



# World Nuclear Association

COoperation in Reactor Design Evaluation and licensing  
**CORDEL**

**Towards International Standardization of reactor Designs**

*Bernard Fourest Director CORDEL*

USNRC Regulatory Information Conference March the 10<sup>th</sup> 2011

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## World Nuclear Association



**>190 Members**

- TRANSPORT, LEGAL, FINANCIAL, INSURANCE & BROKERAGE COMPANIES
- VIRTUALLY ALL URANIUM MINING, CONVERSION, ENRICHMENT & FUEL FABRICATION
- ALMOST ALL REACTOR VENDORS
- MAJOR NUCLEAR ENGINEERING, CONSTRUCTION & WASTE MANAGEMENT COMPANIES
- OPERATORS GENERATING SOME 90% OF WORLD NUCLEAR POWER

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## Four Pillars of Support for a Fast-Globalizing Nuclear Industry



- Providing Public Information and News
- Nuclear Fuel Market and Supply Chain
- Enabling Industry Contacts and Cooperation
- Representation in Key International Forums

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### The CORDEL Working Group

**Cooperation in Reactor Design Evaluation and Licensing - CORDEL Group**

- Founded in January 2007
- Main aim – **promotion of international standardization**
- Membership:
  - all major vendors:** AECL, AREVA NP, GE-Hitachi, Hitachi-GE, MHI, Toshiba, Westinghouse, KEPCO E&C, OKB Hidropress...
  - utilities interested in new build:** AXPO, CEZ, CGNPC, EDF, ENDESA, Energoatom, E.ON, Exelon, KHNP, NOK/Resun, OPG, Rosenergoatom, RWE, FEPC (TEPCO), TVO, Vattenfall, Visagino AE...
  - service companies:** EXCEL Services Corp., Rolls-Royce, AMEC, CH2M Hill,...
  - observers from int'l organisations:** FORATOM/ENISS, EUR, EPRI, ISO, IAEA, WANO, NEI...

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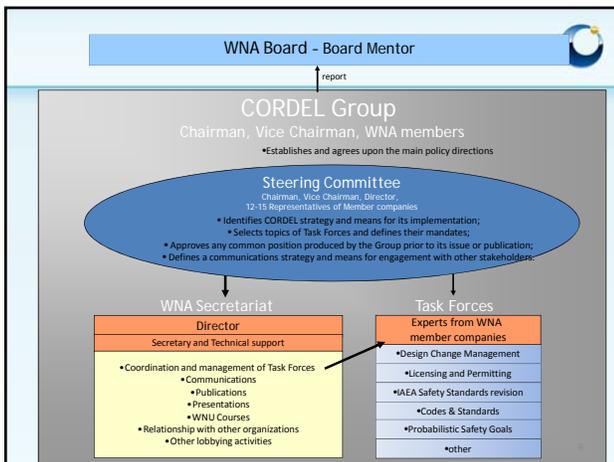
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WNA Discussion Paper

Benefits Gained through International Harmonization of Nuclear Safety Standards for Reactor Designs

2008

WNA Report

International Standardization of Nuclear Reactor Designs

2010

See [www.world-nuclear.org](http://www.world-nuclear.org) → Publications

International standardization means that each vendor's design can be built by a vendor, and ordered by a utility, in every country **without obligatory adaptation to specific national regulations**

International standardization will

- help deliver **large-scale worldwide new build**
- bring benefits for **safety**



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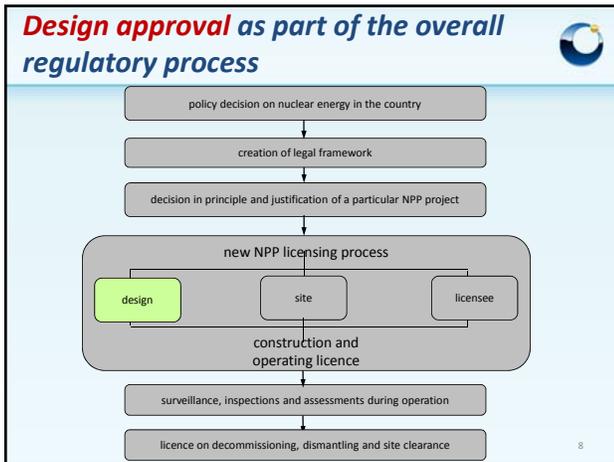
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### CORDEL Roadmap

"Internationalisation" of **DESIGN APPROVAL** process

- Phase1. Sharing design reviews and assessments
- Phase2. Validating and accepting design approvals of other countries
- Phase3. Issuing international design certification

Urgent need for international harmonization of

- » national licensing processes
- » safety requirements
- » applicable Standards and Codes

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### CORDEL – commitment from industry



13 April 2010, 12 Leading Nuclear Companies' CEOs published a letter of support for CORDEL:

- John Ritch, DG, WNA
- Anne Lauvergeon, CEO, Areva
- Hugh MacDiarmid, CEO, Atomic Energy of Canada Ltd.
- Henri Proglio, CEO, Electricité de France
- Wulf H Bernotat, CEO, E.On
- Christopher Crane, President & CNO, Exelon
- Jack Fuller, CEO, GE-Hitachi Nuclear Energy
- Masaharu Hanyu, President, Hitachi-GE Nuclear Energy
- Akira Sawa, Director, Nuclear Systems, Mitsubishi Heavy Industries
- Ichiro Takekuro, CNO, Tokyo Electric Power Co
- Yashuharu Igarashi, CEO, Power Systems Toshiba
- Aris Candris, CEO, Westinghouse

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### CORDEL Action Plan 2010-2011



The group encourages international cooperation in design reviews, mutual acceptance of design approvals and (in the long term) international certification of designs

- Interaction with MDEP & other regulatory initiatives
- Continuous participation in IAEA safety standards revision process
- Design Change Management - develop institutional mechanisms in the industry which would enable compliance with standardization throughout standard fleet's lifetime
- Promotion of harmonization of standards and codes
- Promotion of harmonization of probabilistic safety goals in the industry
- Development of permitting and licensing regimes in support of emerging markets (and licensing of SMRs)

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### Interactions with MDEP and others



- Initial letters were sent to MDEP, OECD-NEA and IAEA and cc to WANO.
- First official meeting with NEA - 16 December 2010.
  - with MDEP - 17 January 2011.
  - With European Commission 17 February 2011
  - With WANO 25 February 2011
- Other organizations of interest: IAEA, INSAG...
- Technical Support Organizations and their associations.

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**Codes & Standards: Harmonisation? Convergence? or Demonstration of Equivalence?**



- Differences should be analysed and understood
- New standards should be issued with harmonisation in mind
- There is a need to go a step further than MDEP's CSWG and to try to progress towards some convergence, at least on specific parts of the codes.
- Design and Construction codes (including procurement, manufacturing, quality control, inspection, commissioning, operation, maintenance) when revised should be applicable in any country

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**Codes & Standards : role of industry**



- The global industry – WNA members - is the major stakeholder of SDOs.
- Some issues might be easier to converge than others. Most beneficial with least effort - e.g. qualification of contractors, qualification of welders, examination (volume, performance and criteria...).
- WNA/CORDEL can unite the industry (utilities and vendors) in this effort.
- Engagement with mechanical codes organizations, digital I&C, and ISO is expected to accelerate in 2011.

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**Codes & Standards: Pilot Project proposal**



- CORDEL's first steps:
  - Some preliminary discussions with SDOs have already taken place.
  - WNA/CORDEL sent a letter to SDOs, stressing the need and suggesting the following...
    - **Pilot Project:**
      - Initiate a meeting (April 18) of the involved SDOs on mechanical codes and set up Terms and Conditions of a joined Pilot Project.
      - Start with selecting a few important specific parts of the codes where convergence is easier to achieve
      - Choose independent expert(s) to propose a "harmonised" version of the code or to demonstrate equivalence of these specific parts.

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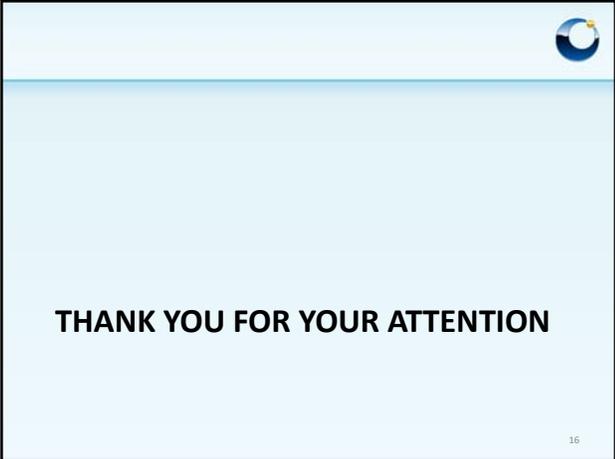
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**THANK YOU FOR YOUR ATTENTION**

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