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ENVIRONMENTAL ASSESSMENT OF SMALL MODULAR REACTORS AT THE CNSC

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ABSTRACT – The environmental assessment (EA) of small modular reactors in Canada could be undertaken under the *Canadian Environmental Assessment Act, 2012* (CEA Act 2012) or under a northern EA regime. Under the CEA Act 2012, the Canadian Nuclear Safety Commission (CNSC) is now solely responsible to conduct EAs for nuclear projects. As such, the CNSC is in the process of updating and developing key documents in order to provide proponents with clear guidance on EA requirements for reactor-related projects.

1. Introduction

Federal environmental assessments (EAs) in Canada are conducted under the *Canadian Environmental Assessment Act, 2012* (CEA Act 2012) or under EA processes established under northern land claim agreements. This paper summarizes the following: key features of the CEA Act 2012; various northern EA regimes that exist in Canada; the regulatory approach that the Canadian Nuclear Safety Commission (CNSC) will be taking in conducting EAs of small modular reactors; and international efforts underway on this topic.

2. CEA Act 2012

As part of the Government's plan for Responsible Resource Development, which seeks to modernize the regulatory system for project reviews, the *Canadian Environmental Assessment Act* (S.C. 1992, c. 37) was repealed when the CEA Act 2012 came into force on July 6, 2012.

The CEA Act 2012 and its regulations establish the legislative basis for the federal EA process. A summary of the key features of this Act are as follows:

- Projects to be assessed: Only those identified in the *Regulations Designating Physical Activities*. The Minister of the Environment may also designate a project not identified in the Regulations.

- Responsible Authorities: The CNSC is now solely responsible to conduct EAs for nuclear projects identified in the *Regulations Designating Physical Activities*. CNSC EAs can no longer be referred by the Minister of the Environment to a review panel.

- Types of EA: One EA process will be implemented at the CNSC – no longer different types of EAs such as screenings, comprehensive studies or review panels.

- Public participation: Mandatory for all EAs, with the CNSC determining the appropriate level of public participation.

- Federal authorities: Similar to the repealed CEA Act – to provide expertise upon request.

- Cooperation: Must offer to consult and cooperate with other jurisdictions who have EA requirements (e.g., through Federal-Provincial EA Agreements).

- Delegation: CNSC may delegate to any jurisdiction the conduct of an EA; however, the CNSC cannot delegate the decision on the EA (i.e., significance of effects).

- Substitution: Not applicable to EAs led by the CNSC.

- Timelines: Not applicable to EAs led by the CNSC; however, CNSC timelines are being developed for licensing matters which may include EA considerations.

3. Northern EA Regimes

Within Canada's three territories (Northwest Territories (NWT), Yukon and Nunavut) and in certain other parts of Canada, EAs are generally conducted via processes established under land claim agreements (Table 1). In these regimes, the CNSC generally functions as a technical advisor in the EA process.

Table 1: Other federal EA regimes in Canada

Region	**Legislation**	**EA Lead**
NWT (Mackenzie Valley Region)	*Mackenzie Valley Resource Management Act*	Mackenzie Valley Environmental Impact Review Board
Inuvialuit Settlement Region (northwestern NWT and northern Yukon)	*Inuvialuit Final Agreement**	Environmental Impact Screening Committee
Yukon	*Yukon Environmental and Socio-economic Assessment Act*	Yukon Environmental and Socio-economic Assessment Board
Nunavut	*Nunavut Land Claims Agreement*	Nunavut Impact Review Board
Territorial regions of James Bay and Nunavik in Quebec	*James Bay and Northern Quebec Agreement*	Tripartite or bipartite committees (e.g., Canada – Quebec – Cree)

* CEA Act 2012 may also apply

4. EAs of Small Modular Reactors at the CNSC

With the implementation of the CEA Act 2012 and the current *Regulations Designating Physical Activities*, a small modular reactor with a production capacity greater than 25 MW thermal would be considered a "designated project" and thus require an EA.

The recent legislative changes have not changed the EA process at the CNSC substantially; however, in order to provide proponents with updated guidance on EA requirements for reactor-related projects, the CNSC is in the process of updating/developing key documents as follows:

- **Update** – CNSC Regulatory Document RD/GD–346: This document will identify expectations of the CNSC with respect to the evaluation of sites for new nuclear power plants and small reactor facilities. The site evaluation information has been updated to take lessons learned from the Fukushima-Daiichi event into account. In addition, it provides details on the information needed for an application for a licence to prepare a site. Finally, this document is also being updated to reflect the requirements of the CEA Act 2012.

- **In development** – CNSC Regulatory Document RD/GD–368.1: This document will be a licence application guide for a Licence to Prepare Site for new nuclear power plants and small reactor facilities. This document will also describe the steps in initiating an EA, including the information required in a project description and the subsequent EA determination. It will also outline the options available to a proponent with respect to EA and licensing – a parallel or sequential approach.

- **In development** – CNSC EA Guidance Document: This document will describe the EA process at the CNSC, including Aboriginal consultation, public participation, participant funding, and timeline considerations.

The above documents will be applicable to the EAs of all reactor projects, using a graded approach. In addition, other CNSC regulatory documents (e.g., RD–337: *Design of New Nuclear Power Plants*; RD–367: *Design of Small Reactor Facilities*) will apply as appropriate.

The breadth of information and level of detail required for the EA would be commensurate with the type of project being considered and the site-specific conditions. All EAs, however, are conducted with the same level of rigour and scrutiny.

From an international context, the International Atomic Energy Agency has identified the need to develop EA guidance on small and medium reactors. The CNSC is currently participating in the development of this guidance with other international members.