

MULTINATIONAL DESIGN EVALUATION PROGRAMME (MDEP)

Terms of Reference (TOR)

Background

The Multinational Design Evaluation Programme (MDEP) is a multinational initiative taken by national safety authorities to develop innovative approaches to leverage the resources and knowledge of the national regulatory authorities who will be tasked with the review of new reactor power plant designs.

The MDEP programme will incorporate a broad range of activities including:

- An enhanced multilateral cooperation within existing regulatory framework.
- A multinational convergence of codes, standards, and safety goals.
- Implementation of MDEP products to facilitate licensing of new reactors, including those being developed by the Generation IV International Forum.

A key concept throughout the work of MDEP is that national regulators retain sovereign authority for all licensing and regulatory decisions.

Objective

The main objective of the MDEP effort is **to enable increased cooperation and establish reference regulatory practices to enhance the safety of new reactor designs**. The enhanced cooperation among regulators will improve the effectiveness and efficiency of the regulatory design reviews, which are part of each countries licensing process. The programme should focus on cooperation and convergence of regulatory practices that will eventually develop into convergence of regulatory requirements. The IAEA Safety Standards, which provide a general level of harmonisation, provide input to the work and can benefit from the final results. Progress towards harmonised regulatory practices and requirements for Generation IV reactor design will be a natural outgrowth of this programme. It is expected that this will also:

- Enable and encourage safer global standardised reactor designs
- Enhance cooperation between regulators on the design reviews of new reactors, including regulators from new entrant countries
- Further public understanding and acceptance of safety goals on an international basis

Scope

The focus of MDEP is on enhanced cooperation, in specific technical areas and within existing regulatory frameworks, on design reviews and vendor inspections, facilitated by establishing common regulatory positions. The Programme of Work (POW) will be developed by the Steering Technical Committee (STC) and proposed to the Policy Group (PG) for approval.

Expected Outcomes and Outputs

The expected results of MDEP will be to:

- Increase knowledge transfer through the exchange of information on regulatory practices used by the regulators in their design reviews including the technical evaluations, codes, standards and safety goals, inspection practices, licensing requirements, safety research, operating experience, etc.
- Identify similarities and differences in the regulatory practices and obtain insights to better understand the technical basis for the differences.
- Move towards convergence on common regulatory positions and understand the differences where convergence is not practical in order to facilitate more efficient and effective design reviews.
- Increase stakeholders understanding of regulatory practices on an international basis
- Enhance the ability of regulatory bodies to cooperate in reactor design reviews, vendor inspections, and construction oversight, leading to more efficient and more safety-focused regulatory decisions.
- In completing its work, it is anticipated that the MDEP outcome would constitute a very useful input to upgrade the IAEA Safety Standards.

Programme Implementation

The programme should be implemented under the MDEP PG and the STC), with NEA continuing to serve the Technical Secretariat function. Two lines of activities should be established to carry out the work, following the strategies identified in the Pilot Report.

1. **Design specific activities.** Working groups for each new reactor design will share information and cooperate on specific reactor design reviews and construction oversight. Participants in these working groups would be the members and associate members who are actively reviewing, or preparing to review, or constructing the specific new reactor design. A design specific working group would be formed if three or more members and associate members express interest on working together. An EPR working group has been established to absorb the activities currently being undertaken by the US, Finnish and French regulators to share information on the EPR safety review, and including the UK, Canada and

Chinese Regulators, as new members. An AP1000 working group has been established including the US, UK, Canada and Chinese Regulators, to share information on the AP1000 safety review. When appropriate, other designs, including Generation IV designs could be included as working groups. Other MDEP members or associate members will be able to join the current working groups or new ones established, once they meet the requirements for entry.

2. **Issue-specific activities.** Working groups should be organized for the technical and regulatory process areas within the POW. These would initially include, but would not be limited, to issues such as Multinational Vendor Inspections, Pressure Boundary Components Codes and Standards and Digital I&C Standards.

Programme Organization

The programme will be governed by a Policy Group (PG) and implemented by a Steering Technical Committee (STC), each of them consisting of representatives from each of the participating national safety authorities.

The Policy Group will:

- Provide guidance to the STC on the overall approach.
- Monitor the progress of the programme in terms of results and timeliness.
- Provide guidance on the interaction with industry and other stakeholders.
- Establish financial terms by setting a yearly membership fee for members and associate members to cover MDEP common costs.
- Determine participation in the programme

The Steering Technical Committee will:

- Manage and approve the detailed programme of work including defining topics and working methods, establishment of technical working groups, nomination of experts.
- Approve procedures and technical papers developed by the working groups.
- Ensure coordination and interaction of the activities performed by design specific and issue specific groups.
- Establish interfaces with other international efforts to benefit from available work and avoid duplication, specifically in relation to CNRA and CSNI, IAEA and WENRA activities. Interact, as needed, with the GIF and INPRO to ensure effective communication and alignment with activities in similar areas.
- Implement PG guidance on interacting with industry and other stakeholders.
- Develop procedures, with the support of the NEA Technical Secretariat, for the handling of information to be shared in the Project.
- Report to the PG and take other management decisions as necessary.

- Establish additional Working Groups of experts for specific topics, to exchange information and produce reports identifying convergence on common regulatory positions.

The OECD Nuclear Energy Agency (NEA) will perform the Technical Secretariat function in support of the MDEP.

Membership

The MDEP will include two types of membership: MDEP members and MDEP associate members.

MDEP member is intended for experienced national regulatory authorities of interested countries that have already commitments for new build or firm plans to have commitments in the near future for new reactor designs. They will participate in the Policy Group, Steering Technical Committee activities, and working groups addressing the specific design(s) and issue(s) of interest.

MDEP associate member is intended for national regulatory authorities of interested countries that have already commitments for new build or firm plans to have commitments in the near future for a new reactor design. They will participate in the working group addressing the specific design of interest.

In addition, the PG may invite a national regulatory authority to become an MDEP candidate and participate in issue-specific and generic working groups, after showing that they have firm mid- to long-term plans to pursue new reactor licensing and construction. The MDEP candidate is a temporary status to benefit from interaction with other MDEP members, and they could potentially become fully contributing MDEP members or associate members once specific designs are selected for licensing and construction in that country.

Current MDEP members are the national regulatory authorities of Canada, China, Finland, France, Japan, Korea, Russian Federation, South Africa, the United Kingdom and the United States. In addition the IAEA will take part in the work of the MDEP.



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