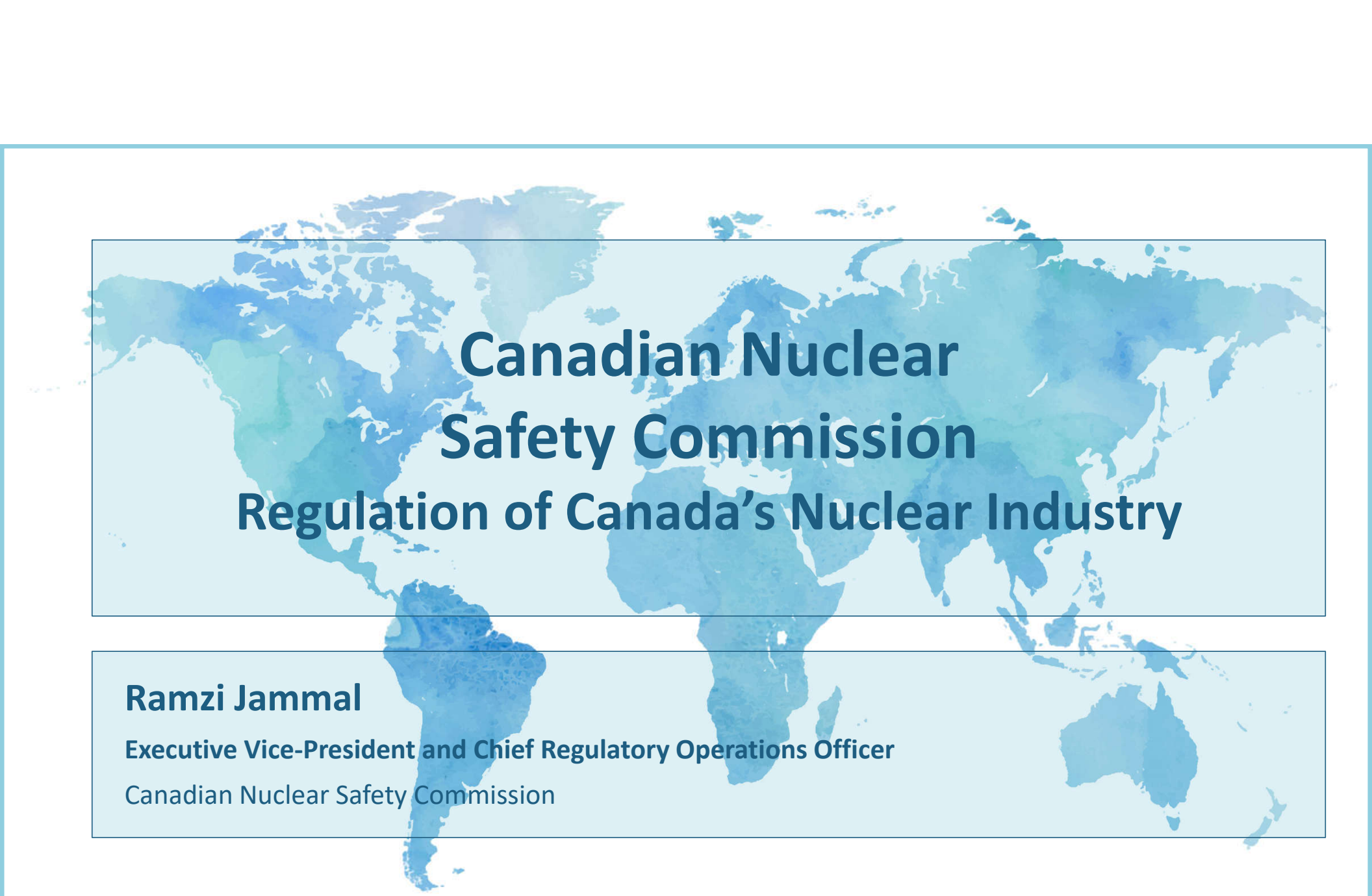


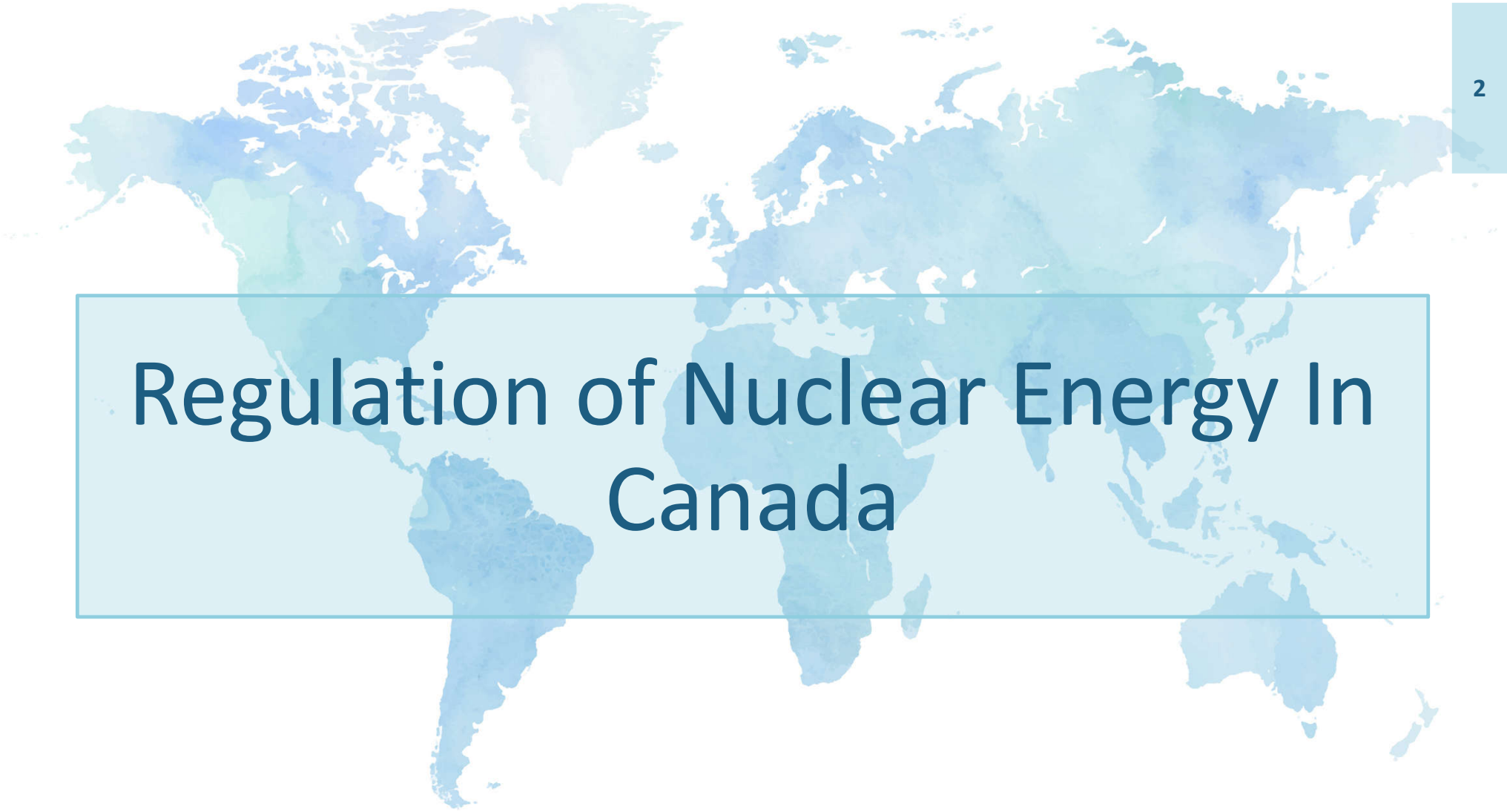
Canadian Nuclear Safety Commission

Regulation of Canada's Nuclear Industry

Ramzi Jammal

Executive Vice-President and Chief Regulatory Operations Officer

Canadian Nuclear Safety Commission



Regulation of Nuclear Energy In Canada

CNSC Mandate

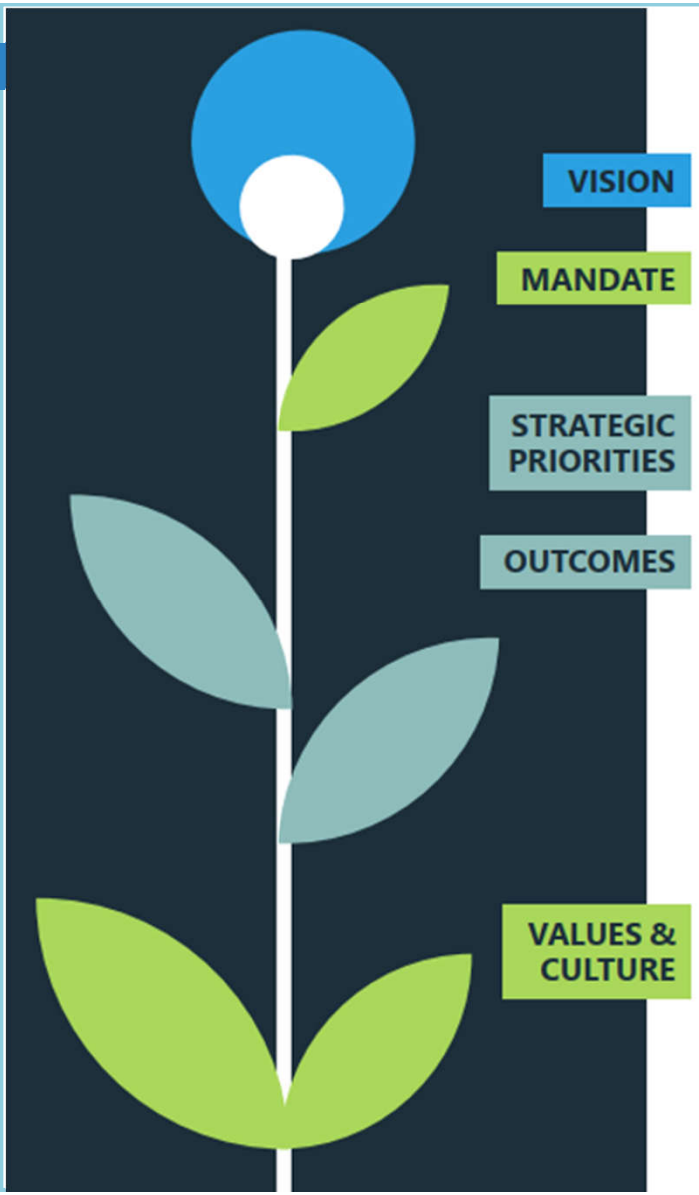
REGULATE
the use of nuclear energy and materials to protect health, safety, and security and the environment

IMPLEMENT
Canada's international commitments on the peaceful use of nuclear energy

DISSEMINATE
objective scientific, technical and regulatory information to the public

75 YEARS OF NUCLEAR SAFETY IN CANADA

Achieving Our Vision



VISION

To be a world-class nuclear regulator

MANDATE

The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment; to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public.

STRATEGIC PRIORITIES

To be a **modern** nuclear regulator	To be a **trusted** regulator	To be a leader and influence **global** nuclear efforts	To be an **agile** organization

OUTCOMES

• Robust, performance-based, regulatory framework • Science-based decisions and risk-informed actions • Enable technological innovation	• Independent, transparent, fair and competent • Credible source of scientific and technical information • Strong safety culture • Respectful and inclusive engagement	• Leadership role in enhancing nuclear safety and security, and harmonization of regulatory practices • Strong international relationships • Share and leverage knowledge and best practices	• Embrace change • Inclusive and representative workforce • Empowered and digitally enabled

VALUES & CULTURE

Respect the rights and contributions of everyone	Act with **integrity** in all that we do	Commit to being of **service** to Canadians, Indigenous peoples and the government	Always strive for **excellence** in our work	Commit to personal and professional **responsibility**	Promote and adhere to a strong culture of **safety**

The CNSC Regulates All Nuclear-Related Activities

Basis for a Licence Under the *Nuclear Safety and Control Act*

Where Are We Going?

Modern, Trusted Regulator, Global and Agile

- Performance-based, technology-inclusive
- Regulatory framework that is flexible and able to respond to industry changes
- Innovative regulatory approaches
- International regulatory cooperation and harmonization
- Public trust and Indigenous engagement

Safety is paramount

CNSC Regulatory Framework

***Nuclear Safety and Control Act* (NSCA)**

- Enabling legislation

Regulations

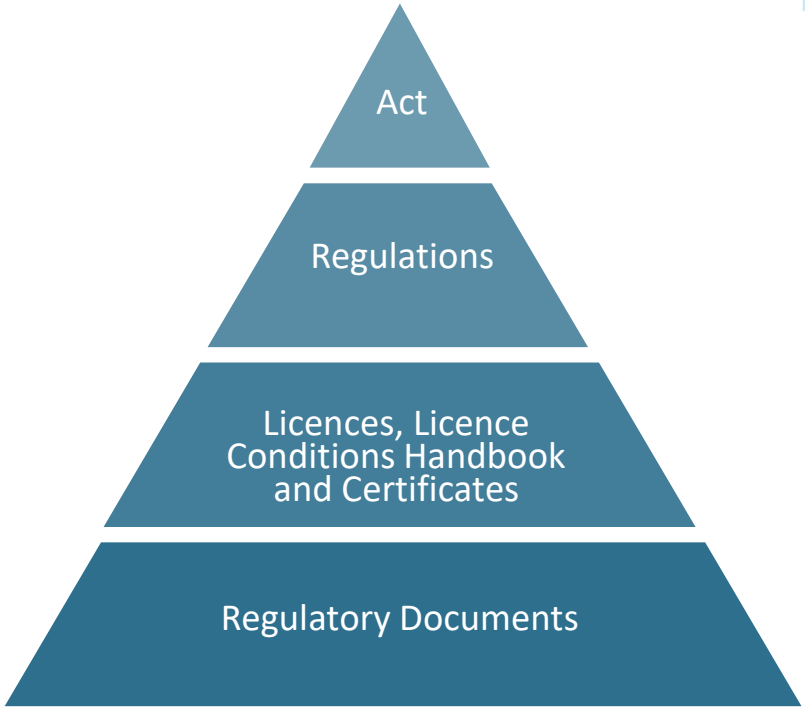
- High-level and generally applicable requirements

Licences, Licence Conditions Handbooks, Certificates

- Facility and/or activity specific requirements

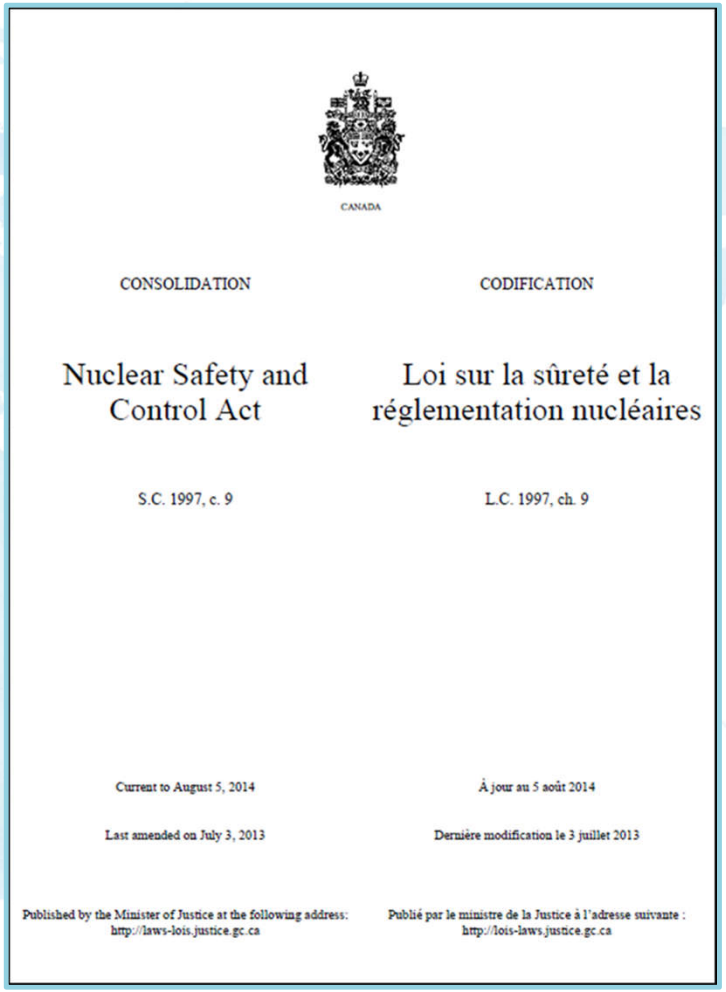
Regulatory Documents

- May include requirements and guidance



CNSC Licences

- Are legally binding
- Contain the licensee name, activities authorized, and licence period
- Include general licence conditions, and specific ones as needed



CANADA

CONSOLIDATION

CODIFICATION

Nuclear Safety and Control Act

Loi sur la sûreté et la réglementation nucléaires

S.C. 1997, c. 9

L.C. 1997, ch. 9

Current to August 5, 2014

À jour au 5 août 2014

Last amended on July 3, 2013

Dernière modification le 3 juillet 2013

Published by the Minister of Justice at the following address: http://laws-lois.justice.gc.ca

Publié par le ministre de la Justice à l'adresse suivante : http://lois-laws.justice.gc.ca

Licence Conditions Handbook

- Written and controlled by CNSC staff but presented to the Commission for information
- LCH groups details under the most relevant Licence Conditions (LC)
- For each LC, there are
  - Preamble
  - Compliance Verification Criteria
  - Recommendations and Guidance

Licensing Basis

The licensing basis sets the boundary conditions for a regulated activity.

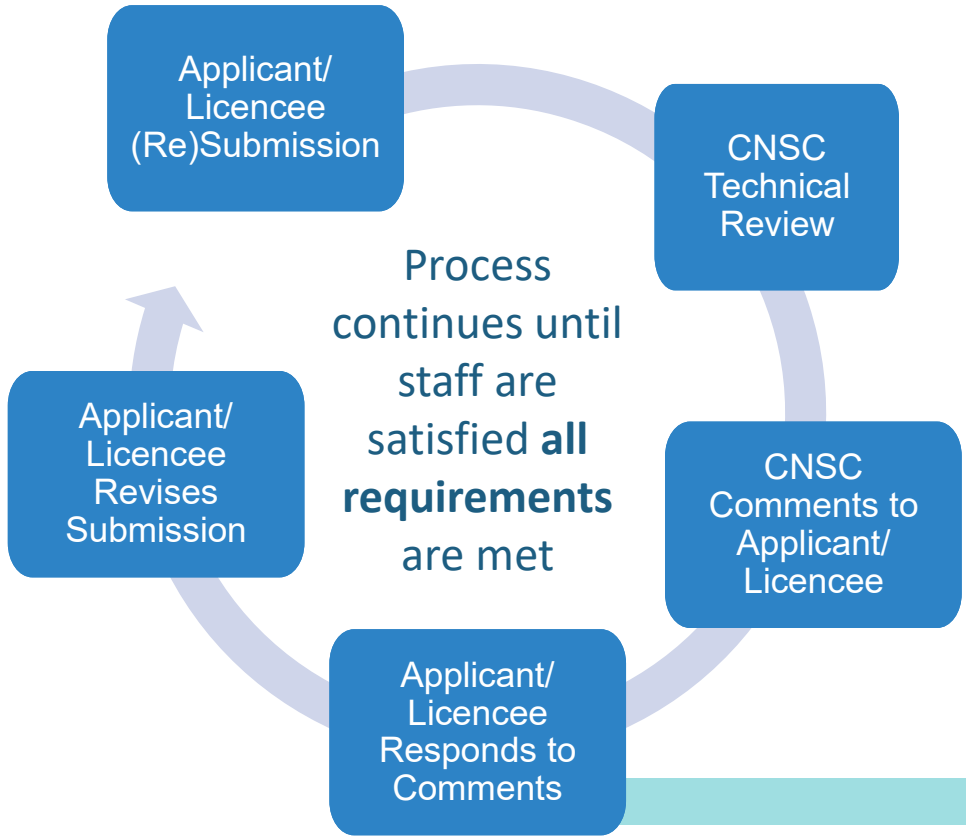
It includes:

- The regulatory requirements set out in the applicable laws and regulations
- The conditions and safety and control measures described in the licence, and the documents directly referenced in that licence
- The safety and control measures described in the licence application and the documents needed to support that licence application

Conduct of Technical Assessment
Continuous evaluation of new information

- Rigorous regulatory review through **technical assessments**
- **Licence application assessed** against regulations, regulatory documents, international guidance, Canadian Standards Association, etc.
- **3rd party reviewers** as necessary
- **Internal verification**, as necessary

Technical Assessment Topics include:
Long-term safety assessment, operational safety analysis, detailed decommissioning plan, waste inventory, etc.



Transparent Regulatory Process

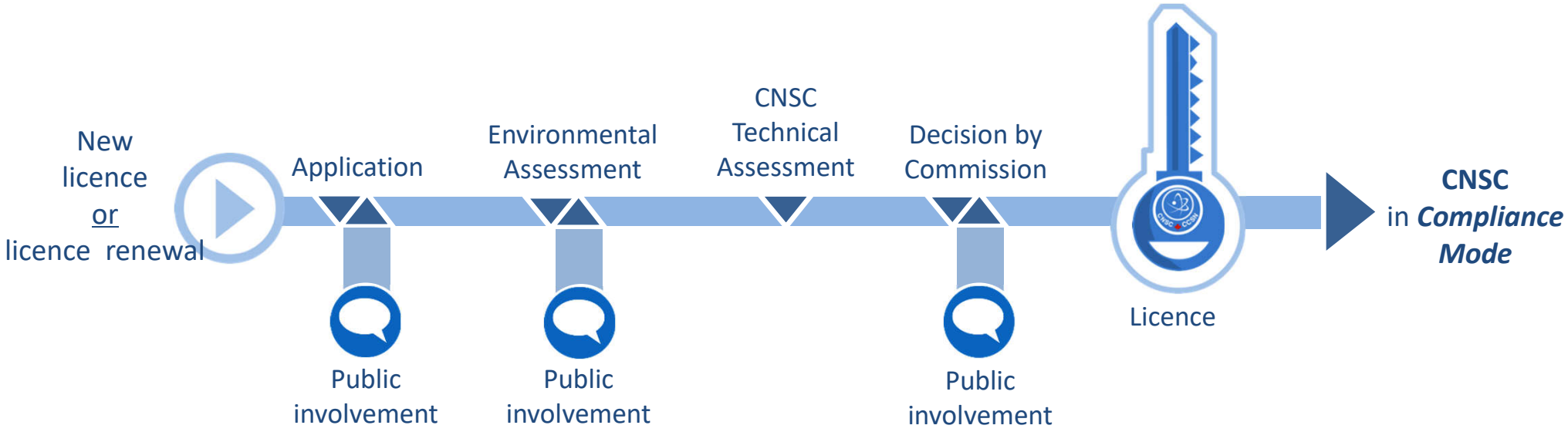
Licence under the Nuclear Safety and Control Act (NSCA) involves ongoing communication between the CNSC and the Proponent.

Pre-licensing – is optional process for CNSC to provide early feedback prior to applying for a Licence under the NSCA.

RegDoc 3.5.4 outlines Pre-Licensing Review of a Vendor's Reactor Design.

CNSC Licensing Process Overview

One process, regardless of facility size



Ongoing public involvement, Aboriginal consultation, and environmental monitoring

The Commission Tribunal

MS. RUMINA VELSHI

DR. TIMOTHY BERUBE

DR. SANDOR DEMETER

MR. RANDALL KAHGEE

DR. MARCEL LACROIX

MS. INDRA MAHARAJ

DR. VICTORIA H REMENDA

TRANSPARENT, SCIENCE-BASED DECISION MAKING

- Quasi-judicial administrative tribunal
- Agent of the Crown (Duty to Consult)
- Reports to Parliament through Minister of Natural Resources
- Members are independent and part-time
- Commission hearings are public and Webcast
- Staff presentations are public
- Decisions are reviewable by Federal Court

Informing Regulatory Decisions

Regulator and Licensee Responsibilities

Regulator (CNSC)

- Set safety requirements, inform licensees, verify compliance
- Assure Parliament and Canadians that licensee responsibilities are properly discharged
- Make **independent, objective** and **risk informed decisions**

Licensee

- Responsible **for safety**
- Manage regulated activities in a manner that protects the **health, safety, security**
  and the **environment** while respecting Canada's **international obligations**

Risk Informed Decision Making in the Regulatory Framework

Nuclear Safety and Control Act

Its objectives are to:

- **Prevent unreasonable risk** to the environment, and to the health and safety of persons
- **Prevent unreasonable risk** to national security, and
- **Achieve conformity** with international obligations

REGDOC-3.5.3 "Regulatory Fundamentals"

Describes Risk Informed approach to licensing and compliance activities

Focus on issues of higher risk for effectiveness and efficiency

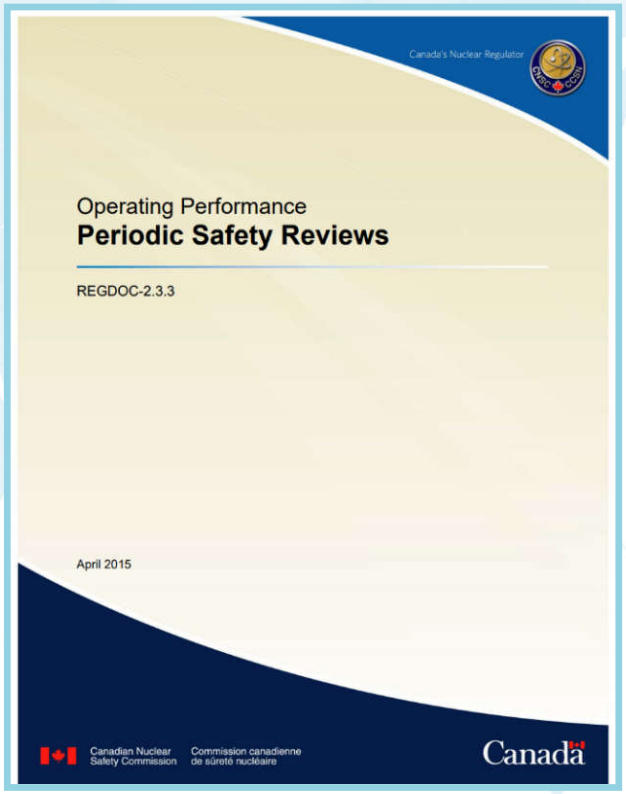
Risk Informed Approach

Periodic Safety Review results can be used to complement the deterministic approach, and Risk Informed Decision Making key principles

All REGDOCs prefaces indicate the use of the "Risk informed approach"

Periodic Safety Review (PSR)

- PSR Basis Document
- Safety Factor Reports
- Global Assessment
  - Including Defense in Depth
- Integrated Implementation Plan



Effects of the Environment on a Project

- All new nuclear power plants require the review of potential environmental effects on the project as part of their Integrated Impact Assessment
- Environmental Risk Assessment results are updated and reported on a 5-year basis
- Periodic Safety Review requires the review of environmental impacts on the project

All of these processes assess the risk from natural hazards or any changes in the operations

Collaboration and Research Efforts

Research and Stakeholder Partnerships

The **CNSC Research Program** generates knowledge and information to support CNSC staff in its regulatory mission

The CNSC regularly partners with **Canadian Standards Association** initiatives through provision of contributions and expert knowledge

Research results are used to inform **continuous improvement** such as to the CNSC regulatory framework

Regular Interaction with Licensees

The CNSC interacts with licensees to be aware of licensees projects to ensure CNSC readiness.

Discussions with licensees occur at various levels: executive, management and staff.

Consultation with licensees and the public on regulatory documents.

Licensees comments are addressed through a formalized process (discussed on slide 12).

The CNSC has established processes to provide regulatory clarity and expectations to licensees or designer through the Vendor Design and administrative protocols processes.

Indigenous Engagement and Consultation

As an agent of the Crown, CNSC:

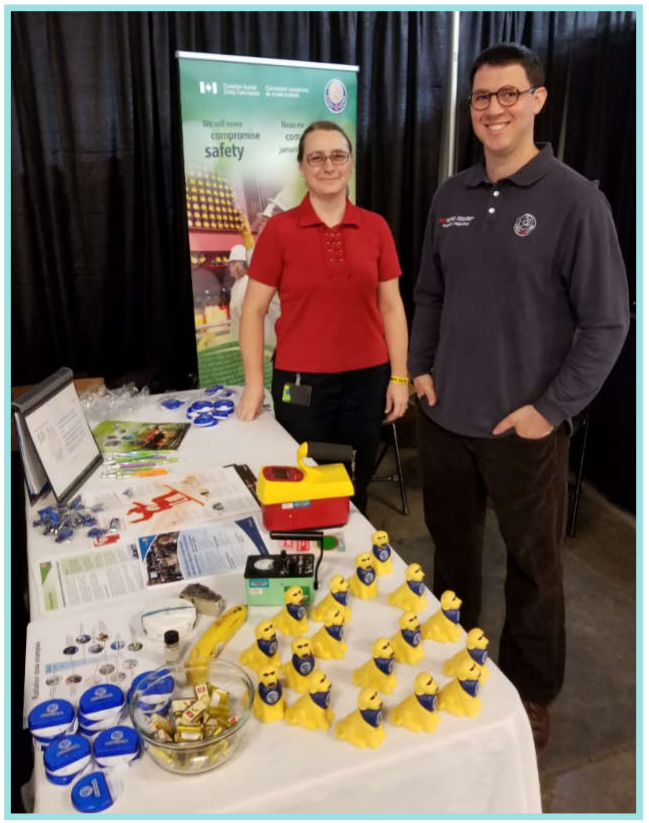
- **Consults with Indigenous Nations and communities** to understand and address potential impacts to Indigenous and/or treaty rights from a project
- **Leads a whole-of-government approach** to improve the efficiency and effectiveness of engagement and consultation
- **Invites Indigenous Nations and communities** to share traditional knowledge and land use practices to inform regulatory processes and decisions, where appropriate
- **Requires licensees to engage** with potentially affected Indigenous Nations and communities early in the development and throughout the life of a project

Building long-term positive and trusted relationships with Indigenous Nations and communities in Canada

Public Engagement

CNSC's approach –
transparency of staff's technical review processes, and engaging through:

- Regular and consistent **status updates** (project bulletins, social media and web updates)
- Topical discussions with **two-way dialogue** (online webinars, one-on-one sessions, public events)
- **Contextualizing the project** (video and/or written Frequently Asked Questions)



International Cooperation

- International Atomic Energy Agency (IAEA)
- SMR Regulators' Forum
- Nuclear Energy Agency (NEA)
- Western European Nuclear Regulators' Association (WERNA)
- Cooperation in Reactor Design Evaluation and Licensing (CORDEL)
- CANDU Owners Group (COG)

JOIN THE CONVERSATION

nuclearsafety.gc.ca

Annex: Small Modular Reactors (SMRs)

Canada's SMR Action Plan

- Developing, demonstrating and deploying SMRs for multiple applications in Canada and internationally
- CNSC participating to support readiness

Interprovincial Memorandum of Understanding

- New Brunswick, Ontario and Saskatchewan (2019) and Alberta (2021)
- Framework for cooperation on developing and deploying SMRs
- Feasibility Study and Strategic Plan released

Two projects underway in Ontario

- Darlington New Nuclear Project (300 megawatts)
- Global First Power Project (5 megawatts)
- Others under consideration/proposed in New Brunswick and Saskatchewan

No formal SMR definition in Canada

- Wide range of technologies and sizes
- Output can range from kilowatts to a few hundred megawatts

House Science and Research Committee SMR Study expected to begin soon