



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada



CANADIAN NUCLEAR SAFETY COMMISSION

Ramzi Jammal

Executive Vice-President and Chief Regulatory Operations Officer

Canadian Update to the International Nuclear Regulators Association

May 17, 2018 – Gyeongju, Republic of Korea



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



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**



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



COMMISSION MEMBERS



**MR. TIMOTHY
BERUBE**

Appointed
Mar 12, 2018
Four-year Term



**DR. SANDOR
DEMETER**

Reappointed
Mar 12, 2018
Five-year Term



**DR. MARCEL
LACROIX**

Appointed
Mar 12, 2018
Four-year Term



**MS. KATHY
PENNEY**

Appointed
Mar 12, 2018
Four-year Term



**MS. RUMINA
VELSHI**

Reappointed
Mar 12, 2018
Five-year Term



CANADA'S MINES AND MILLS



MINING OPERATIONS



ACTIVE 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
- On 10-month suspension starting Feb 1, 2018



Above: Key Lake Mill, below: McArthur River Mine

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



MINING PROJECTS



MINING PROJECTS (NORTHERN SASKATCHEWAN):

Environmental assessment review complete:

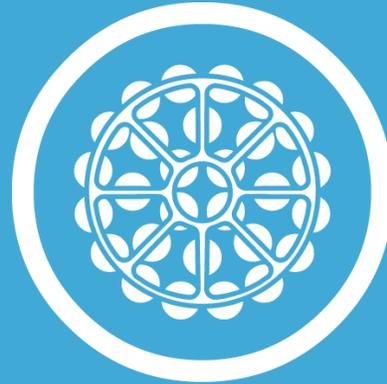
- Midwest (northern Saskatchewan) (Orano)
 - awaiting application

Projects under review

- Millennium (northern Saskatchewan)
 - on hold for economic reasons
 - tailings management inspections ongoing



Above: Midwest Project, below: Millennium Project



CANADA'S NUCLEAR POWER PLANTS



CANADA'S NUCLEAR POWER PLANTS



Bruce Nuclear Generation Station, Bruce A (top), Bruce B (bottom)

BRUCE NUCLEAR GENERATING STATION (ONTARIO)

- Licence expires on May 31, 2020. Letter of intent for refurbishment filed on June 30, 2017.
- Public Commission Hearing (Part 2) scheduled for May 28-31, 2018.



CANADA'S NUCLEAR POWER PLANTS



Aerial view Darlington Nuclear Generating Station

DARLINGTON NUCLEAR GENERATING STATION (ONTARIO)

- Licence expires on November 30, 2025
- Refurbishment project began in October 2016 and is scheduled for completion by 2026



Aerial view Pickering Nuclear Generating Station

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) scheduled for June 26-28, 2018



Aerial view Point Lepreau Nuclear Generating Station

POINT LEPREAU NUCLEAR GENERATING STATION (NEW BRUNSWICK)

- Licence expires on June 30, 2022
- Refurbishment completed – Returned to service November 2012



CANADA'S NUCLEAR LABORATORIES



Aerial view Chalk River 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



Proposed, Near Surface Disposal Facility, Chalk River Laboratories

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



WASTE MANAGEMENT



OPG Used Fuel DSC's stored at the Western Waste Management Facility

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



WASTE MANAGEMENT



Aerial view Port Hope and Granby

PORT HOPE AREA INITIATIVE (PHAI)

**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



OPG 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



NUCLEAR WASTE MANAGEMENT ORGANIZATION (NWMO)



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



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-2.11.1**, *Waste Management, Volume II: Assessing the Long Term Safety of Radioactive Waste Management* – Published May 2018
- **REGDOC-1.1.5**, *Licence Application Guide for Licensing SMR Facilities* – Publication forthcoming



GOVERNMENT REVIEWS



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



INDIGENOUS RECONCILIATION



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 Roadmap and associated workshops
- A draft Licence Application Guide for Licensing SMR Facilities will be published soon for comment

Regulatory safety oversight culture assessment

- Report completed and shared with staff in February 2018
- Compared the CNSC against the NEA's The Safety Culture of an Effective Nuclear Regulatory Body
- Includes five recommendations as well as management responses to each

Peer Review Missions

- Canada will host an IAEA Emergency Preparedness Review (EPREV) Service Mission in early 2019
- The CNSC to request an IAEA review mission for radioactive waste and spent fuel management, decommissioning and remediation programs (ARTEMIS) to review the safety cases for CNL's proposed major projects



UPCOMING NOTABLE INTERNATIONAL EVENTS



6th Review Meeting of the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*

- May 20 – June 1, 2017 in Vienna
- Canada submitted and published its national report and questions & answers from other Contracting Parties

IAEA technical meeting to share experience on implementing safety improvements at existing NPPs

- June 11 – 14, 2018 in Vienna
- The CNSC's Executive Vice-President and Chief Regulatory Operations Officer to chair the technical meeting

62nd General Conference of the International Atomic Energy Agency

- September 17 – 21, 2018 in Vienna

International Symposium on Communicating Nuclear and Radiological Emergencies to the Public

- October 1–5, 2018 in Vienna
- Chaired by CNSC Vice-President Jason Cameron

Organizational Meeting of the 8th Review Meeting of the *Convention on Nuclear Safety*

- October 17, 2018 in Vienna
- Election of Officers and identification of topics for the next Review Meeting



ITEMS FOR INRA DISCUSSION



In situ decommissioning

Regulatory OPEX



“We will never
compromise safety...

...it's in our DNA”



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