

# **MULTINATIONAL DESIGN EVALUATION PROGRAMME (MDEP)**

## **Stage 2 – Terms of Reference (TOR)**

### **Background**

The Multinational Design Evaluation Programme (MDEP) is a multinational initiative 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.

Based on a series of informal discussions between head regulators throughout the world, consensus has been reached on a 3 stage process towards enhanced co-operation among regulators facing the licensing of new reactors in the near future. The three stages are:

- Stage 1 – Enhanced multilateral cooperation within existing regulatory framework.
- Stage 2 – Multinational convergence of codes, standards, and safety goals.
- Stage 3 – Implementation of MDEP Stage 2 products to facilitate licensing of new reactors, including those being developed by the Generation IV International Forum.

A key concept throughout the work of Stage 2 is that national regulators retain sovereign authority for all licensing and regulatory decisions.

Stage 1 of the MDEP currently underway is being conducted under memorandums of co-operation between France, Finland and the United States and focuses on the U.S./Finnish/French design reviews of the AREVA EPR. The Stage 2 effort being established as further described in these terms of reference is a result of the first preparatory meeting held 19<sup>th</sup> – 20<sup>th</sup> June 2006 at NEA Headquarters. Stage 3 is seen as the application of the Stage 2 work to the actual licensing scenarios that will take place within each country's own unique regulatory framework. It is anticipated that in addition to more near-term applications, ultimately, the results of the Stage 2 efforts will be used to facilitate the licensing of the Generation IV plant designs.

### **Objective**

The main objective of the MDEP Stage 2 effort is to establish reference regulatory practices and regulations to enhance the safety of new reactor designs. The convergence of regulatory practices and regulations associated with the reactor design reviews should allow for enhanced cooperation among regulators, improving the effectiveness and efficiency of the regulatory design reviews, which are part of each countries licensing process. It is expected that this will also:

- Enable and encourage safer global standardised reactor designs;
- Facilitate the design reviews of new reactors in many countries, including developing countries;
- Further public understanding and acceptance of safety goals on an international basis.

## **Scope**

MDEP Stage 2 will focus on efforts to more closely align differing national regulatory frameworks in consideration of new reactors designs. In order to provide practical and useful results, the products are expected to lead to convergence of codes, standards and safety goals.

Topics to be covered under MDEP Stage 2 are considered as broad scope or specific scope. Broad scope topics are technical or regulatory issues which are more policy oriented, are appropriate for discussion by senior level representatives, and are considered as primary objectives of the project (i.e. licensing basis / scope of design safety review / safety goals, how severe accidents are dealt by regulators, application of PSA to design safety review, acceptability of safety analysis methods, acceptability of safety research efforts, etc.). Specific scope topics are more technical in nature and require discussion by technical experts. Such specific scope topics would include issues such as component manufacturing oversight (including quality assurance issues), use of passive systems, regulatory review of Digital I&C/Computer safety systems, external threats, etc...

## **Expected Outcomes and Outputs**

The expected results of MDEP Stage 2 will be:

- Allow knowledge transfer through the exchange of information on regulatory practices used by the member countries 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.
- Seek for and achieve convergence on reference regulatory practices in order to facilitate more efficient and effective design reviews, if reasonably practicable.
- Implement the results on specific designs for new reactors.
- Further stakeholders understanding of regulatory practices on an international basis
- In completing its work, it is anticipated that the Stage 2 outcome would constitute a very useful input to upgrade the IAEA Safety Standards.

## **Project Implementation**

The project will be carried out in two (2) phases as follows:

### ***Phase 1***

1. A Preparatory Stage, which will include the preparatory work to establish the scope, objectives and initial planning including the preparation and approval of the terms of reference.
2. A Pilot Project, which will consist of two separate working groups to assess the feasibility of the work. The two working groups will be on:
  - Licensing basis / Scope of design safety review / Safety goals.
  - Component manufacturing oversight (including quality assurance issues).
3. An Assessment Period, where the results of the pilot project will be assessed and decisions will be made regarding the nature of the continuing project efforts.

### ***Phase 2***

MDEP Stage 2 Implementation Phase, where it is envisioned that the convergence of additional broad and specific scope topics will be pursued.

## **Project Organisation**

The Project 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 countries.

The Policy Group will:

- At its first meeting, elect its chair and approve the Terms of Reference.
- At its first meeting, confirm the Technical Secretariat.
- Provide guidance to the Steering Technical Committee (STC) on the overall approach on Stage 2.
- Establish a communication policy, including reporting within and outside the Project and the correct use of the information.
- Monitor the progress of the Project in terms of results and timeliness.
- Provide guidance on the interaction with industry and other stakeholders.

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.
- Establish interfaces with other international efforts to benefit from available work and avoid duplication specifically in relation to WENRA, IAEA, CNRA and CSNI 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 Technical Secretariat, for the handling of information to be shared in the Project.
- Perform as a working group for broad scope topics to exchange information and produce reports identifying convergence on acceptable regulatory practices.
- Report to the Policy Group and take other management decisions as necessary.

Additional Working Groups of experts may be set-up by the STC for specific topics, to exchange information and produce reports identifying convergence on reference regulatory practices.

The OECD Nuclear Energy Agency (NEA) will perform the Technical Secretariat function in support of the MDEP Stage 2 project, initially for the Preparatory Phase and Phase 1.

Participation in the policy group and steering committee is intended for interested countries that already have commitments for new build or firm plans to have commitments in the near future for new reactor designs. These include: Canada, China, Finland, France, Japan, Korea, Russian Federation, South Africa, the United Kingdom and the United States. Participation in the working groups will be initially limited to the above countries, but participation by others may be considered on a case by case basis through consensus of the Steering Technical Committee.

IAEA will take part in the work of MDEP Stage 2.

The funding of the Phase 1 is to be provided through a voluntary contribution from the United States (approximately one year of funding). Funding arrangements for the project beyond Phase 1 will be discussed during future meetings, after an assessment of the Phase 1 results is completed.

## **Timing and Scheduling**

The Preparatory Stage and the Pilot Project are expected to be completed approximately one year from the date of the acceptance of the Terms of Reference by the Policy Group. The Assessment Period of the Project is expected to take approximately three months, after which the timing and scheduling of the Stage 2 Implementation Phase of the project will be established.