

NEA Nuclear Energy Agency

Multinational Design Evaluation Programme

**MULTINATIONAL DESIGN EVALUATION PROGRAMME (MDEP)**  
**PETTERI TIIPPANA**  
**POLICY GROUP CHAIR**

US NRC Regulatory Information Conference (RIC)  
 "Enhancing New Reactor Reviews through International Cooperation"  
 Rockville, Maryland, USA  
 10 March 2016

1

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

Multinational Design Evaluation Programme

**MDEP Basics**

**What is MDEP? And why...**

A unique multinational initiative undertaken by national regulatory authorities of 15 countries to:

- ❑ Co-operate and share information on safety design reviews of specific designs in order to **ensure a greater safety focus on the reviews** in each country
  - ➔ New reactor designs in 2000s: EPR, AP1000... after a long period without new builds + new technical challenges
- ❑ Share information about national and international regulatory requirements and practices in order to **explore opportunities for possible harmonization or convergence** of such requirements when safety enhancements may be realized
  - ➔ Prior to MDEP, international co-operation was not focused on regulatory review of new reactor designs

*Enhanced co-operation among regulators strengthens the effectiveness and efficiency of regulatory design reviews to achieve higher level of safety for new reactors*

2

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

Multinational Design Evaluation Programme

**MDEP Basics**

**Who is involved in MDEP activities? Regulators**

➤ Canada	➤ Republic of Korea
➤ China	➤ Russian Federation
➤ Finland	➤ South Africa
➤ France	➤ U.K.
➤ Japan	➤ U.S.A.

➔ **Since MDEP inception in 2006**

- India – Joined in 2012
- United Arab Emirates – Joined in 2012
- Sweden – Joined in 2013
- Turkey – Joined in 2013
- Hungary – Joined in 2015

---

- NEA: technical secretariat
- IAEA: takes part in generic activities
- National technical support organizations participate if requested by the national regulatory authority.

3

---

---

---

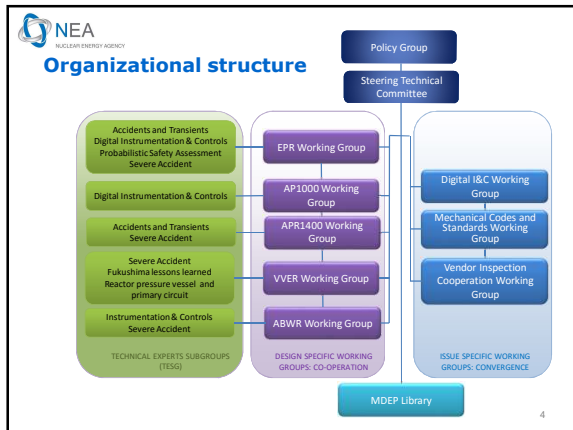
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

**Roles and Responsibilities**

**Policy Group (PG)**

- Heads of Agencies
- Provide direction on MDEP including interactions with industry and other stakeholders
- Monitor progress in reaching goals
- Determine participation and membership in MDEP
- Approve new working groups as proposed by the STC

**Steering Technical Committee (STC)**

- Senior level staff involved in licensing new reactors
- Manage and approve detailed program of work
- Approve procedures and products
- Coordinate communications internal and external to MDEP (important coordination with other regulatory bodies such as IAEA, CNRA/CSNI, and WENRA, and other industry stakeholders such as WNA CORDEL, WANO, GIF, vendors, operators, SDOs)
- Report status of the MDEP to the PG

5

---

---

---

---

---

---

---

---

---

---

**Roles and Responsibilities**

**Design and Issue Specific Working Groups**

- Exchange information on design specific regulatory reviews (licensing, construction, commissioning and operating experience having an impact on new designs)
- Cooperate on cross-cutting generic issues (vendor inspection, Digital I&C, and Codes and standards)
- Identify and understand the differences in regulatory safety review in each country and potential areas for harmonisation
- Produce and carry out program plans that include long term goals and objectives and potential products
- Report status of work accomplished and future plans to the STC every 4 months
- Provide feedback to the STC of potential impediments to work and new issues that may be addressed as part of MDEP

6

---

---

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

## Benefits of MDEP Cooperation

OECD

Multinational Design Evaluation Programme

- MDEP has enhanced communication among participating regulators as well as between regulators, vendors and other stakeholders and continues to be a unique and key vehicle for regulatory safety reviews of new builds
- MDEP has enabled
  - ❑ networking of experts participating in new reactor licensing and new build inspection activities in different countries
  - ❑ regulators to share their concerns and challenges and safety review and constructions inspections results and experience for common use and good facilitating licensing and related safety review efforts as well as learning from construction experience
  - ❑ Identification of differences originating from regulatory requirements and harmonization efforts where safety will be enhanced

7

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

## Design-Specific Working Groups Accomplishments

OECD

Multinational Design Evaluation Programme

- Produced several common positions that are publicly available (e.g. EPR Digital I&C design, EPR Fukushima lessons learned, AP1000 squib valves)
- Shared issues identified, questions to applicant, and draft safety evaluations
- Identified design differences of a reactor that is being reviewed by members of a specific design working group
- Identified additional questions for applicants based on MDEP interactions

Link to MDEP products: <http://www.oecd-nea.org/mdep/working-groups/>

8

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

## Issue-Specific Working Groups Accomplishments

OECD

Multinational Design Evaluation Programme

**Vendor Inspection Cooperation (VICWG)**

- Published five technical reports and one common position on quality assurance requirements, protocol for conducting multinational inspection of vendors, and good vendor oversight practices (more than 70 vendor inspections performed)

**Digital Instrumentation and Control (DICWG)**

- Published 12 DI&C common positions
- Obtained agreement from IEC and IEEE to increase co-operation and consider MDEP common positions

**Codes and Standards (CSWG)**

- Published four technical reports and one common position. Completed comparison of pressure boundary for Class 1 pressure vessels, piping, pumps, and valves in co-ordination with standards development organizations (SDO)
- Obtained commitments from SDO to work together to minimize further divergence of code requirements

Link to MDEP products: <http://www.oecd-nea.org/mdep/working-groups/>

9

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

## Interaction with Stakeholders

Multinational Design Evaluation Programme

- With other “regulatory” bodies
  - ❑ NEA CNRA/CSNI (Working Group for the Regulation of New Reactors)
  - ❑ IAEA
  - ❑ WENRA
  - ❑ Other regulators
- Other stakeholders
  - ❑ Vendors, operators (especially of EPR, AP1000, APR1400, VVER, and ABWR)
  - ❑ Standards Development Organizations
  - ❑ European Commission
  - ❑ WNA Co-operation in Reactor Design Evaluation and Licensing (CORDEL) working group
  - ❑ WANO
  - ❑ GIF and INPRO (advanced reactors)
- Stakeholders are invited to participate in WG and STC meetings, as appropriate
- Three MDEP Conferences have been held: two in Paris (2009 and 2011) and the 3rd in Washington (2014) at which stakeholders were invited to attend/participate

10

---

---

---

---

---

---

---

---

NEA Nuclear Energy Agency

## MDEP Next Steps

Multinational Design Evaluation Programme

- MDEP is temporary – in 2015, a decision was made to extend the cooperation period from the end of 2017 to the end of 2022.
- By the end of 2017, Issue Specific Activities will be transferred to other NEA groups with the goal to maintain the current cooperation with industry
- Beyond 2017, MDEP’s focus will be on continuing the current cooperation on design review of new reactors
  - Include design related issues during commissioning and early phase operation
  - Regulators from countries that are considering new reactors continue to show interest in MDEP membership
  - Current members are considering to form a new design-specific working group
- Managing the progress of working groups is a high priority - Stakeholder input is sought to evaluate performance and recalibrate

11

---

---

---

---

---

---
















---

---

NEA Nuclear Energy Agency

## Multinational Design Evaluation Programme (MDEP) members

Regulators from:

 Canada	 China	 Finland	 France
 Hungary	 India	 Japan	 Korea
 Russia	 South Africa	 Sweden	 Turkey
 United Arab Emirates	 United Kingdom	 United States	

THANK YOU FOR YOUR ATTENTION, Question?

12

---

---

---

---

---

---

---

---