Canada's SMR Action Plan: regulatory change at the CNSC in action

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On December 18, 2020, Canada's Minister of Natural Resources released the Federal Government's Small Modular Reactors (SMR) Action Plan (the Action Plan), a long anticipated follow-up responding to the 53 recommendations in Canada's November 2018 SMR Roadmap.

Similar to the SMR Roadmap, the Action Plan is the product of consultation with over 100 different organizations and represents the federal government's initiative to align a political economy consisting of, among other things, the federal government, federal regulators, Crown corporations, Provinces, Territories and Indigenous communities, utilities, industry, academia and labour groups.

The Action Plan recognizes that SMRs can potentially deliver a source of electricity with low or zero carbon emissions. The Action Plan includes a statement of principles along with with a call to action inviting all partners to endorse the statement and outline their current actions and future plans in response to the recommendations, including:

- Supporting the development of SMR technology and innovation;
- Developing policies and standards to support the deployment of SMRs;
- Facilitating Canada's climate change and clean energy commitments; and
- Creating opportunities for regional development with Indigenous partners.

The Canadian Nuclear Safety Commission (the CNSC) is Canada's nuclear regulator and is identified as one of the key stakeholders involved in the Action Plan. The CNSC's mandate include regulating the development, production and use of nuclear energy and the production, possession and use of nuclear substances in order to prevent unreasonable risk, to the environment and to the health and safety of persons or to national security.

Regulatory, policy & legislative changes to facilitate SMRs

A. Nuclear security

The CNSC started a review of its nuclear security regulations in 2018 with the goal of evolving the existing regulatory framework to be more performance based and less prescriptive, while respecting nuclear security principles. The process is similar in concept to the ongoing regulatory evolution taking place at other energy regulators, including the Canada Energy Regulator and the Ontario Energy Board. The Action Plan reiterates the following expected results originally identified in the 2018 SMR Roadmap:

- Revised nuclear security regulations only cover high-level principles similar to other regulations and prescriptive requirements are removed; and
- The new CNSC regulatory documents (REGDOCs) previously produced provide necessary details and including the concept of a graded approach.

B. Regulatory efficiency

The CNSC is reviewing its current framework to ensure that it remains technology neutral in terms of licencing and that it applies objective-based performance criteria in support of regulatory decision making. The CNSC's focus will remain on evaluating safety of new technology, including SMRs.

In addition, the CNSC is drawing from its international collaboration efforts (discussed below) to develop a systematic methodology for application of the graded approach to regulatory functions such as licensing and compliance.

The CNSC is also taking steps to build its human and knowledge capacities in connection with licensing reviews and approvals. The Action Plan reiterates the following expected results originally identified in the 2018 SMR Roadmap:

- Introduce efficiencies to provide further flexibility and clarity in SMR licensing and regulation; and
- Ensure that staff deliver efficient, predictable and comprehensive regulatory oversight.

C. Community and Indigenous engagement in SMRs

The CNSC will continue with its engagement of Indigenous groups and the public regarding its approach to assessing and regulating SMRs, including the reinforcement of its role in the licensing of the design, construction, operation and decommissioning of SMRs. The CNSC will host a webinar-based public consultation on the CNSC's regulatory approach to SMRs in the spring of 2021.

The Action Plan reiterates the following expected results originally identified in the 2018 SMR Roadmap:

- Promoting disclosure to the public and Indigenous communities in relation to the regulation of SMRs, including licensing and waste; and
- Continued engagement of Indigenous groups and the public, wherever possible.

D. International collaboration

Internationally, the CNSC is engaged in collaborative efforts to ensure readiness for the regulation of innovative nuclear technologies such as SMRs. These collaborative efforts seek to find efficiencies in regulatory reviews and information sharing, and to avoid duplication by leveraging other regulators' technical assessments.

The ultimate goal is to develop harmonized approaches for the licensing of advanced reactor technologies, including SMRs. In 2019, the CNSC signed a memorandum of cooperation with the United States Nuclear Regulatory Commission that could support more efficient reviews of SMRs. The CNSC also signed a similar memorandum of cooperation with the Office for Nuclear Regulation in the United Kingdom, enhancing existing collaboration through technical exchanges and sharing of training programs and development activities.

The CNSC is also working closely with the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA). This includes chairing the IAEA's Commission on Safety Standards, which is a standing body of senior government officials holding national responsibilities for establishing standards and other regulatory documents relevant to nuclear, radiation, transport and waste safety, as well as emergency preparedness and response. The CNSC is also actively participating in several working groups under the NEA's leadership.

Finally, the CNSC is providing regulatory insight to countries embarking on the use of nuclear technologies and that are planning to develop regulatory frameworks. The CNSC has provided guidance and delivered training to countries on SMR-related safety and licensing issues.

The Action Plan reiterates the following expected results originally identified in the 2018 SMR Roadmap:

- Canada is well-positioned to influence and lead in the development of international enabling frameworks for global deployment of SMRs; and
- Memoranda of cooperation with other nuclear regulators are developed to support more efficient reviews and the harmonization of approaches for the licensing of SMRs, including regulatory requirements.

Conclusions

The Action Plan states the CNSC's position that its work is "in progress".

While no deadlines are specified in the Action Plan, the CNSC has published a more detailed Regulatory Framework Plan (2017-2022) which outlines a comprehensive workplan identifying the regulations and regulatory documents the CNSC plans to develop or amend – with specific targets for decisions identified for each element of the workplan.

The themes included in the CNSC's response to SMRs will not be surprizing to other energy regulatory professionals. Most energy regulators, including the Canada Energy Regulator and the Ontario Energy Board, are working to modernize their regulatory framework to:

- Adopt a less prescriptive performance-based approach to regulation;
- Adapt the regulatory process to better engage with the public and key stakeholders;
- Adapt the regulatory framework to increase regulatory efficiencies; and
- Adapt the regulatory framework to better respond to innovative new technologies while remaining technology neutral (and avoid picking winners).

While electricity regulators are engaging with their community to adapt to Distributed Energy Resources (DERs) more broadly, the CSNC is tasked with responding to SMRs more specifically.

Lessons can be learned, not just from examining what other nuclear safety regulators are doing internationally, but also from looking at what other innovative regulators are doing domestically and borrowing from best practices.

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