

## CANDU REACTORS: LONG TERM OPERATION AND REFURBISHMENT, CNSC PERSPECTIVE

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### **Abstract**

Numerous nuclear power reactors in Canada have reached or are approaching their assumed design life, and decisions are made on their continued safe operation.

The Canadian Nuclear Safety Commission (CNSC) does not prescribe the approach taken by licensed operators should they decide to extend their plant operation beyond the assumed design life. However, the approach selected by the operators must demonstrate that plant components will continue to be fit for service, and that safety will be enhanced by implementing analyzed actions to satisfy, as much as feasible, the requirements and expectations of modern standards and practices.

In 2008, the CNSC issued the Regulatory Document RD-360, *Life Extension of Nuclear Power Plants*, describing the expected phases to consider when undertaking a project to extend the life of a nuclear power plant. In 2015 RD-360 was superseded by the REGDOC-2.3.3 *Periodic Safety Reviews*. While RD-360 aimed at long-term life extension until end of life, REGDOC-2.3.3 proposes an approach of shorter safety reviews (10 years cycles) to establish the scope for potential safety enhancement and re-baseline the safety-case periodically.

The underlining regulatory philosophy remains to stress continuous improvements to strive for nuclear power plants that are operating safer and to the modern requirements and good practices. The CNSC regulatory approach rests on continued demonstration of fitness for service and retention of safety margins of the defense-in-depth barriers.

**Keywords:** CNSC, Regulations, safety, life extension, refurbishment, PSR, etc.