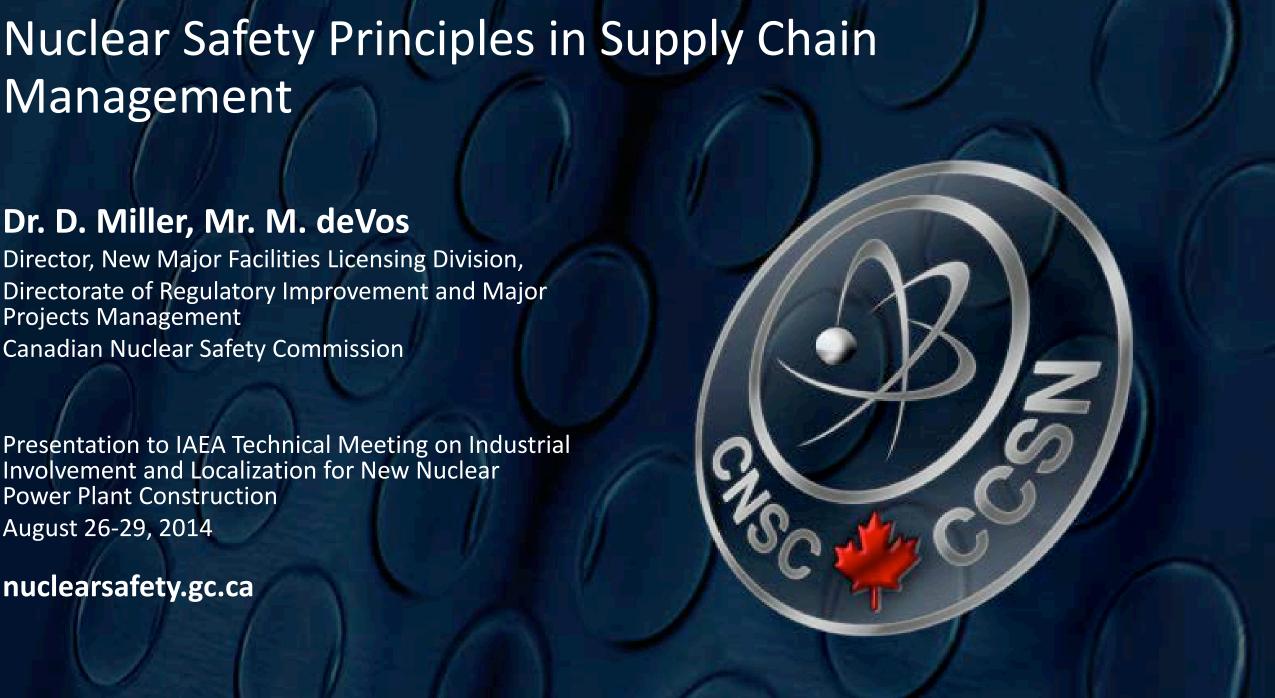
Management

#### Dr. D. Miller, Mr. M. deVos

Director, New Major Facilities Licensing Division, Directorate of Regulatory Improvement and Major Projects Management Canadian Nuclear Safety Commission

Presentation to IAEA Technical Meeting on Industrial Involvement and Localization for New Nuclear **Power Plant Construction** August 26-29, 2014

nuclearsafety.gc.ca



Canada



# Part 1: Who we are...





# Canadian Nuclear Safety Commission

- Established May 2000, under the Nuclear Safety and Control Act
- Replaced the AECB, established in 1946, under the Atomic Energy Control Act
- The CNSC regulates all nuclear-related facilities and activities

# Over 66 years of experience







To protect the **health**, **safety** and **security** of persons and the **environment**; and to implement Canada's **international commitments** on the peaceful use of nuclear energy

To disseminate objective scientific, technical and regulatory information to the public concerning the activities of the Commission and the effects on the environment and on the health and safety of persons





# Independent Commission

- Quasi-judicial administrative tribunal
- Independent Commission members
- Public hearings
- Supported by Secretariat and independent legal services
- Decision can only be reviewed by Federal Court



# Transparent, science-based decision-making

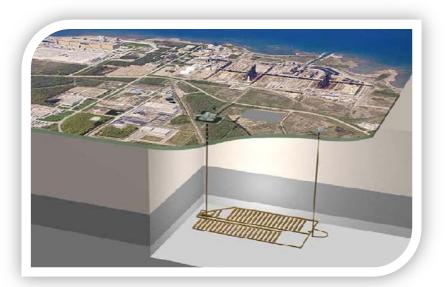




# CNSC Regulates All Nuclear-Related Facilities and Activities

- Uranium mines and mills
- Uranium fuel fabricators and processing
- Nuclear power plants
- Waste management facilities
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and educational
- Export/import control





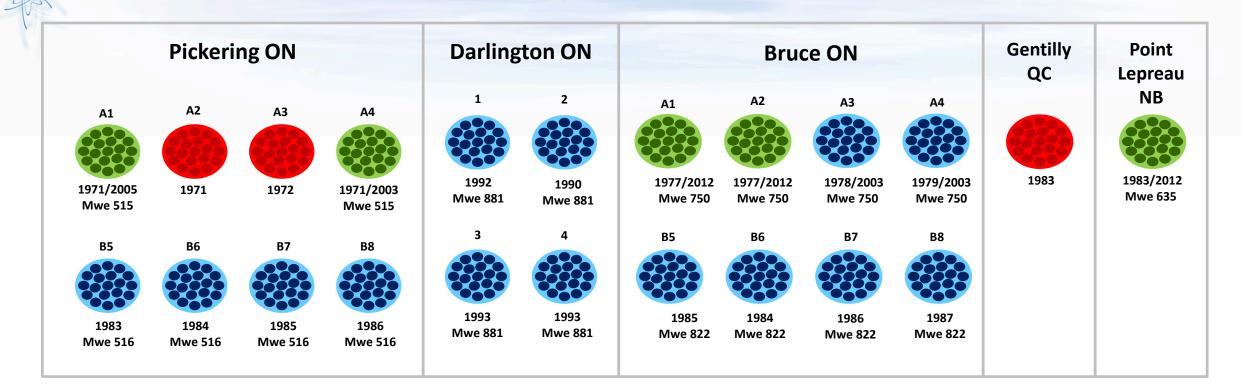
Saskatchewan











Typical share of nuclear energy in total electricity generation



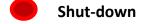
Ontario - 59%

New Brunswick - 30%

Operable status (Average age – 25 Years)









# Part 2: Nuclear Safety Principles in Supply Chain Management





# Approach to the Electricity Sector in Canada

- Choice regarding the electricity supply is made by the province or territory
  - it is not a federal decision
- The federal government provides the legal infrastructure for regulation of nuclear facilities and activities
  - ensures regulatory requirements are clear
  - ensures a balanced, efficient and transparent licensing process
  - confirms the licensee is meeting regulatory requirements and applies enforcement measures as necessary





# The Licensee is responsible for safety and is held accountable through their licence

#### Section 24(4) of the Nuclear Safety and Control Act

No licence may be issued, renewed, amended or replaced unless, in the opinion of the Commission, the applicant:

- (a) is qualified to carry on the activity that the licence will authorize the licensee to carry on; and
- (b) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed

For supply chain management, the licensee is expected to be an "Intelligent Customer"





# What is an "intelligent customer"?

"The capability of the organisation to have a clear understanding and knowledge of the product or service being supplied" (source UK Health and Safety Executive website <a href="http://www.hse.gov.uk/humanfactors/topics/customers.htm">http://www.hse.gov.uk/humanfactors/topics/customers.htm</a>)

#### The applicant / licensee :

- is expected to understand how each supply chain can potentially affect their safety case
- should have sufficient knowledge to be able to lead the presentation of the safety case to the Regulator (vendor / contractor does not speak on behalf of the licensee)





# Different types of supply chains

- Manufacturing and assembly of Structures, Systems and Components (SSCs) with performance characteristics driven by technical specifications
- Coding and validation of software, computer codes
- Services e.g. safety analysis, environmental impact statements, operations support (commissioning, outages), maintenance, even licensing

Supply chains for all areas have become longer and more global in nature Many levels of subcontracting being used





#### Role of the CNSC

- To ensure regulatory requirements are clear, CNSC :
  - promotes awareness of the need for strong supply chain management
  - ensures requirements and guidance bases are from sound nuclear safety principles and are reflective of the latest Operating Experience (OPEX)
  - participates in development of pertinent Canadian industrial codes and standards
  - seeks stakeholder input to verify requirements and guidance are fit-for-purpose
- To confirm the licensee is meeting regulatory requirements and apply enforcement measures if necessary
  - CNSC reviews how the licensee is continually assessing their supply chain (what codes and standards are being used?)
  - CNSC can perform independent vendor inspections where warranted





# Role of safety in the supply chain

- CNSC role is focused on confirming the adequacy of the licensee's procurement process.
  - procurement process is a licensee management system process that has nuclear safety implications
  - the proponent is expected to have processes to qualify their suppliers
  - 'project' covers the full facility lifecycle but generally focuses on construction and longterm operation





# Role of safety in the supply chain (2)

- Licensee's supply chain oversight needs to review the suppliers' understanding of the role of safety in the supply chain:
  - every level in the supply chain needs to demonstrate an understanding of what the product or service's safety importance is (e.g., safety classification)
  - the licensee needs to be able to verify the quality of the supply chain
- Training and qualification of personnel involved in the supply chain is important (e.g., machinists, welders, NDE inspectors, design engineers, safety analysts)
- Refer to the following CNSC documents regarding requirements and guidance for the supply chain:
  - RD/GD-369: "Licence Application Guide: Licence to Construct a Nuclear Power Plant"
  - REGDOC 2.3.1: "Construction of Reactor Facilities" (Draft)





### Applicable Canadian standards

- CSA N286-12 Management system requirements for nuclear facilities,
  - includes, under supply chain requirements: "When there is a requirement to buy local and the supplier does not meet the purchasing requirements, the responsible organization shall apply controls to fulfill the purchasing requirements."
- **CSA Z299** series of Quality Assurance Program Standards Categories; 1, 2, 3, 4. The categories providing a graded approach (1 being the highest) aligned to the safety function of the required products or service.
  - plans are in place to modernize them in line with other management system standards.
- **CSA N285.0** General requirements for pressure-retaining systems and components in CANDU nuclear power plants
  - includes general requirements for quality assurance providing alternate (Canadian) requirements to having an appropriate ASME certified QA program.





# Industry Supply Chain Support Groups in Canada

- Organisation of CANDU Industries (OCI) an association of over 170 leading Canadian suppliers to the nuclear industry in Canada and offshore. OCI members companies employ collectively around 30,000 highly skilled and specialized people who manufacture major equipment and components and provide engineering services and support for the 20 CANDU nuclear power plants in Canada as well as for CANDU and other nuclear plants in offshore markets.
- <u>Canadian Nuclear Association</u> non-profit organization established in 1960 to represent the nuclear industry in Canada and promote the development and growth of nuclear technologies for peaceful purposes.





# Regulatory Cooperation in Vendor Inspections

- <u>Multinational Design Evaluation Programme</u> Vendor Inspection Cooperation Working Group
  - process allows member regulators to witness or participate in key vendor inspections (for example I&C systems or pressure vessels)
  - helps develop common understanding of application of various codes and standards, inspection techniques etc.
  - those regulators can also form early opinions of suppliers based on inspection results
- Bilateral arrangements between regulators can also promote cooperative efforts

