



**Remarks by
Jason Cameron, Vice-President and Chief Communications Officer
Canadian Nuclear Safety Commission
to the Canadian Nuclear Laboratories
Small Modular Reactors Workshop**

**October 10, 2017
Winnipeg, Manitoba**

Check against delivery

I am pleased to be here this afternoon on behalf of Ramzi Jammal, Executive Vice-President and Chief Regulatory Operations Officer of the Canadian Nuclear Safety Commission (CNSC). He wanted to be here today but, unfortunately, could not join us because of the Commission meetings happening this week in Ottawa. Accompanying me at this meeting is Mr. Raoul Awad, Director General, Directorate of Regulatory Improvement and Major Projects Management.

I am glad to have this opportunity to give you an overview of the work the CNSC has done to date to respond to interest in small modular reactors (SMRs) and an update on the work we are doing in light of this significant interest.

In recent years in Canada, interest in SMRs has increasingly been a subject of careful consideration, as a means to reduce greenhouse gas emissions and to provide reliable heating and electricity generation capacity in northern and remote communities as well as commercial operations. I am pleased that it is an important nuclear energy topic within the overall Generation Energy discussions taking place this week.

The CNSC has been proactive in getting Canada's regulatory framework ready for SMRs and to offer vendors, in particular, an opportunity to assess their designs against the CNSC's expectations.

The CNSC has a well-regarded and complete framework in place for licensing new power reactors, but SMRs present different challenges.

For instance, with SMRs, we are looking at technologies that can differ significantly from existing water-based Generation II and III reactors, including technologies borrowed from other industries, new types of coolant and different approaches to defence in depth.



Some long-term issues that may emerge in new technologies and likely need further discussions include operating models that envisage use of remote-operation technologies and the possible use of technologies that could be factory fuelled and transported to and from a site within Canada.

The sufficiency of the safety and security designed into these reactors and what benefits the standardization of design will convey in relation to the assessment processes are other important issues that will also need to be addressed.

But these and other issues should be expected as related challenges for any new technology, even more so when we are talking about something as important as nuclear energy.

We identified what we see as the key regulatory challenges in our discussion paper on SMRs, which was out for public consultation from June to December 2016.

We received over 430 comments from numerous sources, including many of you in this room. The feedback is proving to be very valuable as we proceed. We just recently published a What We Heard report on our website. The report summarizes these comments, and I encourage you to look at the report if you have not done so already.

Most respondents stated that SMRs do not pose an insurmountable challenge to existing regulatory requirements in Canada. They also noted that the CNSC is currently in a position to consider an application to license an SMR under the existing Canadian regulatory framework. While they indicated that new regulations are not needed, they commented that amendments to some regulations, notably the *Nuclear Security Regulations*, should be considered.

Commenters indicated that the existing regulatory framework could be clarified in some areas, so that vendors and future licence applicants better understand how the CNSC's licence application requirements might be applied to SMRs.

In particular, the industry would appreciate more information on how the "risk-informed" and "graded approach" concepts would be applied to SMR designs, and also commented that the regulatory requirements should be applied commensurate with risk. Industry respondents also said it is important to articulate how the graded approach would be applied to all SMRs, taking new safety features into account for smaller SMRs.

In our What We Heard report, we committed to providing greater clarity on application of the graded approach. To that end the CNSC will host a workshop on this subject on November 24, 2017.

We will be seeking feedback from participants on application of the graded approach to SMRs, focusing on fundamental safety principles, and a synopsis of the workshop will be published.



The comments received, as well as the input from the proposed workshop, will inform the CNSC's expectations for SMRs.

Regulatory documents cited by respondents in feedback on our discussion paper will be considered when these regulatory documents come up for their scheduled reviews.

We are also drafting a licence application guide to help proponents navigate the process when the time comes to prepare a licence application, and we have very aggressive timelines for the publication of this regulatory document.

As I trust is becoming evident, to address all related challenges with SMR technologies, we have a strategy for readiness in place, which is premised on regulatory certainty, technical readiness, establishment of priorities, and stakeholder awareness.

Ramzi Jammal is exercising internal leadership and coordination through his recently established SMR Steering Committee. This committee provides leadership to set the foundation for SMRs.

The committee provides strategic direction, and senior management oversight and support for the development of the regulatory strategy and position associated with the review and licensing of SMR technologies.

Our current regulatory framework gives us a solid foundation on which to apply any necessary enhancements to the SMR reality.

The *Nuclear Safety and Control Act*, the regulations made under it and our complete suite of regulatory documents ensure that there are safety requirements in all aspects of design, construction and operation for all safety and control areas.

On the technical readiness front, our work needs to be based on sound science and engineering practices, but a lot of that depends on the vendors. The present lack of specific technical information on reactor technologies is one notable challenge.

That lack of information is understandable, considering that many designs are still conceptual. But, never forget that credible science and technology information is critical for us to be able to assess safety claims.

We have highly educated and capable staff with the capacity to handle this file.

Sorting through the priorities is a particular challenge for a high-profile file such as this, but that is what we have done and will continue to do so.



One particular priority comprises processes. This includes reviewing our processes to determine if they are appropriate to the challenge, improving those that are found lacking, and assessing the need for new processes.

Communication on a novel technology is important, particularly for us as a regulator. Your job is to go out and explain it to the public as a concept to better their lives. Our job is to let the public know that we are there to ensure that the public and environment are protected.

Our staff have been clarifying our state of readiness and our role to audiences across Canada and around the world.

Speaking of around the world, we have been working closely with our international colleagues through benchmarking exercises and information exchanges.

We are working closely with colleagues in other countries facing similar challenges, notably through International Atomic Energy Agency forums, Nuclear Energy Agency working groups and bilaterally with the U.S. Nuclear Regulatory Commission.

Based on the feedback we receive, we feel we are on the right track and in fact playing a leadership role on this file globally.

We also continue to conduct pre-licensing vendor design reviews.

Right now, we have seven Phase 1 vendor design reviews in progress addressing four completely separate technologies.

As you know, these reviews are an optional fee-for-service offered by the CNSC to identify early in the process any fundamental barriers to licensing in Canada.

These reviews are proceeding well so far, and I expect increased interest from vendors in years to come.

I am confident in the CNSC's ability to be ready to regulate the introduction of SMR technology in Canada, whenever that may happen.

We will continue to work diligently to ensure the regulatory framework provides clarity for all, and the necessary requirements and guidance for proponents.

We will continue our work with international partners to ensure that we stay at the forefront of this developing sector to protect health, safety, security and the environment and maintain public confidence.