

MDEP

Multinational Design Evaluation Programme

An initiative taken by national safety authorities to leverage their resources and knowledge for new reactor design reviews

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Membership

- **Current members:** Canada, China, Finland, France, Japan, Korea, Russian Federation, South Africa, the United Kingdom and the United States.
- **The IAEA takes part in the work of MDEP**

Expected Outcomes

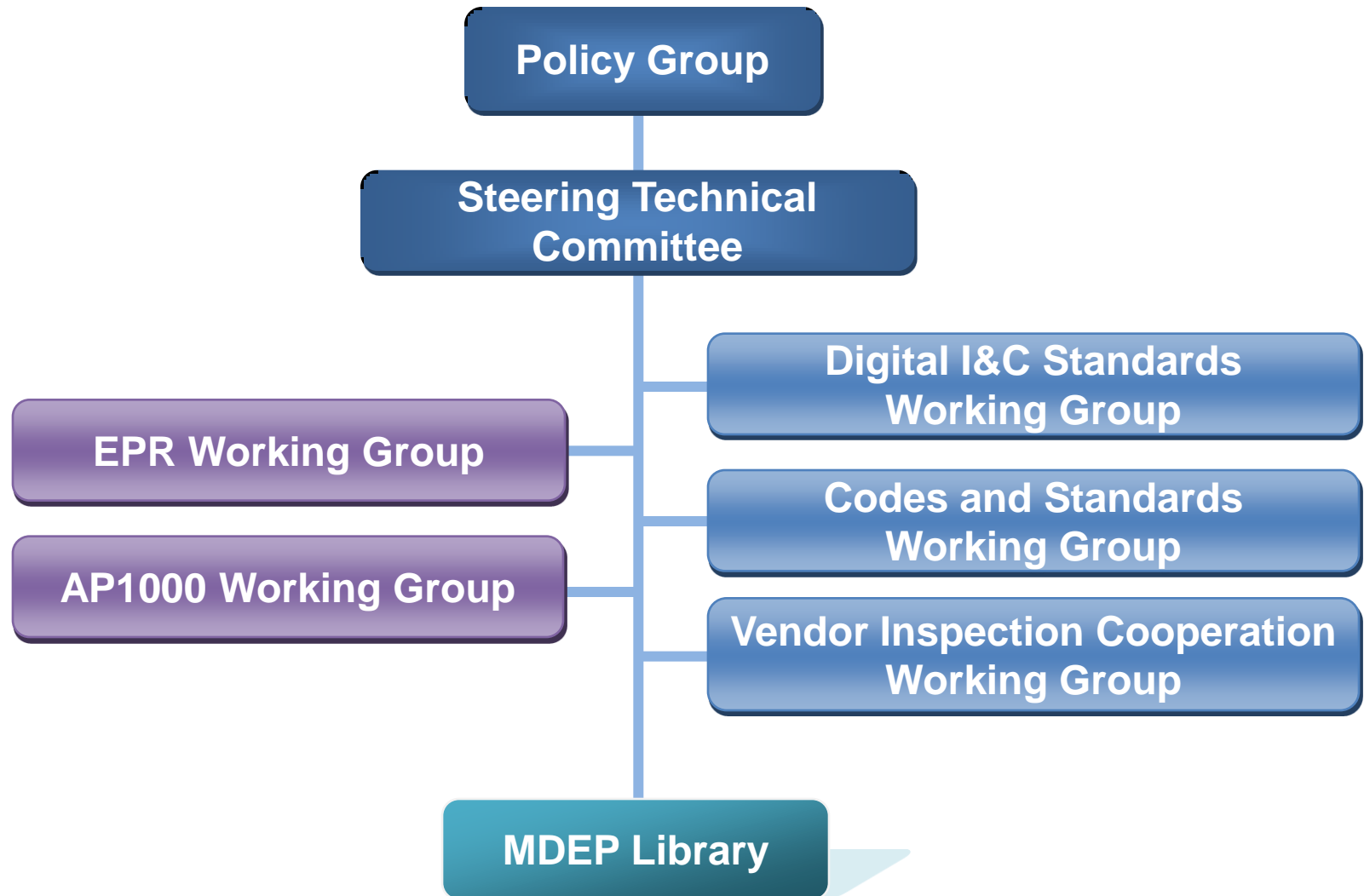
Setting up an enhanced cooperation among regulators :

- To improve the effectiveness and efficiency of regulatory design reviews
- To raise the safety assessment quality and the safety level
- To facilitate convergence of regulatory requirements

Background

- Initially proposed in 2005
- A one-year pilot project conducted in 2006 - 2007 to assess the feasibility of the programme
 - Focused on Severe Accidents, Digital Instrumentation and Controls and Emergency Core Cooling Systems
- Initial two year programme approved in 2007
- Specific recommendations and structure identified and approved in 2008
- Converted into long-term programme in 2009

MDEP Organization



Vendor Inspection Cooperation Working Group

Goal : to benefit from other regulators' inspections of vendors to support new reactor reviews, vendor inspections and manufacturing oversight

Comparison of regulator practices

- Quality Assurance Requirements Comparison Table ongoing

Several trial joint inspections carried out in 2007 and 2008

- Sharing of vendor inspections results
- Production of a Joint Inspection Protocol Document

Codes & Standards Working Group

Goal: to achieve convergence of regulatory requirements and practices related to nuclear component design

Identification of similarities and differences among codes and standards

- Work with standard development organizations to compare pressure vessel codes
- Understanding the technical and regulatory basis for differences identified

Digital Instrumentation and Controls Working Group

Goal: to achieve convergence of regulatory requirements and practices related to digital I&C standards for reactor safety systems

Identification of main differences among codes and standards

- Defense-in-depth and diversity
- Data communications

Identification and proposition of convergence

- Software common cause failure
- Software tools

EPR Design Specific Working Group

Goal: to share and cooperate on specific design evaluations and construction oversight

Members : Finland, France, U.S., U.K., China and Canada

General exchange on project status, review and construction

Cooperation on design reviews :

- Digital I&C
- Probabilistic Safety Assessment
- Containment and Accident Analysis
- Severe Accidents

AP1000 Design Specific Working Group

Goal: to share and cooperate on specific design evaluations and construction oversight

Members : China, U.S., U.K., Canada (Observer)

General exchange on project status, review and construction

Cooperation on design reviews :

- Squib Valves
- Civil and Structural Engineering / Shield Building
- Control Rod Drive Mechanisms

MDEP Achievements

- **Design specific working group**
 - Improves safety focus on design reviews
 - Leverages and saves resources
 - Reinforcement of regulatory position
- **Issue specific working group :**
 - Joint vendor inspections
 - Identification of differences among codes and standards used by different countries

Next steps

- Keep regulatory bodies, vendors and operators informed about MDEP activities, progress, and results
- Developing an international vendor inspection program
- Recommendations to standards development organizations regarding possible convergence and harmonization

Personal Views and Expectations

1. MDEP is a key programme for new build activities
2. MDEP is a mid and long-term programme, but short-term concrete results are necessary
3. To be efficient, MDEP needs to concentrate on a limited number of pertinent topics
4. Each working group needs to have an **action plan** :
 - Final and interim objectives, clear schedule and periodic reports
5. Convergence of regulatory practices will finally lead to convergence of regulatory requirements

Personal Views and Expectations

6. MDEP needs the active involvement of all stakeholders : Regulatory Bodies, Vendors and Operators

→ **Regular exchanges between all stakeholders**