CANADIAN NUCLEAR SAFETY COMMISSION

Jason K. Cameron
Vice-President, Regulatory Affairs, and Chief Communications Officer
NARUC Summer Policy Summit – Committee on International Relations
July 15, 2018 – Scottsdale, Arizona
OUR 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
THE CNSC REGULATES ALL NUCLEAR FACILITIES AND ACTIVITIES IN CANADA

- Uranium mines and mills
- Uranium fuel fabrication and processing
- Nuclear power plants
- Nuclear substance processing
- Industrial and medical applications
- Nuclear research and educational activities
- Transportation of nuclear substances
- Nuclear security and safeguards
- Import and export controls
- Waste management facilities

Canadian Nuclear Safety Commission – nuclearsafety.gc.ca
CNSC STAFF LOCATED ACROSS CANADA

Headquarters (HQ) in Ottawa
Four site offices at power plants
One site office at Chalk River
Four regional offices

Fiscal year 2017–18
- Human resources: 857 full-time equivalents
- Financial resources: $148 million (~70% cost recovery; ~30% appropriation)
- Licensees: 1,700
- Licences: 2,500

Canadian Nuclear Safety Commission – nufacturesafety.gc.ca
INDEPENDENT COMMISSION

TRANSPARENT, SCIENCE-BASED DECISION MAKING

- Quasi-judicial administrative tribunal
- Agent of the Crown (duty to consult)
- Reports to Parliament through Minister of Natural Resources
- Commission members are independent and part time
- Commission hearings are public and Webcast
- Staff presentations in public
- Decisions are reviewable by Federal Court
Ms. Rumina Velshi appointed President and Chief Executive Officer for a five-year term effective August 22, 2018

Replaces Dr. Michael Binder, who has served as President and Chief Executive Officer since January 2008
COMMISSION MEMBERS

MR. TIMOTHY BERUBE
Appointed March 12, 2018
Four-year term

DR. SANDOR DEMETER
Reappointed March 12, 2018
Five-year term

DR. MARCEL LACROIX
Appointed March 12, 2018
Four-year term

MS. KATHY PENNEY
Appointed March 12, 2018
Four-year term

MS. RUMINA VELSHI
Reappointed March 12, 2018
Five-year term
CANADA’S URANIUM MINES AND MILLS
MINING OPERATIONS

ACTIVE URANIUM MINING OPERATIONS (SASKATCHEWAN)

- Key Lake Mill (Cameco)
- McArthur River Mine (Cameco)
- Rabbit Lake Mine/Mill (Cameco)
  - announced suspension – April 2016
- Cigar Lake Mine (Cameco)
- McClean Lake Mine/Mill (Orano)
  - licence renewed until June 30, 2027

Increased interest in exports to China and India
Global price not supportive of production – Low demand and oversupply

On 10-month suspension starting Feb 1, 2018

Above: Key Lake Mill, below: McArthur River Mine
MINING PROJECTS

URANIUM MINING PROJECTS
(NORTHERN SASKATCHEWAN)

Environmental assessment review complete
• Midwest (northern Saskatchewan) (Orano)
  – awaiting application

Projects under review
• Millennium (northern Saskatchewan)
  – on hold for economic reasons
  – tailings management inspections ongoing

Top: Midwest Project; bottom: Millennium Project
CANADA’S NUCLEAR POWER PLANTS
Canada’s Nuclear Energy Profile

**Typical share of nuclear energy in total electricity generation**

- **Canada** - 16.6% (CNA Factbook 2017)
- **Ontario** - 63% (IESO, 2017)
- **New Brunswick** - 33% (CNA Factbook 2017)

**Bruce A and B**
- 1. In service 1977/2012 904 MWe
- 2. In service 1977/2012 904 MWe
- 3. In service 1978/2003 904 MWe
- 4. In service 1979/2003 904 MWe

**Darlington**
- 1. In service 1992 935 MWe
- 2. Being refurbished 2016 935 MWe
- 3. In service 1993 935 MWe
- 4. In service 1993 935 MWe

**Pickering**
- 1. In service 1971/2005 542 MWe
- 2. Safe storage state
- 3. In service 1972 542 MWe
- 4. Safe storage state

**Gentilly-2**
- In service 1983
- Transitioning to safe storage since Dec 2012

**Point Lepreau**
- In service 1983/2012 705 MWe

**Notes:**
- In service within design life
- Refurbished and returned to service
- Safe storage state
- Transitioning to safe storage
- Refurbishment in progress
BRUCE NUCLEAR GENERATING STATION (ONTARIO)

- Public Commission hearing (Part 2) held May 28 to 31, 2018
CANADA’S NUCLEAR POWER PLANTS

DARLINGTON NUCLEAR GENERATING STATION (ONTARIO)

- Licence expires on November 30, 2025
- Refurbishment project began in October 2016 and is scheduled for completion by 2026
PICKERING NUCLEAR GENERATING STATION (ONTARIO)

- Licence expires on August 31, 2018
- Application for a 10-year licence renewal during which time Pickering will undergo permanent shutdown. Public Commission hearing (Part 2) held June 25 to 29, 2018
Point Lepreau Nuclear Generating Station

- Licence expires on June 30, 2022
- Refurbishment completed – Returned to service November 2012
CANADA’S NUCLEAR LABORATORIES
CHALK RIVER LABORATORIES (ONTARIO)

• Licence expires on March 31, 2028
• Commission hearing for renewal of Chalk River Laboratories’ operating licence took place in January 2018
THREE ENVIRONMENTAL ASSESSMENTS UNDER WAY FOR DECOMMISSIONING PURPOSES

- Near Surface Disposal Facility Project (Chalk River)
- Decommissioning of the Whiteshell Reactor #1 (Pinawa)
- Nuclear Power Demonstration Closure Project (Rolphton)
WASTE MANAGEMENT
ONTARIO POWER GENERATION (OPG) WASTE MANAGEMENT FACILITIES

- **Western** – Licence valid until May 31, 2027
- **Pickering** – Licence valid until August 31, 2027
- **Darlington** – Licence valid until April 30, 2023

OPG used fuel dry storage containers at the Western Waste Management Facility

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Canadian Nuclear Safety Commission - nuclearsafety.gc.ca
PORT HOPE AREA
INITIATIVE

Port Hope and Port Granby – Implementation phase (facility construction ongoing)

• Port Hope waste nuclear substance licence – Valid until December 31, 2022
• Port Granby waste nuclear substance licence – Valid until December 31, 2021
OGP DEEP GEOLOGIC REPOSITORY (DGR) FOR LOW- AND INTERMEDIATE-LEVEL WASTE

• Joint review panel environmental assessment report – May 2015
• In November 2015, Minister of Environment and Climate Change requested additional information and further studies on environmental assessment
• On August 21, 2017, the Minister requested additional information from OPG on the potential cumulative effects of the DGR project on physical and cultural heritage of the Saugeen Ojibway Nation (SON) – the SON considers this as reconciliation in action
FINDING A SITE FOR HIGH-LEVEL RADIOACTIVE WASTE

There are 5 communities remaining in the NWMO’s Learn More process (out of 22 original communities – 19 in Ontario, 3 in Saskatchewan)

• **2023** – A single preferred site is identified
• **2028** – Licence applications submitted
• **2040 to 2045** – Operations begin

NWMO Learn More communities
1. South Bruce
2. Hornepayne
3. Huron-Kinloss
4. Ignace
5. Manitouwadge
OTHER REGULATORY MATTERS
Fukushima Action Plan — Regulations

- Regulations governing Class I facilities, uranium mines and mills, radiation protection Cabinet approved – published in the *Canada Gazette, Part II* on October 4, 2017

Regulatory modernization — Regulatory documents

- Discussion paper DIS-16-04, *Small Modular Reactors* – What We Heard Report published September 2017
- Discussion paper DIS-16-03, *Radioactive Waste Management and Decommissioning* – What We Heard Report published December 2017
- Discussion paper DIS-17-01, *Framework for Recovery in the Event of a Nuclear or Radiological Emergency* – Public comment period closed in January 2018
- REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Drug and Alcohol Use* – Published December 2017
- REGDOC-2.1.2, *Safety Culture* – Published April 2018
- REGDOC-1.1.5, Licence Application Guide: Small Modular Reactor Facilities – Publication forthcoming
New legislation tabled, covering Bill C-68: To amend the *Fisheries Act*

**Bill C-69:** To enact the *Impact Assessment Act and the Canadian Energy Regulator Act*, to amend the *Navigation Protection Act* – Important component yet to come: Project list

**Generation Energy led by Minister of Natural Resources**
– Nuclear is part of the mix

14-member Generation Energy Council created in December 2017 to prepare report to inform the development of Canada’s energy policy and energy future
**Cabinet Committee on Diversity and Inclusion** looks at initiatives to strengthen relationships with Indigenous Canadians

**Working group of six ministers** to ensure that Canada’s laws, policies and programs protect Aboriginal and treaty rights

**United Nations Declaration on the Rights of Indigenous Peoples**
– Free, prior and informed consent Prime Minister’s speech on February 14, 2018 and commitment to support Bill C-262

**CNSC’s Indigenous engagement forums** – more formal, and structured approach
– will continue to strengthen relationships with Indigenous peoples in Canada
**RECENT NOTABLE ACTIVITIES**

**Small modular reactors (SMRs)**

- Expression of interest from ten vendors for vendor design reviews
- The CNSC completed the Phase 1 review for Terrestrial Energy’s 400-thermal-megawatt integral molten salt reactor in late 2017
- The CNSC participating in the pan-Canadian SMR road map and associated workshops
- A draft licence application guide for SMR facilities will be published soon for comment

Example of an SMR technology: Facility cross-section
Terrestrial Energy Integral Molten Salt Reactor (IMSR-4000) – (Courtesy of Terrestrial Energy)
• **Proximity of nuclear power plants**
  • All of Canada’s operating nuclear power plants are located near the border with the U.S.
  • The U.S. has six operating nuclear power plants near the U.S.-Canadian border

• **Transboundary planning zones**
  • Public safety concerns on both sides of the border (e.g. Fermi II and Pickering)
  • Public interest on both sides of the border in emergency management
Cross-Border Collaboration Efforts

Between nuclear regulators
- Memorandum of understanding in place that covers information sharing during an emergency
- Participate in each other’s emergency exercises
- Exploring inspector exchanges on emergency management

Between federal governments
- Canada / U.S. Joint Radiological Emergency Response Plan
  - Provides for early notification, coordination of activities, and provision of mutual aid in the event of a nuclear emergency (Department of Homeland Security / Federal Emergency Management Agency and Public Safety Canada)

Between provinces and states
- Under the Province of Ontario’s Implementing Plan for a Transborder Nuclear Emergency, the province is contacting the affected U.S. State Emergency Operations Centres to discuss the option of deploying liaison teams in a nuclear emergency
Communications
Communications: Committed to Transparency

- Outreach – Indigenous and targeted audiences
- Digital presence: YouTube, Twitter, Facebook, LinkedIn, CNSC website
- Emergency communications
- Public and media inquiries
- Regulatory oversight of licensee public communications

Our vision: To be the trusted source of information on nuclear safety in Canada
“We will never compromise safety…

…it’s in our DNA”