

HOW CANADA REGULATES NUCLEAR POWER

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JURISDICTION

- Jurisdiction over nuclear power and related activities is primarily federal. Nuclear power and related activities fall within federal jurisdiction by virtue of section 71 of the *Nuclear Safety and Control Act*, which provides that:
 - Any work or undertaking constructed for the development, production or use of nuclear energy or for the mining, production, refinement, conversion, enrichment, processing, possession, or use of a nuclear substance or for the production, possession, or use of prescribed equipment or prescribed information is declared to be a work or undertaking *for the general advantage of Canada*.

PROVINCIAL ROLE RE NUCLEAR POWER GENERATION

- ◉ Each province has jurisdiction over the mixture of electricity sources within the province. For example, the Ontario Energy Board reviews Ontario's long-term electricity supply plan under the *Electricity Act*.
- ◉ Ontario's *Electricity Act* also empowers the Ontario Minister of Energy to issue directives to the Ontario Power Authority to arrange for electricity supply contracts from particular types of power generators.
- ◉ Some provinces also apply their provincial environmental assessment legislation to the nuclear industry within the province.
- ◉ Provincial laws of general application also apply to the nuclear industry - for example, the need for a permit before withdrawing water from ground.
- ◉ The provinces also have a say in decisions involving the creation of new nuclear power plants within their borders.

PROVINCIAL ROLE IN URANIUM MINING

- ◉ The CNSC leaves it to each province or territory to regulate or monitor exploration activities for uranium within its own jurisdiction and territories
- ◉ The CNSC begins to apply its process upon an application to develop a uranium mine

WHAT ABOUT OVERLAPPING JURISDICTION

- ◉ Section 21(a) of the *Nuclear Safety and Control Act* empowers the Canadian Nuclear Safety Commission (CNSC) to establish administrative arrangements with departments or agencies of provincial governments with a view to complementary regulation.
- ◉ Section 44(6) of the *Act* - provides the possibility of incorporating provincial laws or instruments into federal regulations.

CANADIAN NUCLEAR SAFETY COMMISSION

- ◉ The CNSC was established in 2000 by the *Nuclear Safety and Control Act*, which replaced the *Atomic Energy Control Act*.
- ◉ The obligation in the previous Atomic Energy Control Act to “promote” the use of nuclear power for peaceful purposes was removed
- ◉ There are still issues about sufficient independence from industry, sufficient range of expertise in respect of health impacts from radiation, and continued reporting to the same federal Minister responsible for promoting nuclear power

CNSC MANDATE

CNSC mandate is to regulate

- ⦿ the development, production and use of nuclear energy
- ⦿ the production, possession and use of nuclear substances, prescribed equipment and prescribed information in order to prevent unreasonable risk to the environment, to the health and safety of persons and to national security; and
- ⦿ to achieve conformity with Canada's international commitments regarding nuclear non-proliferation, safeguards, and security.

URANIUM MINING - WHAT LEGISLATION APPLIES

The main federal laws and regulations that govern uranium mining and milling are:

- ◉ *Canadian Environmental Assessment Act*
- ◉ *Canadian Environmental Protection Act, 1999*
- ◉ *Nuclear Safety and Control Act*
- ◉ *Uranium Mines and Mills Regulations*

CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

- ◉ The *Law List Regulations* stipulate that any project that requires a license under the *Nuclear Safety and Control Act* subjects the project to EA requirements under *CEAA*. The CNSC must make the EA decision before considering if the project can proceed to licensing.
- ◉ Depending on the project, the EA could be a screening, comprehensive study or panel review

STEPS TO AN EA

- Applicant submits an application for a licence
- CNSC staff decide on the type of EA required, which could be either a comprehensive study process for major projects likely to have significant adverse environment effects, or a screening process for those projects likely to have routine or low impacts.
- The CNSC then develops EA guidelines for the project, including the scope of the project.

POTENTIAL FOR PANEL REVIEW

- For Comprehensive Studies, public consultation is mandatory
- The “Responsible Authority” - here the CNSC - must report to the Minister of the Environment as to the public concerns identified
- CNSC Staff may request the Minister to refer a project to a Review Panel (public concern is one possible reason)
- The Environment Minister may refer the project to a Review Panel or a mediator
- A Joint Panel may be established if there are multiple decision makers

PUBLIC PARTICIPATION

- ◉ In the event of referral to a Panel, a public hearing is mandatory
- ◉ Regardless of what type of EA is required, a public registry is to be established that is accessible by the Internet to ensure access to information on particular Environmental Assessments.
- ◉ There is also funding to facilitate public participation in mediation and review panel proceedings (which now falls to the CNSC or NEB themselves under recent changes)

HOW TO GET INFORMATION

The Canadian Nuclear Safety Commission's website lists other ways for the public to participate in the EA process, such as:

- ◉ requesting public EA documents from CNSC by clicking on the project title of any specific ongoing EA listed and contacting the EA specialist listed at the bottom of the EA project Web page
- ◉ emailing CNSC EA specialists at EA@cnscccsn.gc.ca and asking to be placed on the mailing list for a specific EA or to be added to the list for EAs about similar project proposals in your area
- ◉ attending a CNSC information session or workshop
- ◉ local newspaper or library bulletin boards notices about local EA information sessions

CONDUCTING THE EA

- ◉ The Applicant carries out the technical studies
- ◉ The Applicant is to consult the public and Aboriginal peoples about their project and on their technical studies.
- ◉ For projects approved by CNSC, it is typical that even screenings have some element of public review although this is discretionary
- ◉ Potential environmental effects are supposed to be identified along with options intended to reduce or eliminate possible negative effects.

MAKING THE DECISION

- The CNSC makes a decision as to whether the project should proceed.
- CNSC staff prepare an EA report and consult the public on the findings.
- The CNSC may hold a public hearing to make its decision on whether the project can proceed, based on the potential environmental impacts.
- If the project is approved, the CNSC issues the appropriate licence.

BUDGET BILL C-9 AND CHANGES TO CEAA IN 2010

The Environmental Law Centre (Alberta) summarized the changes from Bill C-9 to CEAA as follows:

- ◉ The Minister could eliminate aspects of any projects from any assessment.
- ◉ Exemptions for infrastructure projects that receive federal funding.
- ◉ The Canadian Environmental Assessment Agency would be responsible for most comprehensive studies.
- ◉ The National Energy Board and the Canadian Nuclear Safety Commission would take over comprehensive study assessments for large energy projects.
- ◉ A new definition of “water body” that would exclude tailings ponds, sewage facilities, and constructed agricultural features.
- ◉ The Minister would no longer be obligated to consider a mediation or review panel for large projects.

NEW S. 15.1 OF CEAA

Minister's power to establish scope of project

- ◉ **15.1 (1)** Despite section 15, the Minister may, if the conditions that the Minister establishes are met, **determine that the scope of the project in relation to which an environmental assessment is to be conducted is limited to one or more components of that project.**

Availability

- ◉ (2) The conditions referred to in subsection (1) must be made available to the public.

Delegation

- ◉ (3) The Minister may, in writing and subject to any conditions that the Minister may specify, **delegate to a responsible authority** in relation to a project the power conferred on the Minister by subsection (1) in respect of that project.

Project or class of projects

- ◉ (4) The delegation may be in respect of a project or a class of projects. 2010, c. 12, s. 2155.
- ◉ This new section changed the law after the SCC decision in *Mining Watch*

CNSC AND NEB NOW RESPONSIBLE FOR EA OF LARGE ENERGY PROJECTS - SUBSTITUTION

- PUBLIC HEARING BY A FEDERAL AUTHORITY
- Substitute for review panel
- 43. (1) Where the referral of a project to a review panel is required or permitted by this Act and the Minister is of the opinion that a process for assessing the environmental effects of projects that is followed by a federal authority under an Act of Parliament other than this Act or by a body referred to in paragraph 40(1)(d) would be an appropriate substitute, the Minister may approve the substitution of that process for an environmental assessment by a review panel under this Act.
- Manner of approval
- (2) An approval of the Minister pursuant to subsection (1) shall be in writing and may be given in respect of a project or a class of projects.
- 1992, c. 37, s. 43; 1993, c. 34, s. 34(F).
- Conditions
- 44. The Minister shall not approve a substitution pursuant to subsection 43(1) unless the Minister is satisfied that
 - (a) the process to be substituted will include a consideration of the factors required to be considered under subsections 16(1) and (2);
 - (b) the public will be given an opportunity to participate in the assessment;
 - (c) at the end of the assessment, a report will be submitted to the Minister;
 - (d) the report will be published; and
 - (e) any criteria established pursuant to paragraph 58(1)(g) are met.
- Deemed substitution
- 45. Where the Minister approves a substitution of a process pursuant to subsection 43(1), an assessment that is conducted in accordance with that process shall be deemed to satisfy any requirements of this Act and the regulations in respect of assessments by a review panel.
- The NEB has now set up its participant funding program, as has the CNSC

AGREEMENT BETWEEN CEAA AND NEB

- “The Parties agree that the Board's hearing process for the regulatory review of energy projects is the preferred option and will, except in exceptional circumstances, substitute for assessments by review panels for such projects under the CEAA”
- CNSC and NEB have now set up their participant funding programs under CEAA, which they say are modelled on the CEAA participant funding program

CEPA

- ◉ Environment Canada has determined that uranium and uranium compounds contained in effluent from uranium mines and mills are toxic as defined in the *Canadian Environmental Protection Act, 1999*.
- ◉ However, the federal government determined that it is more appropriate to prevent or control the amount of uranium and uranium compounds released to the environment from uranium mines and mills under the *Nuclear Safety and Control Act*. Therefore, the risk posed by uranium and uranium compounds is managed by the *Nuclear Safety and Control Act*, not the *Canadian Environmental Protection Act, 1999*.

CNSC LICENSING - URANIUM MINES - DEVELOPMENT AND OPERATION

- ◉ *Uranium Mines and Mills Regulations* under NSCA set out information requirements for license for uranium mining and milling activity
- ◉ Also provides what information required for licenses for site preparation and construction, operation, decommissioning, and abandonment of such facilities.
- ◉ Regulations under the NCSA also impose monitoring obligations on applicants for a variety of licenses. The NSCA authorizes inspections to ensure compliance with the *Act* and licenses issued under the *Act*. The NSCA imposes penalties for non-compliance with the *Act* and licenses issued under the *Act*.

URANIUM PROCESSING

The main federal laws and regulations governing uranium processing are:

- ◉ *Canadian Environmental Assessment Act*
- ◉ *Nuclear Safety and Control Act*
- ◉ *Class I Nuclear Facilities Regulations*
- ◉ *Transportation of Dangerous Goods Regulations*
- ◉ *Packaging and Transport of Nuclear Substances Regulations*

CNSC LICENSING FOR URANIUM PROCESSING

- ◉ To carry out activities pertaining to the refinement, conversion, enrichment, and processing of nuclear substances in Canada, according to section 26 applicants must obtain a licence from the CNSC.
- ◉ *Class I Nuclear Facilities Regulations* set out general requirements applicable to a licence to process nuclear substances.
- ◉ Other requirements set out in regulations under the NCSA include monitoring; inspections are authorized; and penalties are provided.

TRANSPORTATION OF RADIOACTIVE MATERIAL

- ◉ The CNSC regulates the transport of radioactive materials in Canada through the *Transportation of Dangerous Goods Regulations* and the *Packaging and Transport of Nuclear Substances Regulations*.
- ◉ These regulations apply to the packaging and transport of nuclear substances, including the design, production, use and maintenance of packaging and packages, and the preparation, consigning, handling, loading, carriage, storage during transport, receipt at final destination and unloading of packages

REGULATION OF TRANSPORT

- Examples of regulated transport include transport of “yellow cake” from Saskatchewan to refineries in Ontario such as the ones at Blind River and Port Hope to be turned into uranium hexafluoride gas (Ontario is the only province in Canada where yellow cake is refined for further use.)
- The transport regulation also applies when the fuel pellets produced in Ontario are shipped to Canadian nuclear power generating plants.

REGULATION OF TRANSPORT

CONT'D

- ◉ Other examples that would fall under these regulations would include any transportation of fuel waste
- ◉ Another example is transportation of radioactive waste from a nuclear generating station or other facility
- ◉ The *Transportation of Dangerous Goods Regulations* and the *Packaging and Transport of Nuclear Substances Regulations* are based on various versions of the International Atomic Energy Agency (IAEA) "Regulations on the Safe Transport of Radioactive Materials." These regulations are typically compiled by representatives of the nuclear industry.

REGULATION OF NUCLEAR POWER PLANTS

The main federal laws and regulations governing the regulation of nuclear power plants in Canada are:

- ◉ *Canadian Environmental Assessment Act*
- ◉ *Nuclear Liability Act*
- ◉ *Nuclear Safety and Control Act*
- ◉ *Class I Nuclear Facilities Regulations*
- ◉ *Nuclear Non-Proliferation Import and Export Control Regulations*
- ◉ *Nuclear Security Regulations*
- ◉ *Radiation Protection Regulations*

NUCLEAR LIABILITY ACT

- ◉ Imposes strict liability on operators
- ◉ Exempts suppliers from liability
- ◉ Exempts nuclear power generators and suppliers from the normal rules of civil liability by capping liability at 75 million in the event of a serious accident (among the lowest in the world).
- ◉ In case this limit is reached, the *Act* authorizes the establishment of a government commission to oversee the balance of claims - this is discretionary
- ◉ Nuclear power industry would not have commenced without such a liability limiting mechanism

NUCLEAR LIABILITY ACT REVISITED

- ◉ A new Nuclear Liability Act has been introduced and re-introduced in Parliament - as Bill C-15 in the current sitting, it is the fourth recent attempt to pass a revised NLA
- ◉ Would raise the liability cap to \$650 million
- ◉ Nuclear insurance industry stated it could provide 1 billion in coverage
- ◉ Still inadequate in terms of potential consequences and in comparison to U.S. and other jurisdictions
- ◉ NLA is administered by the CNSC

CNSC REGULATION OF NUCLEAR POWER PLANTS

- ◉ *Class I Nuclear Facilities Regulations* set out general information requirements applicable to a licence to construct and operate a nuclear power plant, as well as additional information required for licenses for site preparation and construction operation, decommissioning, and abandonment of such facilities.

PROTECTING THE ENVIRONMENT AND PUBLIC FROM RADIATION

- ◉ The *Radiation Protection Regulations* contain the radiation protection requirements applicable to licensees and people in Canada and are set by the CNSC.
- ◉ One aim of these regulations is the protection of nuclear energy workers from the effects of radiation
- ◉ Another is preventing unreasonable risk to the health of the general public. Every licensee is required to implement a radiation protection programme.
- ◉ The specified current annual limit on public radiation exposure from nuclear operations as specified in the *Radiation Protection Regulations* 1 milliseivert (mSv).

PROTECTION FROM RADIATION

CONT'D

- ◉ In addition to the 1ms limit, licensees are required to ensure that the dose of radiation received “as low as reasonably achievable” taking economic and social considerations into effect, an approach commonly known by the acronym ALARA.
- ◉ Additionally, the Federal-Provincial-Territorial Radiation Protection Committee makes recommendations to governments on practices and standards regarding radiation exposure in Canada with a primary aim to “harmonize” those standards.

TRITIUM IN DRINKING WATER

- The current limit for tritium in drinking water in Ontario is 7000 bq/L
- The Ontario Drinking Water Advisory Committee has recommended lowering the limit to 20 bq/L based on an annual average
- The EU has a limit at 100 bq/L by comparison
- The CNSC has stated in a summary report on tritium that based on sampling, Canada is in practice close to meeting the EU limit of 100 bq/L
- Neither the Canadian guideline nor the Ontario limit have yet been changed

WHAT LAWS PROTECT NUCLEAR POWER PLANTS FROM NATIONAL SECURITY RISKS?

- ◉ *"Nuclear terrorism is still often treated as science fiction - I wish it were. But unfortunately we live in a world of excess hazardous materials and abundant technological know-how, in which some terrorists clearly state their intention to inflict catastrophic casualties."* - Kofi Annan, UN General Secretary
- ◉ National security risks posed by terrorist attacks on nuclear plants are one of the main areas of concern articulated in the debate about continued nuclear power generation in Canada since nuclear plants are highly vulnerable to deliberate acts of sabotage and terrorist attack

REGULATION OF NATIONAL SECURITY RISKS

- ◉ Even the International Atomic Energy Agency (IAEA), which promotes the use of nuclear power, admitted that in the light of the September 11th 2001 attacks in New York that:
 - *"Most nuclear power plants were built during the 1960s and 1970s, and like the World Trade Center, they were designed to withstand only accidental impacts from the small 'Cessna' type sports aircraft. If you postulate the risk of a jumbo jet full of fuel, it is clear that their design was not conceived to withstand such an impact."*

REGULATION FOR NUCLEAR SECURITY

- ◉ The *Nuclear Security Regulations* are established by the Canadian Nuclear Safety Commission and set out the physical protection measures required by licensees to address security issues. It prescribes additional licence application requirements for nuclear power plants that require protection arrangements with off-site response forces, site plans, proposals for the structure of the nuclear security officer service and for plants to assess and respond to security breaches, as well as threat and risk assessment.

SAFEGUARDS

- ◉ The International Atomic Energy Agency (IAEA) is responsible to verify that in accordance with the Non-Proliferation Treaty nuclear materials are not diverted from peaceful uses to nuclear weapons through what are commonly referred to as “safeguards” .
- ◉ The IAEA has the right to monitor Canada’s nuclear related activities and verify nuclear material inventories and flows into Canada.
- ◉ Additionally, Canadian nuclear exports are governed under the *Nuclear Non-Proliferation Import and Export Control Regulations* as well as the *Export and Import Permits Act*, aimed at ensuring that items considered to be in the category of arms, ammunition, implements or munitions or war will not be made available to any destination where their use might be detrimental to the security of Canada.

REGULATION OF USED FUEL

- The main federal laws and regulations governing the disposal of used nuclear fuel are:
- *The Canadian Environmental Assessment Act*
- *Nuclear Safety and Control Act*
- *Nuclear Fuel Waste Act*
- *Class I Nuclear Facilities Regulations*
- *General Nuclear Safety and Control Regulations*
- *Packaging and Transport of Nuclear Substances Regulations*
- *Transportation of Dangerous Goods Regulations*

CNSC REGULATION OF USED FUEL

- Regulations under the *NSCA* such as the *Class I Nuclear Facilities Regulations* and the *General Nuclear Safety and Control Regulations* set out general information requirements applicable to a licence to abandon, store, and dispose of a nuclear substance as well as to decommission a nuclear facility.

NUCLEAR FUEL WASTE BUREAU

- The Nuclear Fuel Waste Bureau was formed in 2002 within the federal department of Natural Resources; its mission is to administer the *Nuclear Fuel Waste Act* to oversee the nuclear industry which is given responsibility under that *Act*, to meet certain financial requirements and carry out “approved long-term nuclear fuel waste management activities within a comprehensive, integrated and economically sound approach for Canada” (NRCan)

WHAT DOES THE *NUCLEAR FUEL WASTE ACT* DO

- ◉ In 2002 the Nuclear Waste Management Organization was established by the nuclear energy corporations (Ontario Power Generation Inc., Hydro-Quebec and New Brunswick Power Corporation) under the *Nuclear Fuel Waste Act*.
- ◉ According to Northwatch, the key criticisms of the Act focus on the lack of transparency and accountability, the potentially secretive nature of the Nuclear Waste Management Organization's activities, the control by the nuclear industry of both the Nuclear Waste Management Organization and its advisory council, and the absence of any role for parliament or any assurance of public participation.

NWMO

- The NWMO, as an industry organization, is responsible under the Act for implementation of an approach to the long term management of Canada's nuclear fuel waste (which it itself recommended to government, and which government then approved). They titled it "Adaptive Phased Management".
- Thus, the owners of radioactive waste are responsible for the funding, organization, management, and operation of disposal and other facilities required for their waste.

USED FUEL WASTE MANAGEMENT AND REGULATION

- However, it should be noted that the approach followed by the Canadian government under the Fuel Waste Act is contrary to the recommendation of the Seaborn panel which recommended that the nuclear waste be managed by an agency at “arm’s length” from industry and from government.
- The NWMO found that used fuel waste from nuclear generating stations will have to be managed for hundreds of thousands of years, and only after one million years will it approach the radioactivity levels of natural uranium

USED FUEL STATUS

- ◉ The NWMO is proceeding to implement its approach to Adaptive Phased Management
- ◉ It is currently seeking communities interested in further discussions
- ◉ The NWMO predicts a several decades long process to establish a long term used fuel facility (30 years or so)
- ◉ In our view, this significantly impairs the ability of members of the public to be appropriately involved

PUBLIC CONSULTATION ABOUT PURSUING NUCLEAR POWER

- What is still missing is a proper process for Canadians and Ontarians to collectively decide the future of nuclear power and its role in electricity generation
- In Ontario, there is no mandatory consultation or hearing prior to the provincial Energy minister issuing directives on the supply mix
- A quasi-consultation was held in Ontario this past autumn of 2010 by on line survey dealing with the long term energy plan for the province
- The decision to pursue new nuclear power has so far been at the Ontario cabinet table

WHO MAKES DECISIONS ABOUT NUCLEAR POWER - A SUMMARY

- ◉ Federal Parliament (passes federal legislation; budgetary matters; appointments; decisions on AECL)
- ◉ Federal Cabinet (approves the regulations under its legislation)
- ◉ Federal Minister of Natural Resources (promotion of nuclear power industry)
- ◉ Federal Minister of the Environment (some CEAA decisions)
- ◉ Canadian Nuclear Safety Commission (both staff roles and Commission member roles including regulatory policy)

WHO MAKES DECISIONS ABOUT NUCLEAR POWER CONT'D

- ◉ CNSC President and CEO also independently accountable to Parliament in addition to reporting through Minister of Resources
- ◉ Department of Transport (but according to CNSC staff, it defers to CNSC on the radioactive material transport decisions)
- ◉ Nuclear Fuel Waste Bureau within NR CAN to oversee NWMO
- ◉ Nuclear Waste Management Organization to implement its long term plan for fuel waste
- ◉ International Atomic Energy Agency - non-proliferation verification and much else

WHO MAKES DECISIONS ABOUT NUCLEAR POWER CONT'D

- ◉ Ontario Minister of Energy - issues supply mix directives
- ◉ Ontario Energy Board - approves long term electricity supply plan
- ◉ Ontario Power Authority - the agency to enter into the supply contracts
- ◉ Ontario Drinking Water Advisory Council - advice on drinking water standards
- ◉ Ontario Minister of the Environment - sets drinking water standards
- ◉ Federal - Provincial - Territorial Radiation Protection Committee - negotiates protection guidelines

WHO MAKES DECISIONS ABOUT NUCLEAR POWER CONT'D

- ◉ Federal Commissioner for Environment and Sustainability - some auditing, reporting and monitoring of petitions
- ◉ Ontario Environment Commissioner - some oversight and reporting
- ◉ Other provinces - provincial decisions not generally reviewed here
- ◉ Ontario Minister of Northern Development and Mines - oversees Ontario Mining Act to extent it deals with exploration (new requirements are under development)