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Title:
CANDU MONARK: A Generation III+ CANDU Reactor

Abstract:

AtkinsRéalis is developing a new 1000 MW-class CANDU®[1] reactor called CANDU MONARK™ [2]. CANDU MONARK uses a 480-channel natural uranium CANDU core, a heavy water heat transport system (with appropriate support systems) and a fuelling machine all based on proven existing CANDU designs. It is a fully unitized, four-quadrant design achieving improved operability and maintainability with significant improvements in robustness and safety which leverages the ACR-1000® [3] MW plant design to create a Generation III+ GW-scale CANDU reactor design. The CANDU MONARK thus includes the extensive engineering, process system design and layouts that have already been completed for the ACR-1000 and which were considered in the Vendor Design Review of the ACR-1000, with other SSCs being related to corresponding elements of the EC6® [4] (such as the core, heat transport system, etc.), which also successfully completed a Vendor Design Review.

CANDU MONARK will be the newest and most innovative Gen III+ CANDU nuclear power plant, designed with safety, innovation, sustainability, social licence and cost efficiency as guiding principles. The CANDU MONARK will combine the proven natural uranium core design of the CANDU technology with the modularization, enhanced safety, and maintainability of the Advanced CANDU Reactor 1000 (ACR-1000) design.

[1] CANDU is a registered trademark of Atomic Energy of Canada Limited

[2] MONARK is a trademark of Candu Energy Inc., an AtkinsRéalis company

[3] ACR-1000 is a registered trademark of Atomic Energy of Canada Limited

[4] EC6 is a registered trademark of Atomic Energy of Canada Limited

Keywords:
New Reactor Technology, CANDU

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