

Nuclear Power Regulation in Alberta and Saskatchewan

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Overview

- Covers environmental protection in routine operations at commercial power reactors.
- Federal/provincial roles
- Does not cover security safeguards, safety from accidents, environmental effects of accidents, mining, milling, long-term waste management.

Why Nuclear Power in AB and SK?

- Alberta government made contradictory statements about whether would regulate NPP proposal in Peace Region
- Saskatchewan public consultation process for reactor build, resulted in including NPP in long-term plans, short term plan includes small reactors.
- Brad Wall recently stated would pursue small NPP in SK
- Proposal to build small NPP in Pincher Ck. AB.
- Proposals to use steam from small reactors in resource extraction both historic and ongoing.

History of federal and provincial involvement

- 1946 federal *Atomic Energy Control Act*
- Provinces owned/operated and built power plants built in 1960s-1980s
- Provincial utilities sat on Atomic Energy Control Board and Atomic Energy of Canada Ltd. Boards and committees
- Provincial companies/crown corps run NPPs

Canadian Nuclear Safety Commission

- *Nuclear Safety and Control Act c.2000*
 - Reasonable risk to health, safety, environment, security
 - Regulates nuclear facilities as declared federal works
 - Non-expert commission tribunal reports to Parl via Min of Nat Resources, appointed by cabinet
 - Subject to GIC directives on policy
 - Typical administrative tribunal (court of record, not bound by rules of evidence etc.)
 - Large technical staff performs some regulatory functions

Process at CNSC

- License to prepare site, construct, operate submitted
- Environmental Assessment (public consultation, significant effects? – Min approval)
 - Law List Regulations – EA required
 - Comp study for NPP > 25 MW
 - C-9 : no more mandatory review panel decision, substitution
- Licensing hearing (reasonable risk? CNSC has final say)

Process at CNSC cont'd

- Although tribunal is specialized, no particular expertise of tribunal members is required.
- Heavy reliance on expertise and assessments of CNSC staff.
- Only applicant has right to be heard under NSCA
- Hearings involve interveners
- Those who are “directly affected” have a right to appeal.

CNSC licensing

- Licenses for nuclear facilities
 - Mines and mills
 - Refineries
 - Nuclear Power facilities
 - Research reactors
 - Tritium factories
- ~ Large and controversial applications are usually subject to public hearings
- More administrative licensing for some activities
 - Small waste sites
 - Possession of nuclear substances
 - Remediation projects
 - Exemptions for fire detectors etc.

Environmental aspects of nuclear

- Releases of radionuclides, hazardous substances
- “Temporary” fuel waste storage
- Other waste disposal/storage
- Water use (thermal plumes, fish kill)
- Environmental assessment (sustainability)

Fed/Provincial Jurisdiction

- *Pronto Uranium* (ON sup. Ct 1956): Regulation of uranium is POGG jurisdiction.
- *Ontario Hydro SCC* : Provinces can't regulate labour relations at nuclear power facilities (feds can't either if they are crown corporations – *Syndicat FCA*)
 - Court relies on preamble to *AECA*: “uniquely federal aspect of Ontario Hydro's nuclear electrical generating stations is the fact of nuclear production, with all its attendant safety, health and security concerns.” (**Not** environmental – pre CNSC).
 - SCC felt that labour relations “integral” to safety, that 92A was not intended for nuclear facilities.
 - strong dissent.
 - neither prov or feds agreed, proved unworkable (see labour relations cases) reversed SCC through legislation referentially incorporating provincial law.
 - Shows that risks of scoping exclusive federal jurisdiction too widely can be very serious! After *Syndicat Quebec* and NB facilities operated without labour law for over a decade.
 - > *Ontario Hydro* does not give us a lot of general principles to work with to determine whether a particular aspect of nuclear power is federal.

Other Cases

- *Energy Probe ONSC*: Liability from nuclear accidents (*Nuclear Liability Act*) is federal.
 - National concern, accident may extend over wide area and necessary for objective of promoting nuclear power.

Therefore, liability is federal - except when it isn't (worker's compensation – *Dionne ONSC*)

- *Ontario v. CP Ltd. SCC* upheld Ontario environmental legislation (including its applicability to federal undertakings) mentioning Chernobyl accident as basis for broad societal values underlying environmental legislation as public welfare legislation.
 - Not much caselaw on environmental protection at nuclear power facilities (*Edward* case – is environmental law concurrent notwithstanding *Ontario Hydro* i.e. *Hydro Quebec*?)
 - Is *Ontario Hydro* still good law after legislative reversal? Is it applicable in other contexts? What evidence should be required to show that the provincial law interferes too much?
 - What about non-safety or safeguards matters not touched by international (i.e. matters within the province)

Atomic Energy

- Federal aspects are (*Energy Probe/Ontario Hydro*):
 - Security/International agreements
 - Prevention of catastrophic accidents
 - Radiation?

National Concern Doctrine = implied limitations (divisibility, provincial inability etc.)

Declared works – is an aspect of NP “integral” to the work?

Defense?/international – implications are unclear but these typically feed into national concern rather than being considered separately. Tendency for courts to overgeneralize about Convention on Nuclear Safety etc.

Atomic Energy

- Provincial aspects are:
 - Management of electricity generation facilities
 - Electricity policy
 - Pollution/environmental regulation (water allocation)
 - Public health (drinking water)
 - Protection of property
 - Natural resources (uranium)

Evolution of federal role (AECEB)

- Initially reactor safety (from accidents) and research, international agreement negotiation.
- Over time, greater role in worker and environmental issues.
- Creation of CNSC in 2000 with mandate for protection of “health, safety and environment” and national security.

Provinces begin to withdraw

Each province takes on a different role in environmental protection at NPPs:

- Ontario – No EA, very little regulation of environmental impacts.
- Quebec – Very active, holds own public hearings, anti-nuclear energy policy.
- New Brunswick – Very active, applies environmental legislation, planning legislation etc. has specific crown corporation for nuclear that governs nuclear activities under own legislation.

Provinces have potential to regulate nuclear power facilities

- Energy facility planning /sites/management (s.92A) – limited by *Ontario Hydro* b/c does not “trump” declaratory power.
- As owners/operators
- Environmental release limits for radioactive/hazardous material
- Public health
- Water allocation
- Liability
- Occupational safety
- Protection of property from radiation contamination

→ Double aspect limitations – functional integration with generally applicable provincial scheme etc. Provinces couldn't go too far or be too specific.

Radiation/Radionuclides/Reactors

- Some have suggested that non-nuclear (i.e. conventional) part of power plant (turbines) is provincial, while reactor itself is federal. (“two plants theory”)
 - This has proven unworkable! (eg. Ontario Hydro/Syndicat/Dionne etc.)
 - Single work or undertaking, same employees, same facility shared physical and operational components.
 - CNSC licences whole facility, whole facility is a declared work - not portions thereof.
- Same suggestion has been made: radionuclides vs. regular haz waste.
 - But most waste, materials, effluent etc. is mixed.
 - Some radioactive materials are not regulated federally (NORM)
 - Currently, no one often regulates chemical toxicity of radionuclides (heavy metals!) because CNSC treats it as outside jurisdiction.
 - Lots of things are radioactive!
- Not supported by existing caselaw! (exception Lamer in *Ontario Hydro*) where emphasis is on international requirements and accident prevention.

US Cases

- Otherwise similar legislation/basis for federal regulation
- Upheld state bans on nuclear power (Pacific Gas)
- Waste storage outside federal occupied field (safety, international)
- Upheld state tort law
- Everything nuclear is not federal (*English*) must have “direct and substantial effect” on radiological safety. (not environmental protection/health)

CNSC environmental protection

- International agreements “acceptable” risk and public/worker radiation doses
- CNSC “reasonable risk to environment”
 - Discretionary

Impacts in existing federal regulatory system

- Existing CANDU reactors kill millions of fish in water intake pipes.
- Effects of tritium, carbon 14, Iodine 131 and noble gas releases on health and environment (soil, water, air) are largely unknown.
- All standards are discretionary except 1 mSv public dose.
- No best technology or best operating practice standards to prevent releases.
- No long term (or short term) waste solution is available: standards?
- Need and alternatives not assessed in federal assessments

Radiation protection gaps

- Federal: radiation protection of 1 mSv annual public dose/as low as reasonably achievable.
- = up to 1 in 14,000 serious and fatal cancers and hereditary effects per year of radiation dose is “acceptable” below this level is “safe”.
(Optimization/uncertainty)
- No environmental/ecological dose
- Chemical toxicity of radionuclides not regulated federally
- Radiation protection from NORM substances absent in many contexts.

→ Provinces already have radiation protection legislation, public health legislation dealing with radiation, they just are not applied to NPPs

Non-radioactive releases

- CNSC has no clear standards, discretionary.
- Provinces often exempt regulation of all substances governed by CNSC license from “hazardous” waste regs. Sometimes only radioactive substances are exempted.

Environmental Assessment

- CNSC does not use precautionary principle, relies on uncertainty about health effects to justify lack of regulation below 1 mSv.
- “Acceptable” does not include an independent assessment of 1 mSv or alternative energy sources (provincial).
- Not all provinces require EA / alternatives.

Provincial regulatory gaps

- Provinces regulate water allocation, releases from conventional power facilities – do not always apply these/adjust these to nuclear power.
 - Example, Ontario does not regulate ammonia or hydrazine releases from NPPs., does regulate oil and grease.
 - Aquatic health based water and sediment quality objectives are lacking for many radionuclides. (Uranium only)
 - Water use, impingement/entrainment, thermal plume sometimes addressed by DFO, sometimes not.
- Air and soil quality guidelines are lacking for non-uranium/radon radionuclides (chemical and radiological).
- Drinking water quality is limited to Tritium.
- Power planning does not always include a process to assess nuclear power in relation to alternatives.
- Exemption of waste facilities and radioactive waste regulated by the CNSC.

Regulatory gaps some aspects of Nuclear power are under-regulated

- Radiation protection for environment
- Public health based standards for radiation protection
- Waste management
- Environmental assessment (alternatives/need)
- Non-radioactive hazardous releases
- Water use
- Aquatic environment protection standards

= Provincial or concurrent jurisdiction!

Alberta

- Alberta Utilities Commission could determine whether power proposal in the “public interest” and set nuclear power best practices through rules and directives. (s.92A)
- Alberta environment could regulate through waste, environmental assessment, pollution and water allocation laws. (EPEA, Water Act)

Existing laws

- *Alberta Utilities Commission Act/Hydro and Electric Energy Act*
 - S.11 HEAA approval of Commission required for power plant (any source) – Public interest test
 - Section 5(1) and 19(1) of the HEAA allows the AUC to make regulations governing power plant approvals. This includes conditions and measures for the protection of life, property and wildlife.
 - Section 76(1)(a) of the AUCA allows the AUC to make rules governing any matter or person within its jurisdiction, including procedures and processes applicable to locating, building, constructing and operating facilities or infrastructure over which the AUC has jurisdiction. Section 77 also allows the creation of standards, guidelines and codes of practice.
- *Environmental Protection and Enhancement Act*
 - Waste Control Regulation under EPEA exempts any waste (whether radioactive or not) regulated by the CNSC from “hazardous waste” requirements. Current radioactive waste sites are regulated for radiation by Alberta.
 - The construction, operation or reclamation of a power plant requires an approval and if >100 MW requires an EA
- *Water Act*
 - The Water Act in Alberta requires a licence for the diversion of water and works for the diversion of water. Would likely trigger an EA under EPEA.

Saskatchewan

- SaskPower/Minister can decide whether or not to build nuclear power
 - Can require environmental assessments
 - Can regulate water allocation, waste, pollution etc.
- Largely discretionary

Existing laws

- *Water Regulations* under *EMPA* contain radiological screening parameters (Bq/L) and maximum acceptable concentrations for uranium (mg/L) in drinking water.
- The *Environmental Spill Control* regulations require reporting of radiological spills in any amount. *Environmental Spill Control Regulations*.
- The *Saskatchewan Watershed Authority Act* requires authorization for the diversion of water and construction of works nuclear power is an industrial use under the regulations.
- *Hazardous Substances and Waste Dangerous Goods Regulations* exempt radioactive materials regulated by the *AECB*.

Improvements

- Explicitly regulate radioactive and mixed wastes as hazardous waste.
- Clear requirement for provincial environmental assessment for nuclear power, need/alternatives.
- Water withdrawal standards.
- Precautionary public health and environmental release standards for radionuclides.

Practical issues

- Minimal law reform required.
- Huge investment in regulatory capacity required.
- Political will?
- Small reactors need to be encompassed by any reforms, new technology.

Recommendations

- Provinces should take a second look at “acceptable” risk from radiation from environmental/public health perspective and regulate! It is provinces job to assess risks of nuclear in light of alternatives.
- Provinces should develop technology, operational standards to minimize enviro/health risk from routine operations.
- Provinces should regulate waste storage and disposal from nuclear facilities from enviro/health perspective.
- Provinces should regulate water use.
- Safety from serious accidents and safeguards likely exclusively federal, given international implications - however there is still no appellate caselaw on point.

Questions?

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