

# The OECD Nuclear Energy Agency Activities on Safety and Regulation

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## OECD/NEA Membership



- Australia
- Austria
- Belgium
- Canada
- Chile
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Japan
- Korea
- Luxembourg
- Mexico
- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Russia
- Slovak Republic
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom
- United States

OECD and NEA member  
OECD member, not NEA  
NEA member, not OECD

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## The NEA Mission

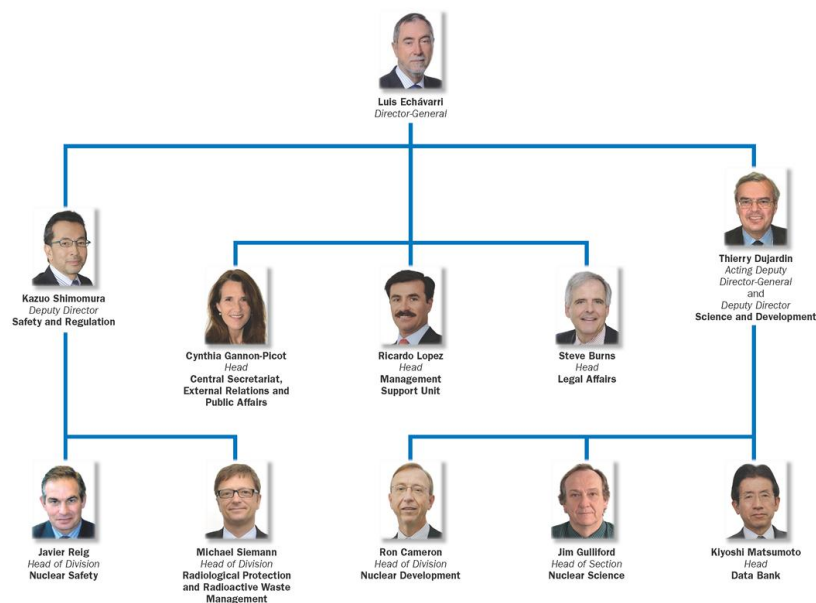


- To assist its member countries in maintaining and further developing, through **international co-operation**, the **scientific, technological and legal bases** required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.
- To provide authoritative assessments and to forge **common understandings** on key issues, as **input to government decisions on nuclear energy policy**, and to broader OECD policy analyses in areas such as energy and sustainable development.

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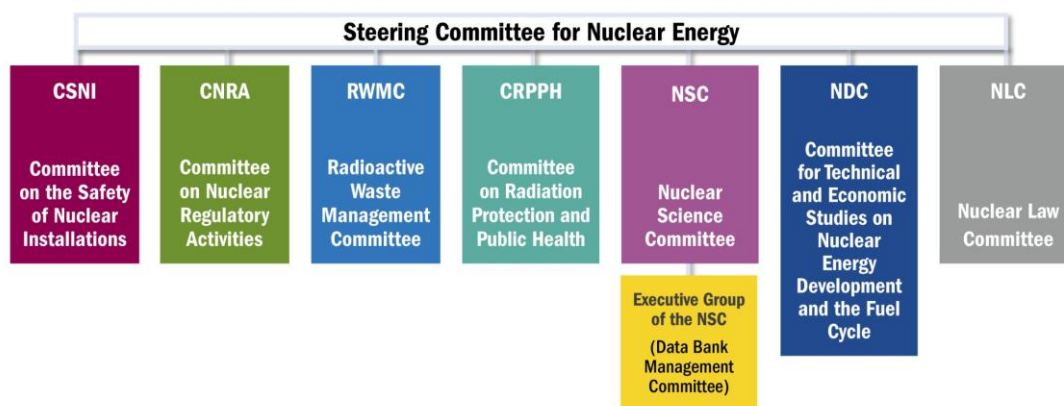
## NEA Secretariat Structure



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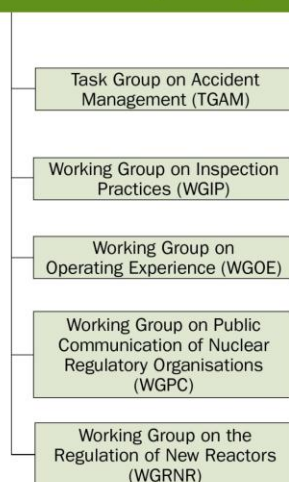
## NEA Standing Technical Committees



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### Committee on Nuclear Regulatory Activities (CNRA)

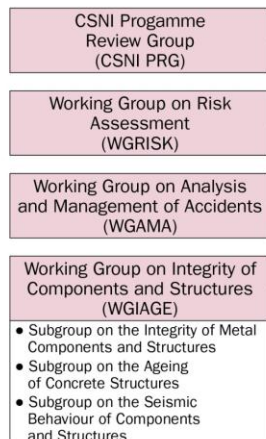


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## Committee on the Safety of Nuclear Installations (CSNI)



### OECD/NEA joint projects in the nuclear safety area:

- BIP-2 Project
- BSAF Project
- Cabri Water Loop Project
- CADAQ Project
- CODAP Project
- COMPSIS Project
- FIRE Project
- Halden Reactor Project
- HYMERES Project
- ICDE Project
- LOFC Project
- PKL-3 Project
- PRISME-2 Project
- ROSA-2 Project
- SCIP-2 Project
- SERENA Project
- SFP Project
- STEM Project
- THAI-2 Project

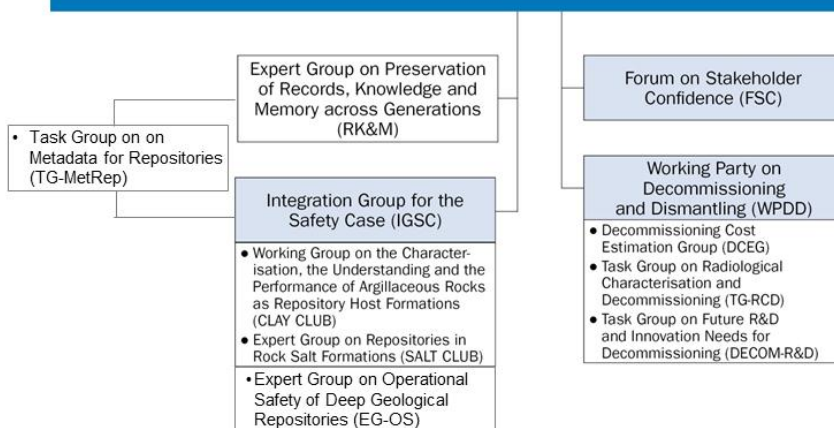
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## Radioactive Waste Management Committee (RWMC)

### Regulators' Forum (RWMC-RF)



### OECD/NEA joint projects in the radioactive waste management area:

- Co-operative Programme for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects (CPD)
- Thermochemical Database (TDB) Project

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## Committee on Radiation Protection and Public Health (CRPPH)

Expert Group on Radiological Protection Aspects of the Fukushima Accident (EGRPF)

Expert Group on the Implication of Recommendations (EGIR)

Expert Group on Radiological Protection Science (EGRPS)

Working Party on Nuclear Emergency Matters (WPNEM)

- INEX5 Planning Group

### OECD/NEA joint projects in the area of radiological protection:

- Information System on Occupational Exposure (ISOE)

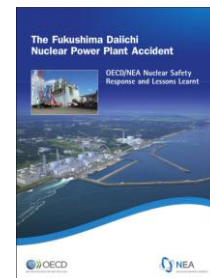
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## The Fukushima Dai-ichi NPP Accident: OECD/NEA Nuclear Safety Response and Lessons Learnt

- Published on 10 September 2013.
- **3 standing technical committees:**
  - ↳ Committee on Nuclear Regulatory Activities (CNRA)
  - ↳ Committee on the Safety of Nuclear Installations (CSNI)
  - ↳ Committee on Radiation Protection and Public Health (CRPPH)
- **Areas covered:**
  - ↳ Immediate response by NEA member countries, key messages and conclusions
  - ↳ NEA actions in follow-up to the Fukushima Dai-ichi NPP accident
  - ↳ Direct support to Japan by the NEA



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## Key Messages from the Fukushima Report (1/2)

- NEA member countries implemented focused safety reviews of their operating reactors and determined that they were **safe to continue operation**. Additional safety enhancements that will help to better cope with external events and severe accidents have been identified and are being implemented.
- Nuclear safety professionals have **a responsibility to hold each other accountable to effectively implement nuclear safety** practices and concepts.
- The **primary responsibility for nuclear safety** remains with the operators of the NPPs, and regulatory authorities have the responsibility to ensure that the public and the environment are protected.
- **There is no room for complacency in the implementation of nuclear safety** practices and concepts.
- The fundamental concepts of **defence-in-depth** remain valid and continue to be shared by those in charge of nuclear safety.

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## Key Messages from the Fukushima Report (2/2)

- **The Fukushima Daiichi NPP accident identified significant human, organisational and cultural challenges**, which include ensuring the independence, technical capability and transparency of the regulatory authority.
- Since an accident can never be completely ruled out, the necessary provisions for dealing with and managing a radiological emergency situation, onsite and offsite, must be **planned, tested and regularly reviewed**.
- Ensuring safety is a national responsibility but poses **a global concern** due to potentially far-reaching accident consequences.
- Complete experience feedback from the Fukushima Daiichi nuclear power plant accident will take many years.
- **A questioning and learning attitude is essential** to continue improving the high level of safety standards and their effective implementation.

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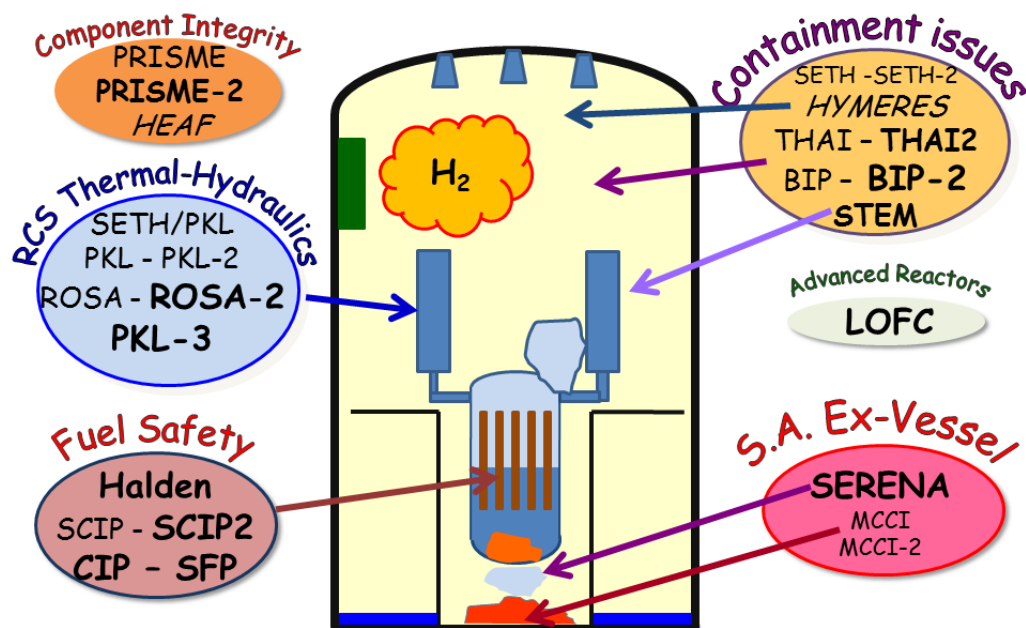
## NEA Joint Projects

- **Nuclear safety research and experimental data**  
(thermal-hydraulics, fuel behaviour, severe accidents).
- **Nuclear safety databases**  
(fire, common-cause failures).
- **Nuclear science**  
(thermodynamics of advanced fuels).
- **Radioactive waste management**  
(thermochemical database).
- **Radiological protection**  
(occupational exposure).

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## Current OECD/NEA Research Projects Safety



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## Current OECD/NEA Research Projects Safety

➤ <b>HALDEN</b>	Fuel & Materials, I&C, HOF	Norway
➤ <b>CIP</b>	Fuel in RIA transients	France
➤ <b>SCIP-2</b>	Fuel integrity	Sweden
➤ <b>SFP</b>	Fuel hydraulics/ignition phenomena	USA
➤ <b>LOFC</b>	Loss of Forced Coolant	Japan
➤ <b>JHIP</b>	Jules Horowitz international Program	France (planned )
➤ <b>ATLAS</b>	Design Extension Conditions	Korea (proposed 2014)
➤ <b>ROSA-2</b>	System TH	Japan
➤ <b>PKL-3</b>	RSC TH	Germany
➤ <b>THAI-2</b>	Containment (H <sub>2</sub> , FP,...)	Germany
➤ <b>HYMERES</b>	Containment TH (CFD)	Switzerland/France
➤ <b>BIP-2</b>	Iodine chemistry	Canada
➤ <b>STEM</b>	Source Term Evaluation & mitigation	France
➤ <b>SERENA</b>	Steam explosion	Korea & France
➤ <b>BSAF</b>	<b>Fukushima Dai-ichi Analysis</b>	<b>Japan</b>
➤ <b>PRISME-2</b>	Fire safety	France
➤ <b>HEAF</b>	High Energy Arcing Faults	USA

### Databases:

- **1.FIRE**   **2.ICDE**   **3.CODAP**   **4.CADAK**

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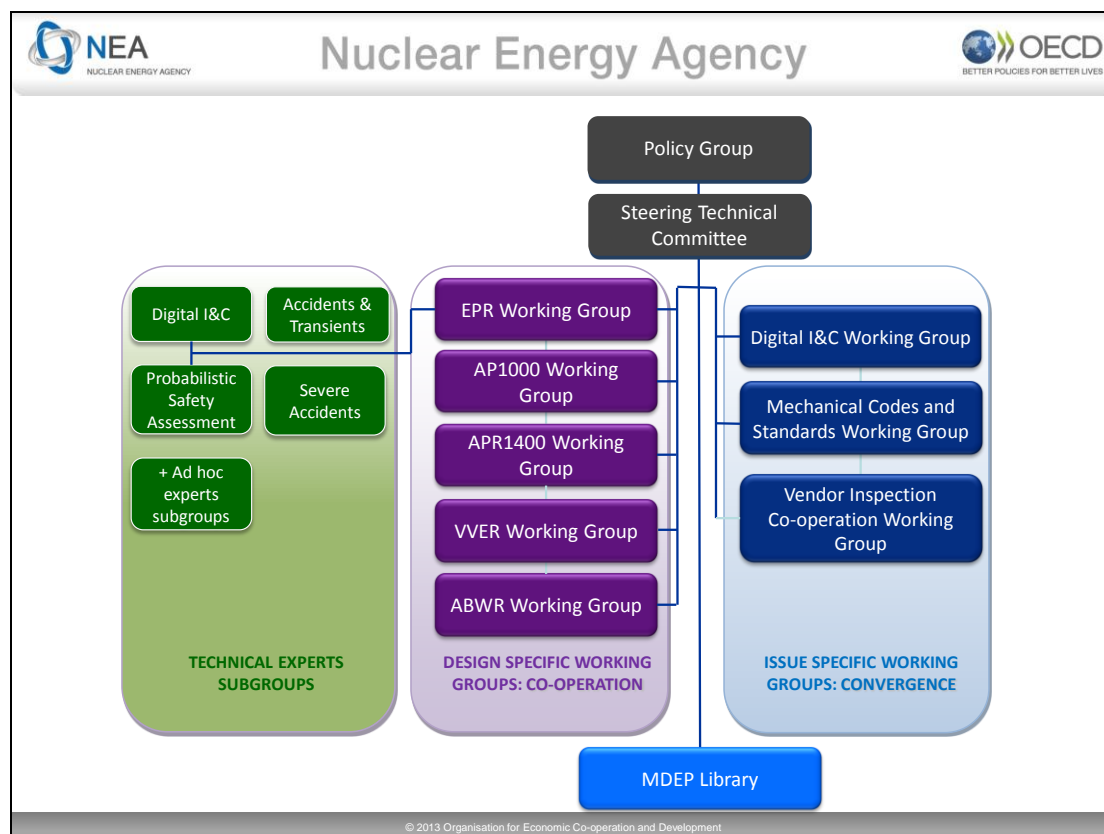
## Multinational Design Evaluation Programme (MDEP)

- Initiative by national safety authorities to leverage their resources and knowledge for **new reactor design reviews**.
- Independent project among the regulators of **13 countries** (Canada, China, Finland, France, India, Japan, Korea, Russia, South Africa, Sweden, the United Arab Emirates, the United Kingdom and the United States):
  - ↳ NEA secretariat support.
  - ↳ IAEA participation.
- Recently expanded membership (India, UAE associate member, Sweden).
- Assessing **Fukushima-related topics** through the design-specific working groups (EPR, AP-1000, APR1400).

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## NEA follow-up actions to the accident

- **Nuclear regulation**  
(accident management, defence-in-depth, review of precursor events, nuclear site selection, crisis communication).
- **Nuclear safety**  
(human performance, filtered containment venting, hydrogen management, robustness of electrical systems, spent fuel accident conditions, external hazards, tools for estimating fission product releases...).
- **Joint research projects**  
(benchmark study of the accident, hydrogen mitigation experiments, accident simulation).
- **New reactors**  
(Multinational Design Evaluation Programme).
- **Radiological protection**  
(nuclear emergencies, stakeholder dialogue).
- **Legal framework and liabilities**  
(Japan's Compensation System for Nuclear Damage).

## Thank you for your attention

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

