



## Initiatives of the NEA in Response to the Fukushima Daiichi Nuclear Power Plant Accident

**Javier Reig**  
Head, Nuclear Safety Division  
OECD Nuclear Energy Agency

14 March 2012

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## Overview

- NEA immediately began monitoring the accident and sharing information with its Members
- NEA Sponsored a Regulators' Forum in conjunction with G8/G20 Ministerial Meeting on Nuclear Safety in June 2011
- NEA activities to provide direct support to Japan
- Initiatives of NEA Standing Technical Committees and MDEP
- Impact on the future of nuclear power development

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## NEA Regulators Forum

**8 June 2011 – Regulators' Forum in conjunction with G8/G20 Ministerial Meeting**

**Reinforcement of Key elements for nuclear safety:**

- The primary responsibility for nuclear safety is with the operator.
- The regulatory body must provide assurance that nuclear power stations are operated in a safe manner and in accordance with regulation.
- A strong regulatory body possesses technical ability and independence in decision making; works transparently; strives for continuous learning and improvement; and utilises international networks.

**Key improvement areas:**

- High standards and **continuous improvement** for nuclear safety
- Safety culture in both operator and regulator
- Implementation of **specific lessons learned**, i.e. emergency power supply, accident management, emergency response, etc
- Stakeholder involvement, especially during crisis communication
- Reinforce international cooperation

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### NEA support to Japan

**Transfer of NEA Member experience in post-accident management to the Japanese government**

- October 2011 conference on decontamination and rehabilitation
- NEA expert contribution to stakeholder discussions

**National safety reviews and stress tests**

- December 2011 experts meeting, public seminar, and advisory body meeting

**Enhancements to the Regulatory Infrastructure**

- January 2012 experts meeting on regulatory infrastructure changes in Japan

**Other specific areas under discussion**

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### NEA Integrated Response

**7 December 2011 – Tri-bureau meeting of the Committee on Nuclear Regulatory Activities (CNRA), the Committee on Radiation Protection and Public Health (CRPPH), and the Committee on the Safety of Nuclear Installations (CSNI)**

- Enhance cooperation and coordination among involved committees for efficiency
- Improved responsiveness to NEA Members' requests
- Cross-cutting activities identified and prioritised
- Short term high priority issues to be completed in 1 year
- Strategic alignment on new work scope of NEA

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### NEA Cross-Committee Activities

**Building on guidance from the tri-bureau meeting, Cross-Committee activities are being conducted or planned in at least the following areas:**

- Accident management including human factors and organisational issues related to the response to the accident
- Reassessment of Defence-in-Depth
- Evaluating the methodologies for defining and assessing initiating internal and external events, including coupled events, as well as methodologies defining the design basis criteria
- Evaluation of operating experience for events that may be precursors to events that could challenge the safety of nuclear power plants given the insights from the Fukushima Daiichi NPP accident
- Crisis Communication with the public, media and other stakeholders

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### NEA CNRA Initiatives

**In addition to activities related to the cross-committee issues, CNRA is conducting or planning activities in:**

- Siting considerations and the impact on licensing new reactors
- National Safety Assessments and Stress Tests
- Assessing regulatory infrastructure using insights from the accident
- Re-evaluate the implementation of the defence-in-depth concept
- Assess the effectiveness of operating experience programmes at identifying potential events similar to Fukushima Daiichi NPP accident (precursor events)
- Information sharing on Fukushima Daiichi NPP accident related activities between regulatory bodies and international organisations

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### NEA CRPPH Initiatives

**In addition to supporting the cross-committee activities, CRPPH is conducting or planning activities in:**

- Emergency management and recovery
  - Improvement of off-site emergency preparedness
  - Updating the "Short-Term Countermeasures Report"
  - Exchange of information and knowledge, and coordination, on national emergency management decisions
- Large-scale decontamination
  - rehabilitation of living conditions
- Occupational and public exposure management for severe accidents
- Assessment of radionuclide dispersion
- Dose forecasting and assessment
- Collective dose estimates and use
- Perform a practical review of ICRP Recommendations
- Radiological Protection criteria for trade goods

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### NEA CSNI Initiatives

**In addition to supporting cross-committee activities, CSNI is conducting or planning activities related to:**

- Accident management and mitigation of consequences for core melt accidents
- New means to evaluate loss of safety functions
- Robustness of electrical and cooling systems
- I&C for severe accident management
- Fuel degradation in the spent fuel pool
- Hydrogen generation and management/Containment venting
- Qualification and response of structures, systems and components
- Human factors and reliability assessment
- Source term analysis
- Modelling capabilities of BWR systems
- Comparisons of computer models

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NEA MDEP Activities

- MDEP has acknowledged the lessons being learned from the Fukushima Daiichi NPP accident are important factors that need to be considered
- MDEP Policy Group asked the design working groups (EPR and AP1000) to review the potential impact of Fukushima
- During the 2<sup>nd</sup> MDEP Conference on New Reactor Design Activities in September 2011 lessons being learned from the accident as they apply to new reactor designs were discussed by participants.
  - Siting considerations
  - Extended losses of the ultimate heat sink and electrical power
- In cooperation with the CNRA , MDEP will address the insights and experiences of NEA Members on the lessons learnt from the accident.

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Implications for the Future

- Societal acceptance relies on transparent & comprehensive information on risks of nuclear power recognizing:
  - Safety authorities have determined that existing nuclear power plants are safe to operate according to the very demanding standards in place today
  - Enhancements to further improve safety continue to be identified and implemented
  - Most countries with nuclear power programs re-affirmed their commitment
- For external hazards, defense-in-depth, and deterministic vs. probabilistic safety assessments, approaches may evolve based on:
  - Better understanding of external hazards and their consequences
  - Broader application of defense-in-depth
  - A more balanced use of deterministic and probabilistic approaches
- For radiological protection, emergency and post-accident management, policies are being revisited and may evolve, including areas such as:
  - Societal impacts beyond radiation hazards
  - Enhancements to crisis (emergency) communications
  - Enhanced offsite capabilities to respond to severe accidents
  - International coordination and cooperation

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The OECD Nuclear Energy Agency  
<http://www.oecd-nea.org/nsd>

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