



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada



THE CANADIAN NUCLEAR SAFETY COMMISSION



CANADA 150

Michael Binder

President and Chief Executive Officer

OPG's Generation Oversight Committee – Bowmanville, Ontario

November 8, 2017

eDOCS 5368153

The Canadian Nuclear Safety Commission



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



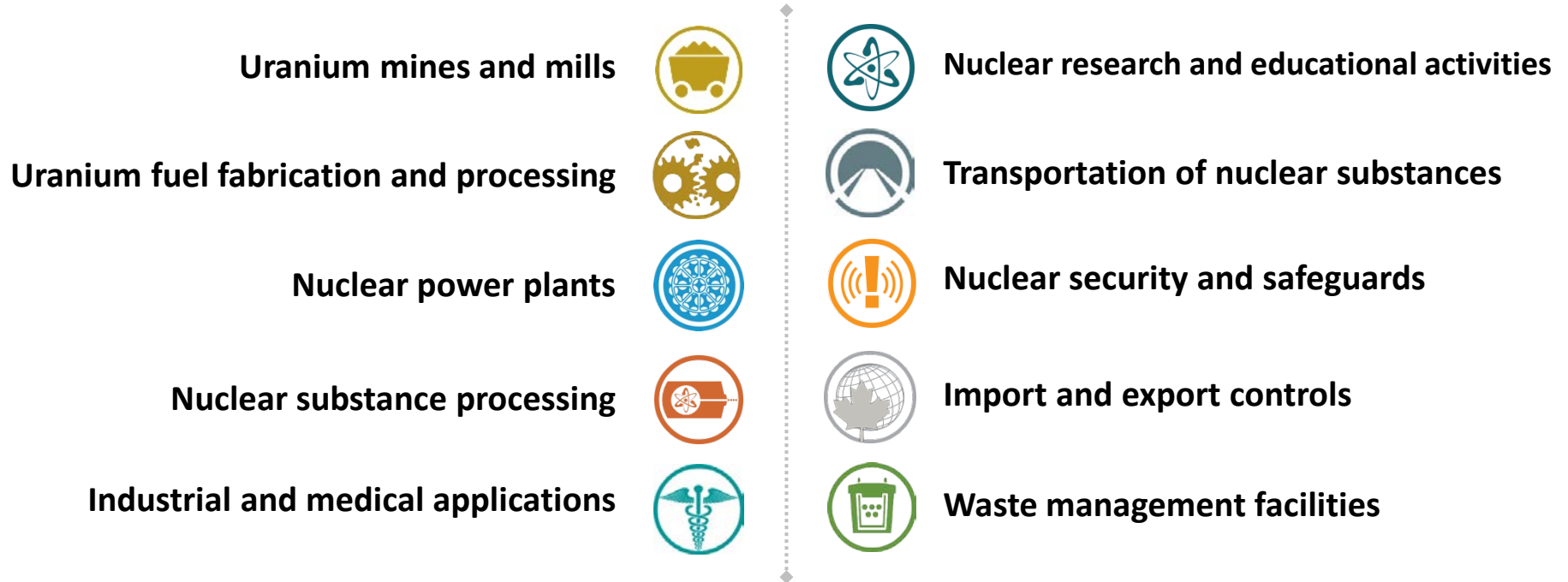
Implements Canada's **international commitments** on the peaceful use of nuclear energy



Disseminates **objective** scientific, technical and regulatory **information** to the public

Nuclear Safety and Control Act – clear, modern legislation

CNSC Regulates All Nuclear Facilities and Activities in Canada



From cradle to grave

CNSC Staff Located Across Canada



Fiscal year 2017–18

Human resources: 857 full-time equivalents

Financial resources: \$148 million

- ~70% cost recovery

- ~30% governmental appropriation

Licenses: 1,700

Licences: 2,500

Headquarters (HQ) in Ottawa

4 site offices at nuclear power plants

1 site office at Chalk River

4 regional offices

Independent Commission



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

Transparent, science-based decision making

Commission Members

two vacancies

Dr. Michael Binder



**President and Chief
Executive Officer**

Canadian Nuclear
Safety Commission
Ottawa, Ontario
**Term expires
May 8, 2018**

Dr. Alexander 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**

Dr. Soliman A. Soliman



**Former Senior
Technical Expert**

AMEC Foster Wheeler
Mississauga, Ontario
**One-year term expires
Feb. 17, 2018**

Mr. Rob Seeley



President

E3Merge Consulting
Fernie, British Columbia
**One-year term expires
Feb. 17, 2018**

Deep Geologic Repository

Joint Review Panel

Dr. Stella Swanson



Biologist

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

Uranium Mining

Active mining operations

Saskatchewan

- Key Lake Mill (Cameco) Granted 10-year licence in 2013
- McArthur River Mine (Cameco) Granted 10-year licence in 2013
- Cigar Lake Mine (Cameco) Granted 10-year licence in 2013
- Rabbit Lake Mine/Mill (Cameco) (Suspended operations in 2016) Granted 10-year licence in 2013
- McClean Lake Mines/Mills (Areva) Licence renewed until June 30, 2027

Mining projects

EA review complete

- Midwest Mine (northern Saskatchewan) (AREVA)
— Awaiting application

Projects Under Review

- Millennium (Northern Saskatchewan) (Cameco)
— on hold for economic reasons
— tailings management inspections ongoing

Increased uranium export opportunities with new-build activity in China and India

Darlington Nuclear Generating Station

Current operating licence

- Expires on November 30, 2025
- Refurbishment of Unit 2 began October 15, 2016
- CNSC will closely monitor the Integrated Implementation Plan (IIP) and will continue to conduct reviews and inspections throughout refurbishment
- REFURBISHMENT EA – Court upheld the CNSC's decision
- New build licence approved (August 17, 2012 to August 17, 2022)
 - Ontario government put project on hold



Darlington NGS

CNSC staff ratings presented to the commission on August 16, 2017

- Conventional health and safety SCA rating shifted from **fully satisfactory** to **satisfactory** since last year
- Integrated plant rating is **fully satisfactory**
- Past IEMP results indicate that the public and the environment around the Darlington NGS facility are protected and that there are no health impacts
- 2017 IEMP sampling results pending

Safety and control areas	2015	2016
Management system	SA	SA
Human performance management	SA	SA
Operating performance	FS	FS
Safety analysis	FS	FS
Physical design	SA	SA
Fitness for service	SA	SA
Radiation protection	FS	FS
Conventional health and safety	FS	SA
Environmental protection	SA	SA
Emergency management and fire protection	SA	SA
Waste management	FS	FS
Security	SA	SA
Safeguards and non-proliferation	SA	SA
Packaging and transport	SA	SA
Integrated plant rating	FS	FS

Pickering Nuclear Generating Station

Current operating licence

- Expires on August 31, 2018
- Application for a 10-year licence renewal during which time Pickering will undergo permanent shutdown – submitted on August 28, 2017
- Public Commission hearing (Part 1) set for April 2018
- Public Commission hearing (Part 2) set for June 2018



Pickering Proposed Continued Operations (2018–2028)



Work to support continued operations

- Periodic safety review (PSR) being conducted to establish safety case to support continued operations beyond 2020
 - Global assessment report (GAR) – Submitted on October 30, 2017
 - Integrated Implementation Plan (IIP) – Submission targeted for November 2017
- Whole-site probabilistic safety assessment (PSA) – To be presented at Commission meeting in December 2017

Decommissioning and closure

- Shutdown of units by December, 2024 – safe storage state by 2028

Subject to CNSC approval

Pickering NGS

CNSC staff ratings presented to the Commission on August 16, 2017

- Radiation protection SCA rating shifted from **fully satisfactory** to **satisfactory** since last year
- Integrated plant rating is **fully satisfactory**
- Past IEMP results indicate that the public and the environment around the Pickering NGS facility are protected and that there are no health impacts
- 2017 IEMP sampling results pending

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Radiation protection	FS	SA
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Environmental protection	SA	SA
Emergency management and fire protection	SA	SA
Waste management	FS	FS
Security	SA	SA
Safeguards and non-proliferation	SA	SA
Packaging and transport	SA	SA
Integrated plant rating	FS	FS

Waste Management

OPG Waste Management Facilities

- Western – licence renewed until May 31, 2027
- Pickering – licence decision pending (current operating licence expires March 31, 2018)
- Darlington – licence valid until 2023

OPG Deep Geologic Repository (DGR) for low- and intermediate-level waste

- Joint Review Panel environmental assessment report – May 2015
- In November 2015, new 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

Port Hope Area Initiative (PHAI)

- Port Hope and Port Granby – implementation phase (facility construction ongoing)

NWMO — Finding a high-level radioactive waste site

- There are **7** communities remaining in the NWMO's learn more process (out of 22 original communities – 19 in Ontario, 3 in Saskatchewan)



NWMO Learn More Communities

1. Blind River
2. Hornepayne
3. Huron-Kinloss
4. Ignace
5. Manitouwadge
6. South Bruce
7. Elliot Lake

Emergency Preparedness



**EXERCISE UNIFIED RESPONSE
MAY 2014 – DARLINGTON**

- First full-scale national emergency exercise in 15 years carried out at Darlington NGS



**HURON RESOLVE
OCTOBER 2016 – BRUCE**

- Second emergency exercise carried out at Bruce NGS



**EXERCISE UNIFIED CONTROL
DECEMBER 2017 –
PICKERING**

- To be carried out at Pickering in accordance with the Fukushima Action Plan
- Participation from federal, provincial and municipal partners



**IAEA EMERGENCY
PREPAREDNESS MISSION
(EPREV) – SPRING 2019**

- Will look at operators' and all levels of governments' nuclear emergency preparedness plans and procedures for Canadian nuclear facilities



**WIRELESS
COMMUNICATIONS DURING
AN EMERGENCY – OPG**

- Radio interoperability with municipalities and other operators will be key to an emergency response
- OPG to commission P25 NextGen radio system at nuclear sites in Q4 of 2017

**Provincial Nuclear Emergency Response Plan (Master Plan) being updated
by the Office of the Fire Marshal and Emergency Management (OFMEM)**

Small Modular Reactors

Significant interest in potential deployment of small modular reactors (SMRs) in Canada



Public consultation

- Discussion paper DIS-16-04
- From May to December 2016
- Publication of *What We Heard Report* based on feedback consultation – September 18, 2017

Current situation

- Vendor Design Review applications submitted: 7
- Utility and provincial governments' interest
- CNL “Request for Expression of Interest” (RFEOI)
- NRCan leading on government position on SMRs
- CNA working on SMR Roadmap

Modernizing Our Regulatory Framework

Nuclear Liability And Compensation Act (NLCA)

NLCA and regulations came into force on January 1, 2017

New legislation increases operator liability to \$1B over three-year period

Fukushima Action Plan — Regulations

Regulations governing Class I facilities, uranium mines and mills, radiation protection

Cabinet approved – published in CGII on October 4, 2017

Regulatory modernization — Regulatory documents

REGDOC-2.2.3, *Personnel Certification: Exposure Device Operators* — Published in March 2017

REGDOC-3.4.1, *Guide for Applicants and Intervenors Writing CNSC Commission Member Documents* — Published in March 2017

REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* — Published in March 2017

REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants* — Published in August 2017

REGDOC-2.6.2, *Maintenance Programs for Nuclear Power Plants* — Published in August 2017

REGDOC-2.2.4, *Fitness for Duty: Drug + Alcohol* (decision pending)

CNSC and International Engagement

Convention on Nuclear Safety (CNS)

CNSC EVP Ramzi Jammal served as the elected president of the 7th Review Meeting in March 2017.

The Summary Report available on the International Atomic Energy Agency website details new measures to improve the effectiveness of the CNS and its reporting process, as well as measures to strengthen nuclear safety globally.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Review meeting to be held in 2018.

International Physical Protection Advisory Service (IPPAS) mission hosted in Canada — October 2015

Report made publicly available in April 2016. Results indicate Canada has a robust physical security regime.

Operational Safety Review Team (OSART) mission hosted at Pickering – September 2016

Report made publicly available in May 2017. Report findings indicate good progress and point to some improvements to further enhance existing safe practices.

2016 Nuclear Security Summit

The CNSC committed to formally create a network of nuclear forensics laboratories and a national nuclear forensics library as part of the Canadian National Nuclear Forensics Capability Project (CNNFCP)

IAEA 61st General Conference – September 2017

Parliamentary Secretary, Kim Rudd, led Canadian delegation

Government Reviews

Outcomes and implementation



EA reform



National Energy Board (NEB) modernization



Review of *Fisheries Act* and *Navigation Protection Act*



Indigenous engagement



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

Indigenous Engagement

Rebuilding relationships with Canada's Indigenous peoples



Cabinet Committee on Diversity and Inclusion looks at initiatives to strengthen relationships with Indigenous Canadians



Working group of six ministers to ensure 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



The CNSC will continue to strengthen its robust consultation and engagement process.

Indigenous round tables – more formal and structured approach

CNSC Public Outreach

Disseminate objective scientific information



EXTENSIVE
OUTREACH AND
ENGAGEMENT
PROGRAM



ABORIGINAL
AND PUBLIC
CONSULTATIONS



PARTICIPANT
FUNDING
PROGRAM (PFP)



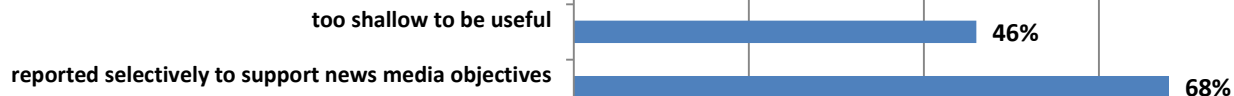
REQUIREMENT
FOR LICENSEES
TO COMMUNICATE

Canadians Say

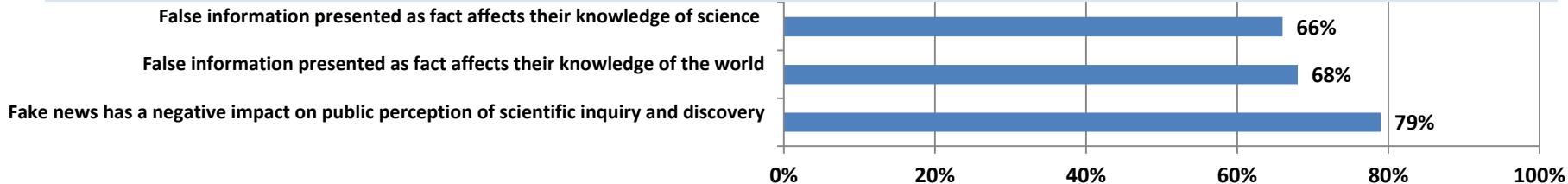
To what extent do you agree or disagree that scientific findings...



Thinking about media coverage you have seen about scientific issues, to what extent do you agree that it is:



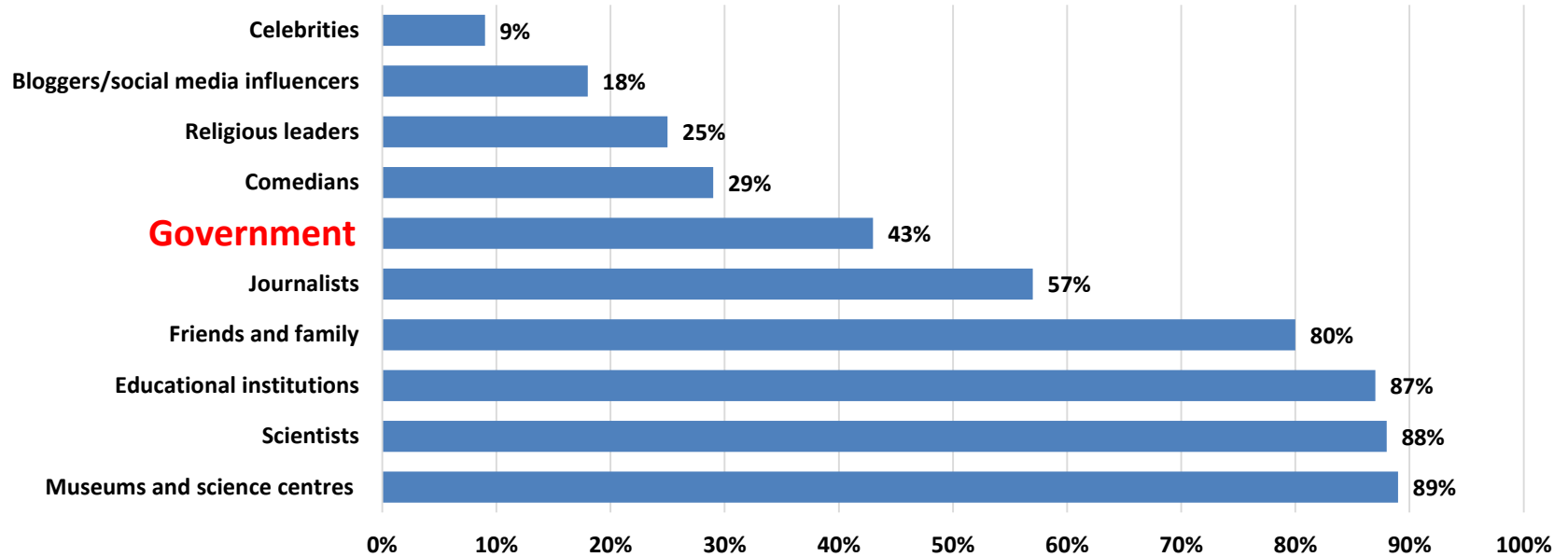
To what extent are you concerned about each of the following:



Source: Léger. LégerWeb online survey of 1,514 Canadians, August 15–16, 2017

Scary view of science

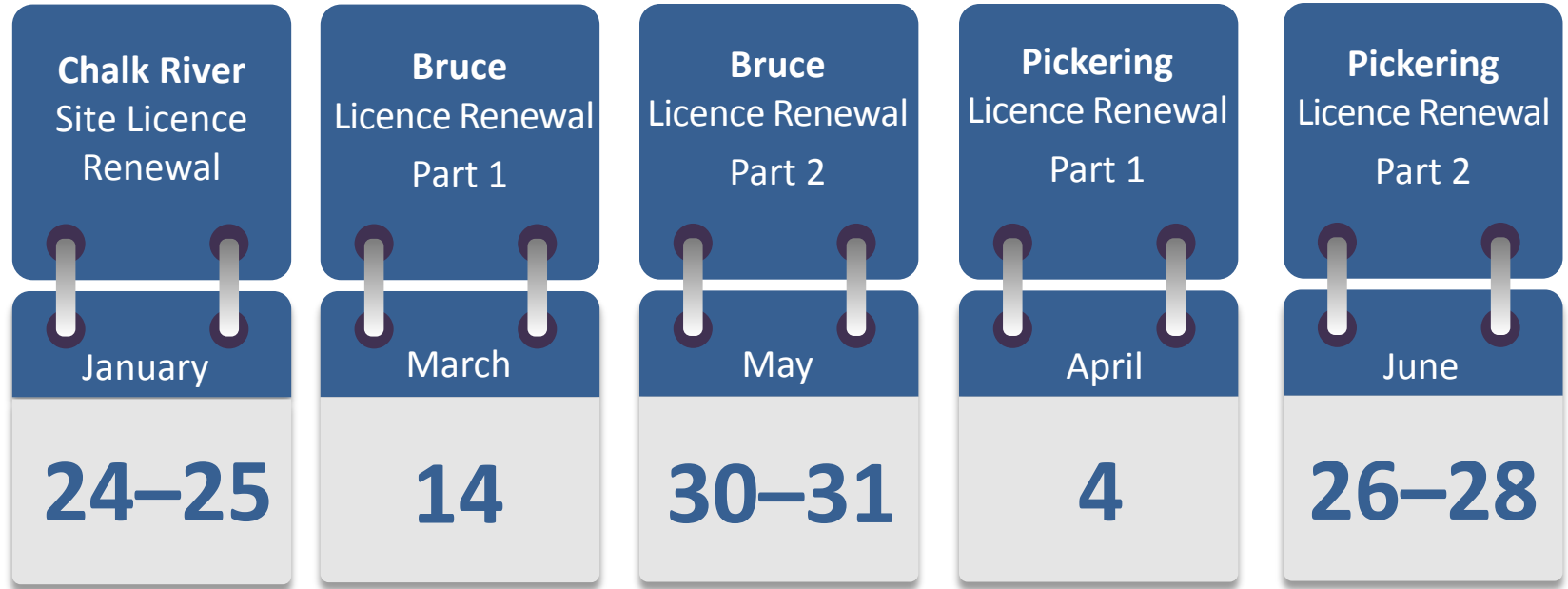
Who Canadians Trust to Provide Reliable Scientific Information



Source: Léger. LégerWeb online survey of 1,514 Canadians, August 15-16, 2017

How can we best engage in this climate?

Upcoming Major Licensing Hearings in 2018



CNL environmental assessments 2018:

Near Surface Disposal Facility at CRL (July 11–12), Whiteshell (October 3–4)
and NPD at Rolphton (December 12–13)

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Thank you! Questions?

