# Adequacy of the Governance Framework for Canadian Nuclear Regulatory Oversight in the Great Lakes

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The US and Canadian approach to evaluating criteria on management actions on radionuclides is extremely limited in scope and fails to take into consideration key factors that show that the government regulators are in a situation of regulatory capture by the nuclear industry. To effectively evaluate government actions on radionuclides as a criterion for screening, the following needs to be considered. Without consideration of these factors, the quality of the evaluation on radionuclides as a candidate CMC diminishes considerably as it ignores the challenges and threats associated with radionuclides and the nuclear operations across the Great Lakes Basin.

Here are a few key reasons that demonstrate why the evaluation of government actions on radionuclides needs to be reconsidered:

- Government departments do not work independently from the nuclear safety agencies
- Several in-depth reviews conducted on nuclear safety indicate that regulators should be separated from promotion of the industry
- The absence of separating the regulatory body from promotional activities for the industry can lead to catastrophic results

- Evidence that regulatory agencies support the needs and demands of the regulated industry, while not addressing concerns by civil society.[1]

## The Canadian Nuclear Regulator is Not Independent of the Industry it Regulates

The Canadian Nuclear Safety Commission (CNSC) states that it is an independent regulator.

When the *Nuclear Safety Control Act* was enacted in the 1990s to replace the *Atomic Energy Control Act*, the "promotion" and "utilization" aspects of nuclear energy were removed from the updated legislation. It was intended that the function of the promotion of the use of nuclear energy and utilization of nuclear energy be separated, and it had been intended to have separate Ministers of the Crown that oversee the CNSC versus Atomic Energy Control Limited (AECL) and other promotional interests of the industry. However, what has been observed in the implementation of the NSCA is that the Canadian nuclear regulator is not independent of the industry.

## Need for separation of regulator from promotion has a long history

Over many decades, many in-depth high level nuclear safety reviews have been conducted in Canada and elsewhere that led to repeated recommendations for nuclear governance changes. These reviews highlighted a fundamentally significant problem of constant conflict of interest between the regulatory body and the nuclear safety agency. There are several examples where conflicts of interest have been identified in different parts of the nuclear fuel utilization process. For example, for nuclear fuel waste, the Seaborn Panel recommended an independent arm's length agency to advise government on long-term strategy.[2] Instead, the Nuclear Waste Management Act set-up an Agency whose board is entirely made up of operators of nuclear facilities and owners of the fuel. In addition, there were other studies, for example, nuclear safety studies, demonstrating where conflicts of interest were evident.

To address the operations of nuclear activities, attempts were made in the 1970s to pass new legislation that would separate Ministerial responsibility for promotion versus safety and oversight. Finally, in the 1990s, new legislation, Nuclear Safety Control Act, was passed separating these functions. But Canada's government has not made a "machinery of government" decision to name separate Ministers for the *Nuclear Safety Control Act* and the *Nuclear Energy Act*. The failure to name separate Ministers focused on safety from the needs of the nuclear industry meant that both report through the same ministers' office in the same department. The department minister and the head

[1] This section on governance draws on the chapter titled: Nuclear Power by Theresa McClenaghan, in *Corporate Rules*: *The Real World of Business Regulation in Canada.* 2022. Edited by *Bruce Campbell (*James Lorimer & Company Ltd., Publishers).

[2] Panel Report. 1998. See: https://iaac-aeic.gc.ca/archives/evaluations/431C8844-1/default_lang=En_n=0B83BD43-1_printfullpage=true.html#ws6B85477A

of the Nuclear Safety Agency do not get advice from that department to name separate ministers.

## Lack of separation of regulator from industry interests can lead to catastrophe

Experts have identified several examples in Canada and internationally where lack of separation of the regulator from industry interests, such as promotion and utilization of nuclear power, where agency and government reviews led to disasters including Windscale in the UK in 1957, Three Mile Island in the USA in 1979, Chernobyl in the USSR in 1986, and Fukushima Daiichi in Japan in 2011 among others.

The most recent accident investigation found that the tragedy at Fukushima Daiichi was, in part, a result of a failure of the regulatory body with its oversight mandate to be effectively separated from the natural resources agency which had a nuclear power promotion mandate. This is a clear example where there is a lack of separation between the regulatory body and industry interests.

## Regulator backs industry demands and resists those of civil society on key issues

In many aspects of the decision-making process involving the nuclear industry, there's growing evidence that when the regulator supports the demands and needs of industry, and, at the same time, the regulator does not respond to the concerns and proposals on nuclear proposals by civil society. The key issues where industry demands have been supported by the regulators include:

- Length of nuclear power plant licences
- Confidentiality requests
- Use of promotional language and allied promotion to expedite unproven technologies
- Senior executive speeches

We are observing several areas where regulators are resisting concerns raised by civil society on key issues such as:

- Transparency and access throughout the decision-making process from industry and regulators
- Disclosure of Safety Studies by the industry
- Denial of key due process that would allow for weighing of evidence

Recently we were pleased to see some improvements in the creation and accessibility to open portal data related to the nuclear sector. Overall, the support given to the industry demands and resistance to civil society concerns is more evident and continues to grow. For example, we have seen proposals for the length of nuclear power plant licenses expanding. Instead of proposals for extending licenses for a couple of years, the industry is seeking a decision where the proponent is asking for a 30-year

expansion. The regulatory staff supported this proposal for extension over significant objection of civil society for a variety of reasons including limited regulator capacity which contributes to weaker transparency in the process and further demonstrates a bad outcome in the process.

Another example where the regulators have supported the industry demands and resisted civil society concerns during the decision-making process involves denial of disclosure of key safety studies; the summaries that are provided and made available now are wholly inadequate.

During participation in nuclear hearings, confidentiality requests by proponents that would have never been agreed to in the past, are now being agreed to by the regulators.

Civil society engaged in these hearings has also sought opportunities in the process to look at the weight of evidence, but these have never been granted by the regulator.

## Other hallmarks of regulatory capture by the nuclear sector

There are several examples showing regulatory capture by the nuclear sector in Canada that should be mentioned:

- the exchange of key personnel between industry and the regulator without adequate cooling-off periods
- Key consultations involve industry but not the public (and this despite the CNSC commissioners' direction). For example, for Potassium Iodide (KI) pre-distribution
- Industry leads standard setting, such as through the use of CSA standards
- The regulator provides extensive time at hearings to proponents, and minuscule amounts of time to Intervenors to present their points of view
- MOUs and work on "roadmaps" between industry and the regulators that expedite technology development by the regulator with industry

These examples demonstrate how regulatory capture by the nuclear sector shows the need to scrutinize the adequacy and limitations of government actions on radionuclides.

## Radionuclide standards not protective enough

Existing standards on key radionuclides are not adequate and not sufficiently protective. The tritium standard for drinking water is a good example. Currently, the Ontario drinking water standard for tritium is 7000 bq/L. However, the Advisory Committee on Environmental Standards recommended, in 1994, the drinking water standard for tritium should revised to 20 bq/L. Ontario Drinking Water Advisory Council recommended reduction to 20 bq/L annualized as the drinking water standard for tritium in 2009. Both Councils made similar findings and noted that if a similar approach to standard setting in regulating radionuclides was taken for chemicals, the standards for tritium would be revised by orders of magnitude resulting in a recommendation of approximately 20 bq/l

instead of 7,000 bq/l in this province. The province of Ontario, which is the sole shareholder of Ontario Power Generation, has not acted upon the recommendations by the two Councils, despite nuclear industry claims to the public that they could meet this standard.

It is concerning that the highly inadequate 7000 bq/L number is routinely cited by industry and regulators in response to spills and other events to claim that the event "meets the required standards." The example of setting drinking water standards for tritium is a good example of where the province has failed to act on the advice by the Councils over the decades and show very significant lack of integrity in the scientific process.

## Adequacy of regulatory oversight and standard setting is crucial due to the expanding industry

Plans and hopes for expansion for the nuclear sector in Ontario and beyond will affect the Great Lakes basin, including exposures, loadings, cumulative, synergistic, and additive interactions with other radionuclides and chemicals. Despite the concluding remarks in the evaluation by the government departments that the current regulatory framework is adequate to address future concerns associated with radionuclides, no evidence related to the Great Lakes basin has been presented to substantiate this claim.

We question the perspective of the departments regarding the adequacy of their regulatory framework to ensure that the impacts of radionuclides on the Great Lakes environment and health are effectively considered and addressed. The Canadian regulator has stated it does not examine technology choice nor siting decisions of the province of Ontario in energy supply, which makes it impossible to understand how risks from radionuclides to the Great Lakes are assessed and how the current regulatory framework takes this into account.

Several initiatives show the growing nuclear facilities in Ontario focused on new nuclear plants, refurbishments, or expansion of existing plants such as:

- Ontario's examination of the new nuclear facility at Wesleyville,
- Potential refurbishment of Pickering,
- Refurbishment of Darlington,
- An impact assessment is underway for new large nuclear at Bruce,
- New nuclear at Darlington adjacent to existing plants has been licenced, and
- Waste sites exist and are planned.

More substantial resources and focus are needed to examine the adequacy of the current regulatory framework associated with these current and future nuclear activities and should include consideration of the impacts to the environment and health in the Great Lakes.

## Intersection of governance and regulatory jurisdictional responsibilities and choices leave gaps

The intersection between nuclear and energy production and delivery in Canada creates gaps in the current legislative and regulatory framework. Nuclear power and its related activities were deemed to be under federal jurisdiction under Canada's constitutional framework. However, under the constitutional framework, electricity generation choices and property and civil rights are under provincial authority. Municipalities and their utilities are responsible for safe drinking water supply; however, as noted previously, provinces have the responsibility to set drinking water standards. The provincial standards for radionuclides are inadequate, as noted, but so are the related federal guidelines.

This situation is further complicated by the current approach by the Canadian regulator not to second-guess siting decisions by Ontario. Further concerns relate to Ontario's choice to not apply its environmental assessment rules to nuclear sector proposals. Ontario's approach to nuclear proposals differs from other provinces.

In summary, government actions over the past several decades focused on the nuclear sector and radionuclides needs to further analysis and consideration of the adequacy of the measures taken. The review of the relationship and independency of regulators particularly focused on nuclear safety and the nuclear industry have been a significant concern. Such analysis highlights the need to ensure that regulators be separated from promoting the nuclear industry. Recent decisions illustrate that regulators accept and support demands of the nuclear industry while not addressing the concerns raised by civil society. The body of evidence on government actions related to nuclear safety as outlined in this paper demonstrates the inadequacy of the analysis and conclusions made by the governments on assessing radionuclides as a candidate CMC.