Contribution ID: **377** Type: **Poster**

Regulatory agility through use of performance-based regulations.

Performance-based regulation offers flexibility for modern and innovative technologies across many sectors, including nuclear. In Canada, like many other nations, nuclear regulatory frameworks evolved during the design and rollout of its first commercial reactors in the 1960's to 1980's. Canadian regulation at this time was heavily performance based, coupled with reliance on scientific judgement to make decisions for safety.
In the decades that followed, regulations and standards evolved to include more prescriptive-based elements. Informed by operating experience, industry teamed with regulators to codify best practices on how to achieve safety. This approach, when coupled with a common national nuclear technology (CANDU) led to excellent safety standards that were prescriptive in nature.
In recent years, the CNSC has focussed on the development of performance-based approaches in its Regulatory Framework to be in a better position to regulate new nuclear technologies that differ from its current CANDU fleet. The CNSC is also fortunate in that it embraces the use of a graded approach for regulation and allows the use of alternatives to meet regulatory requirements.
This paper examines the advantages of employing performance-based regulation using a graded approach for advanced reactor designs. It also explores how prescriptive regulations and standards developed for traditional nuclear technologies can be effectively integrated into the regulatory framework for novel technology and newer advanced designs.

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Track Classification: Topical Group B: Legislative and Regulatory Frameworks: Track 7: Regulatory Considerations for SMRs