regulatory verification and oversight modules



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Stage 3

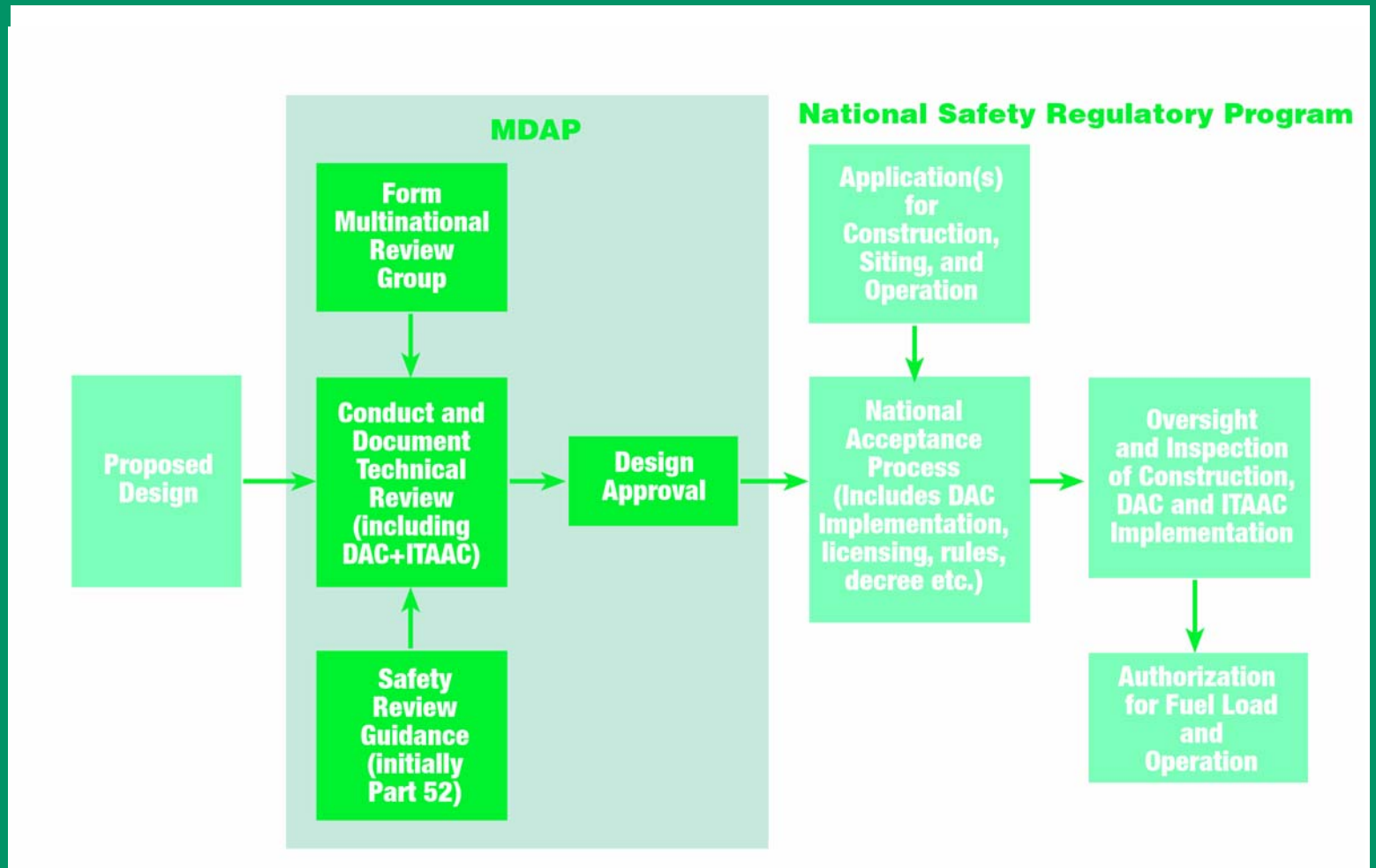
Stage 3 - Implementation and Expansion (Generation IV Reactors)

- This stage begins and is compatible with GEN IV schedule
- Fully approved advanced reactor designs, including established safety review processes and multinational acceptance, should become part of the global marketplace for signatory nations
- This final stage should be functional for use by the Generation IV International Forum (GIF) by INPRO and likely will be functional for Generation III+ safety reviews



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MDAP





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Respon- sibilities

The national regulators will remain responsible for the licensing of the reactors and regulatory decision including:

- Siting
- Environmental assessment and requirements
- All legal issues
- Actual constructions, inspections, tests, analyses, and acceptance criteria
- Acceptance and oversight of regulatory requirements enacted by their countries
- For plants in nations that have signed either the Paris or Vienna Convention, liability issues are clearly the responsibility of the plant owner / operator
- For plants in nations which are not signatories of either the Paris or Vienna Convention, potential liability issues may be addressed through agreements associated with the Multinational Design Approval Program



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Initial Program Corner- stones

1. Agreement on the basic set of technical and safety requirements
2. Agreement on the use of deterministic, risk-informed and performance-based regulation*
3. Agreement on the content and level of documentation required in an application by a vendor
4. Agreement on the level of documentation to be provided by the regulatory body in the safety evaluation
5. Agreement on the level of project management and technical resources necessary for a quality review that is comparable to, or better than, U.S. standards and acceptable to the multinational group
6. Agreement on the requisite level of safeguards for protecting proprietary and other sensitive information, including security information



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Next Steps

- Regulatory authorities need to identify their interest in Stage 1 for near-term multinational reviews, specifically the Final Design Approval Reviews associated with the NRC Design Certification Process (e.g., EPR, ESBWR, ACR-700 / 1200)
- A core group will collect and evaluate the views, comments, and recommendations from the participating regulatory authorities to formulate Stage 2.