



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada

THE CANADIAN NUCLEAR SAFETY COMMISSION

PRESENTATION TO THE USNIC TRADE MISSION TO CANADA



**Jason Cameron, Vice-President
Canadian Nuclear Safety Commission
August 28, 2017 – Ottawa, Ontario**

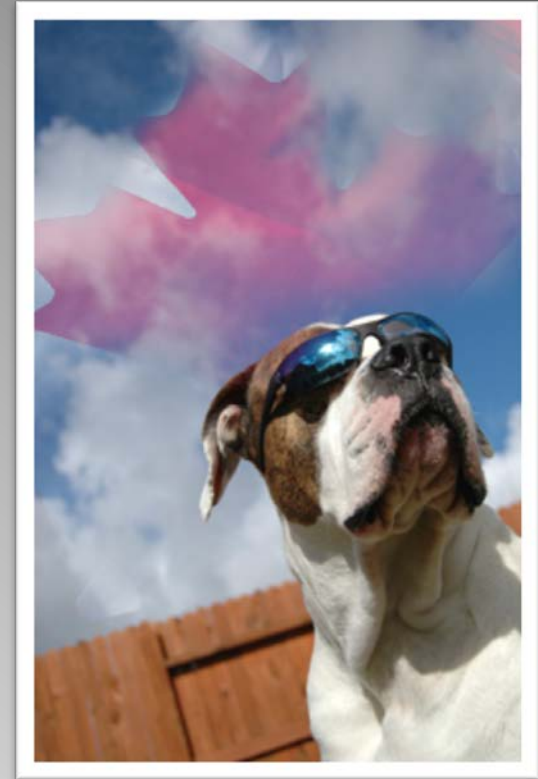


CANADA 150

nuclearsafety.gc.ca



- Regulates the use of nuclear energy and materials to protect **health, safety, security** and the **environment**
- Implements Canada's **international commitments** on the peaceful use of nuclear energy
- Disseminates **objective** scientific, technical and regulatory **information** to the public



Canada's nuclear watchdog

We will never compromise safety!

Canadian Nuclear Safety Commission



- Established in May 2000, under the ***Nuclear Safety and Control Act***
- Replaced the Atomic Energy and Control Board (AECB) under the 1946 ***Atomic Energy Control Act***

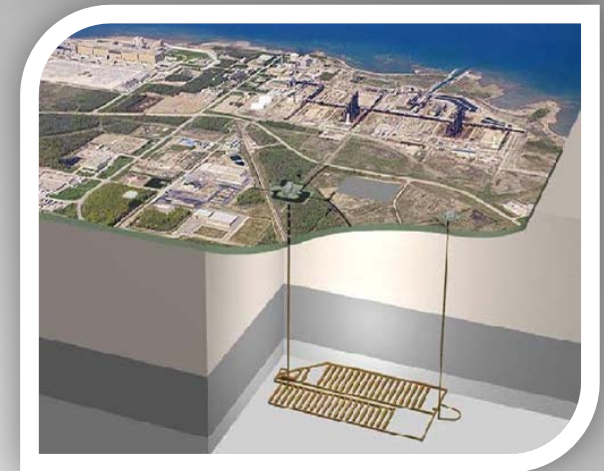
***More than 70 years of
ensuring nuclear safety***



CNSC Regulates All Nuclear-Related Facilities and Activities



- 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
- Export/import control
- Waste management facilities



...From cradle to grave

Independent Commission

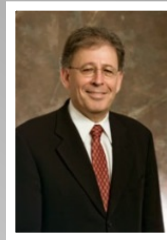


- Quasi-judicial administrative tribunal
- Agent of the Government of Canada (the Crown)
- Reports to Parliament through Minister of Natural Resources
- Commission members are independent and part-time
- Commission hearings are public and Webcast
- All presentations, including staff's, are public
- Decisions can only be reviewed by Federal Court

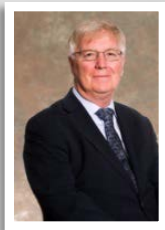


Transparent, science-based decision-making

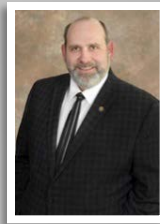
Our Commission Members



Dr. Michael Binder
President and Chief
Executive Officer, CNSC
(Term expires May 8, 2018)



Dr. Alexander (Sandy) McEwan
Chair, Department of Oncology,
University of Alberta
Edmonton, Alberta
(Term expires Mar. 6, 2018)



Dr. Sandor Demeter
Nuclear Medicine Section Head,
Health Sciences Centre of the
WRHA
Winnipeg, Manitoba
(one-year term expires Feb 17,
2018)



Vacancy



Dr. Soliman A. Soliman
Former Senior Technical Expert,
AMEC Foster Wheeler
Mississauga, Ontario
(one-year term expires Feb 17,
2018)



Vacancy



Mr. Rob Seeley
President, E3Merge Consulting
Fernie, British Columbia
(one-year term expires Feb 17,
2018)

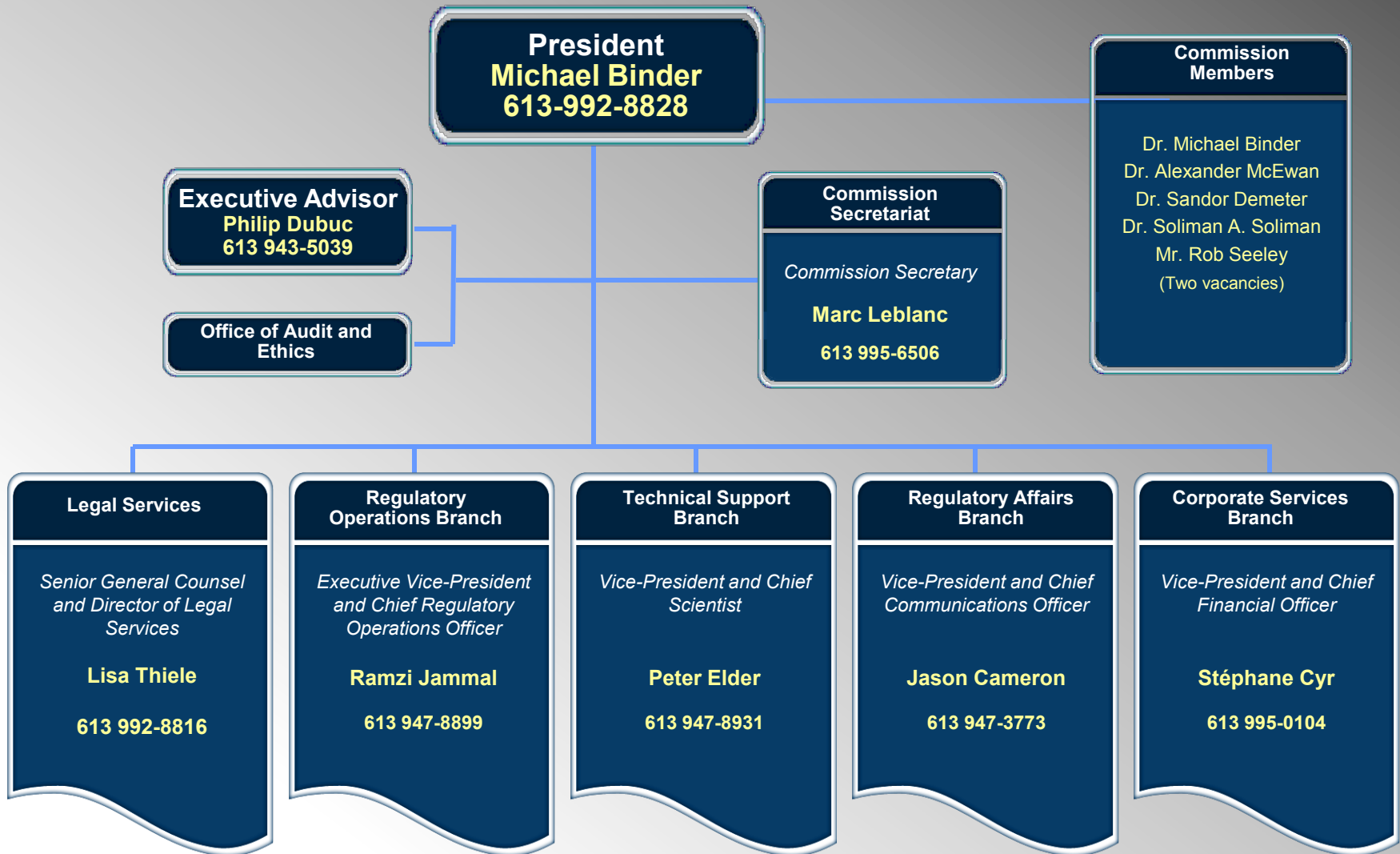
**Deep Geologic Repository (DGR)
Joint Review Panel (JRP)**

Dr. Stella Swanson
Biologist and Environmental
Consultant
Rockglen, Saskatchewan

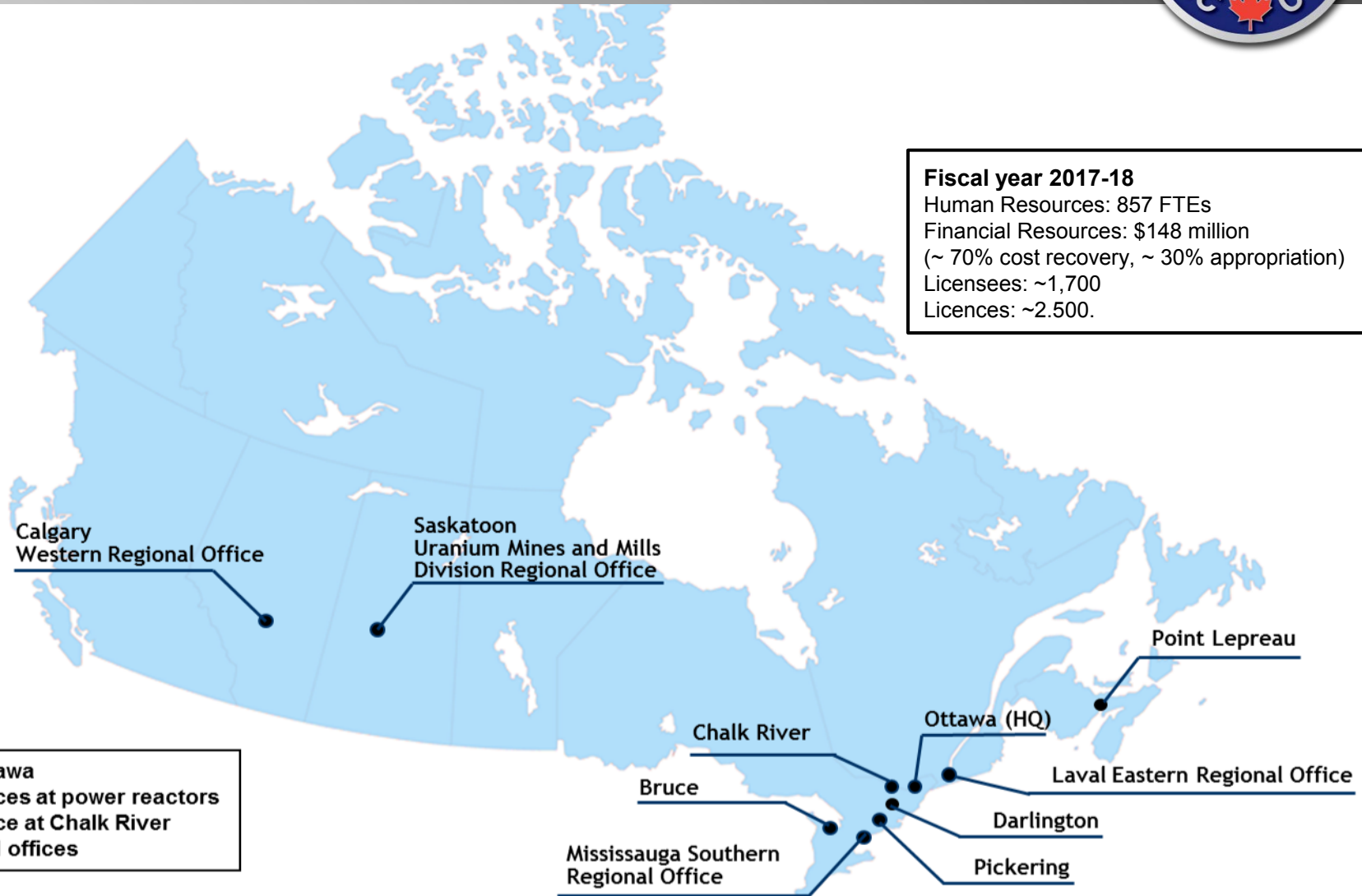
Dr. Gunter Muecke
Professor
Department of Geology,
Dalhousie University
Halifax, Nova Scotia

Dr. James F. Archibald
Professor
Department of Mining,
Queen's University
Kingston, Ontario

Canadian Nuclear Safety Commission



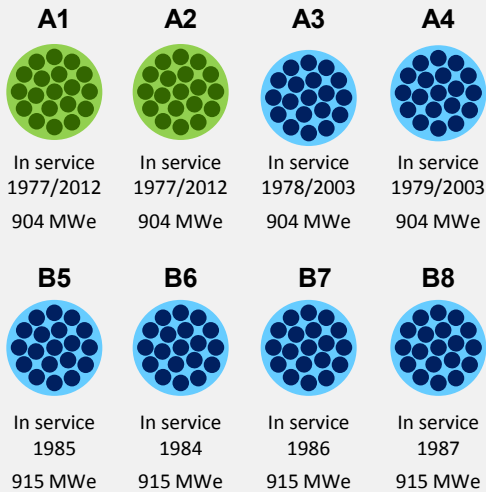
CNSC Staff Located Across Canada



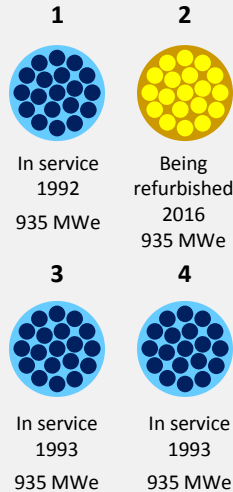
Canada's Nuclear Energy Profile



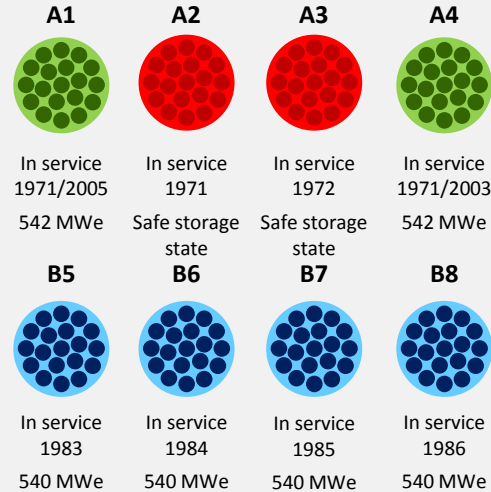
Bruce A and B



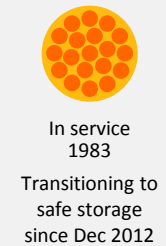
Darlington



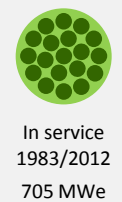
Pickering








Gentilly-2



Point Lepreau



-  In service within design life
-  Refurbished and returned to service
-  Safe storage state
-  Transitioning to safe storage
-  Refurbishment in progress

Typical share of nuclear energy in total electricity generation



Canada - 16.6% (CNA Factbook 2017)



Ontario - 60.8% (IESO, 2016)



New Brunswick - 33% (CNA Factbook 2017)

Nuclear Power Plants – Status



Darlington

- Current operating licence expires on November 30, 2025
- Darlington refurbishment
 - Refurbishment of Unit 2 began October 15, 2016
 - \$12.8 billion project to refurbish all four units between 2016 and 2026
 - CNSC will closely monitor the Integrated Implementation Plan (IIP) and will continue to conduct reviews and inspections throughout refurbishment
- New Build EA and NSCA Licensing (valid until August 17, 2022) – Ontario has put new build on hold



Pickering

- Current Operating Licence expires August 31, 2018
- End of commercial operation being planned for 2024, an extension to previously expected shutdown of 2020, getting some public/NGO attention
- Licence application to be submitted — August 2017
- Public Commission hearing (Part 1) set for April 2018



Nuclear Power Plants – Status (2)



Bruce

- Commission renewed licence until May 31, 2020
- Letter of intent for refurbishment filed on June 30, 2017

Point Lepreau

- Refurbishment completed — returned to service November 2012
- Renewal hearings took place in January and May 2017
- Operating licence renewed until June 30, 2022



Gentilly-2

- Québec decided to decommission, not refurbish
- In safe shutdown since December 28, 2012
- CNSC issued a decommissioning licence on June 22, 2016 until June 30, 2026



Deep Geologic Repository - 10+ Year Process



- Long-term storage of OPG's low- and intermediate-level radioactive waste (not high-level waste)
- **Public Hearings by the JRP for the EA and licence — September/October 2013 and September 2014**
 - 33 days of hearings / 246 interventions / 20,000 pages of documentation
- **JRP concluded that:**
 - The project is not likely to result in significant adverse effects to the environment
 - Any changes to the environment are not likely to cause significant adverse effects on Aboriginal interests
- **JRP Report was submitted to Minister of Environment May 6, 2015 for EA decision**
 - 97 recommendations to protect health and the environment
 - 90-day public comment period on draft EA conditions
 - Opposition from both Canadian and U.S. groups not based on the science



Deep Geologic Repository

Deep Geologic Repository (2)



- **Extensive public participation opportunities throughout the process**
 - Including open houses, public hearings, participant funding
- **High level of interest and involvement from the United States**
 - Opposition from various groups and elected officials
 - No technical objections from US EPA or Michigan Department of Environmental Quality
- **On February 18, 2016, Minister of Environment and Climate Change requested further studies and additional information on:**
 - Alternate locations for the project
 - Cumulative environmental effects of the project
 - An updated list of mitigation commitments for each identified adverse effect under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012)
- **OPG submitted requested information to the Minister in January 2017**
- **OPG submitted additional information to the Canadian Environmental Assessment Agency in June 2017 - proceeding to report writing and updating ministerial conditions**
- **Minister's decision expected by the end of 2017**



If positive EA decision, CNSC licensing decision follows

Waste Management



- **Public increasingly aware of radioactive waste issues and transportation**
- **Repatriation of Highly Enriched Uranium from Chalk River to U.S.**
 - The container has been certified by both the CNSC and the USNRC prior to use
- **Port Hope Area Initiative and Gunnar Remediation Project – ongoing**
- **OPG's Western Waste Management Facility (at Bruce site)**
 - Relicensing hearing held in April 2017 – licence renewed until May 31, 2027
- **OPG's Pickering Waste Management Facility (at Pickering site)**
 - Relicensing hearing held in April 2017
- **Canada's plan for long-term management of used nuclear fuel**
 - Nuclear Waste Management Organization (NWMO) — developed adaptive phased management (APM) for long-term management of Canada's used nuclear fuel
 - International best practice — CNSC involved early to explain regulatory role and meet communities / Aboriginal groups
 - 7 Ontario communities remain in NWMO host community search process — out of an original 22 (19 in Ontario, 3 in Saskatchewan)

***Federal government established
Radioactive Waste Policy Framework (1996)***

Canadian Uranium Projects Update



Active projects (all in Saskatchewan)

- Key Lake Mill (Cameco)
- McArthur River Mine (Cameco)
- Rabbit Lake Mine/Mill (Cameco)
 - Have suspended operations
- Cigar Lake Mine (Cameco)
- McClean Lake Mines/Mills (AREVA)
 - Commission hearing on June 7-8 in LaRonge, SK – licence renewed until June 30, 2027

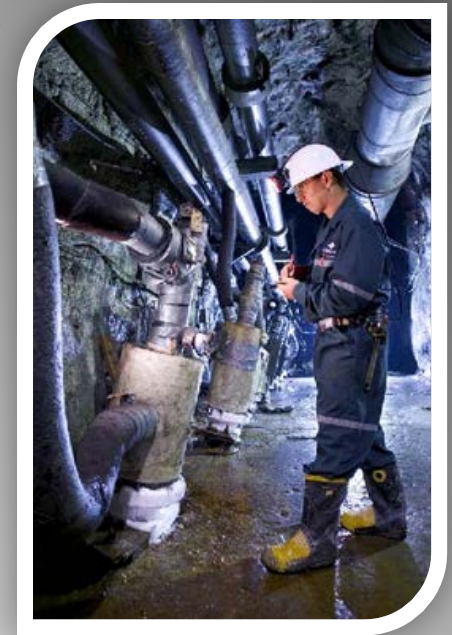
All granted 10 year licences — 2013

EA Review Complete — Awaiting Application

- Midwest Mine (Northern Saskatchewan) (AREVA)

Projects under review

- Millennium (Northern Saskatchewan) (Cameco)
 - On hold for economic reasons
- Tailings management inspections ongoing



Other Licensed Facilities and Activities



Canadian Nuclear Laboratories (CNL)

- CNSC renewed the Chalk River Laboratories Nuclear Research and Test Establishment Operating Licence on July 6, 2016 until March 31, 2018 (licence was set to expire October 2016)
- 3 EAs underway for decommissioning purposes:
 - Near Surface Disposal Facility Project (Deep River)
 - Decommissioning of the Whiteshell Reactor #1 (Pinawa)
 - Nuclear Power Demonstration Closure Project (Rolphton)

Non-Reactor-based Isotope Production

- Cyclotrons, linear accelerators

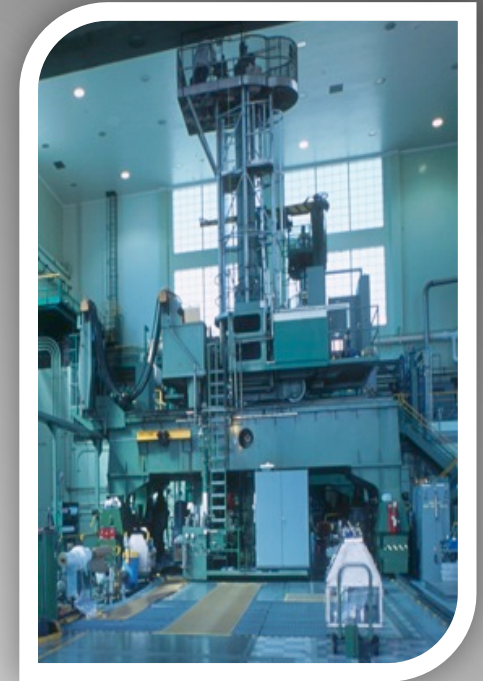
Nuclear Facilities / Prescribed Equipment

- Hospitals, cancer clinics, particle accelerators

Nuclear Substance Licences

- Industrial, research, radiography, etc.

University and Research Laboratories



**Over 2,000 licences across country –
medical, industrial, research**

Regulatory Reform



CNSC's Forward Regulatory Plan 2015-17

- Fukushima action plan – required revisions to Regulations:
 - Regulations governing Class I Facilities, Uranium Mines and Mills, Radiation Protection
 - Draft Regulations in Canada Gazette October 8 – November 7, 2016
- Reviews:
 - *Nuclear Security Regulations*
 - *Nuclear Non-proliferation Import and Export Control Regulations*

Regulatory Guidance Documents (REGDOCs)

- Recent:
 - REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* – Published in December 2016
 - REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* – Commission approved in December 2016
 - REGDOC-2.2.4, *Fitness for Duty : Drug and Alcohol Testing* – Presented to Commission in August 2017

Small Modular Reactors (SMRs)

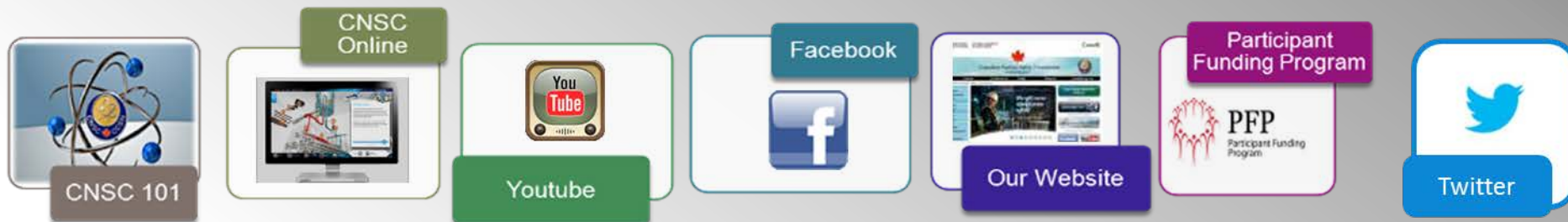
- Consultation on discussion paper closed September 2016 – over 430 comments received
- CNSC is currently engaged in 7 pre-licensing vendor design reviews (VDRs)

Public Engagement is Paramount



- Public hearing process
- Participant Funding Program
- Indigenous and public consultations
- Extensive outreach and engagement program
- Requirement for licensees to communicate

CNSC recognizes, supports and encourages the involvement of the public and Indigenous peoples in all CNSC processes



Building trust is a continuous process

Government Priorities



The CNSC aligns with the government's areas of focus, including:

1. Environmental and Regulatory Reviews

- Contributing to the government's environmental assessment and regulatory review processes
- Thorough environmental assessment process in place (69 completed)
- Independent Environmental Monitoring Program

2. Indigenous Relations

- Strong part of CNSC Policy Framework (includes Aboriginal Engagement REGDOC)
- A mature consultation and engagement process

3. Science-Based Decisions

- 800+ professional staff, including scientific and technical experts

The CNSC is well-positioned

Recap: Key CNSC Files

- **Upcoming major licensing hearings in 2018**
 - Chalk River, Pickering and Bruce relicensing
 - CNL EAs: Near-Surface Disposal Facility at CRL, Whiteshell and NPD Rolphton
- **Government Priorities**
 - Environmental Assessment and Regulatory Review
 - Open Government – IEMP
 - Indigenous relationship reform
 - Canada-US Regulatory Cooperation Council
- **Commission member appointments**
- **Regulatory documentation**
 - Fukushima Regulations
 - REGDOCs – Fitness for Duty – Drug & Alcohol Testing – presented August 2017
 - Discussion Paper on Small Modular Reactors
- **Long-term waste disposal**
 - OPG's DGR for low- and medium-level radioactive waste – licensing by CNSC if the EA is approved by Minister McKenna
 - NWMO APM project for spent fuel storage

We Will Never Compromise Safety...



It's in our DNA!