

International Workshop

KOREA's "SMART" Road to SMR in CANADA

8 May 2024

Jeju ICC, Korea

Korean Nuclear Society

Division of Reactor System Technology

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SMR Development and Deployment in Canada

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1 Introduction to COG

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01 Introduction to COG

WHO WE ARE

The CANDU Owners Group is a Canadian not-for-profit corporation funded by its members in seven countries worldwide to achieve excellence through collaboration in CANDU and advanced nuclear technologies to meet the world's goals for clean, abundant energy.

Information Exchange



Research & Development



Nuclear Safety & Environmental Affairs



Joint Projects & Services



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2 Current SMR Landscape in Canada

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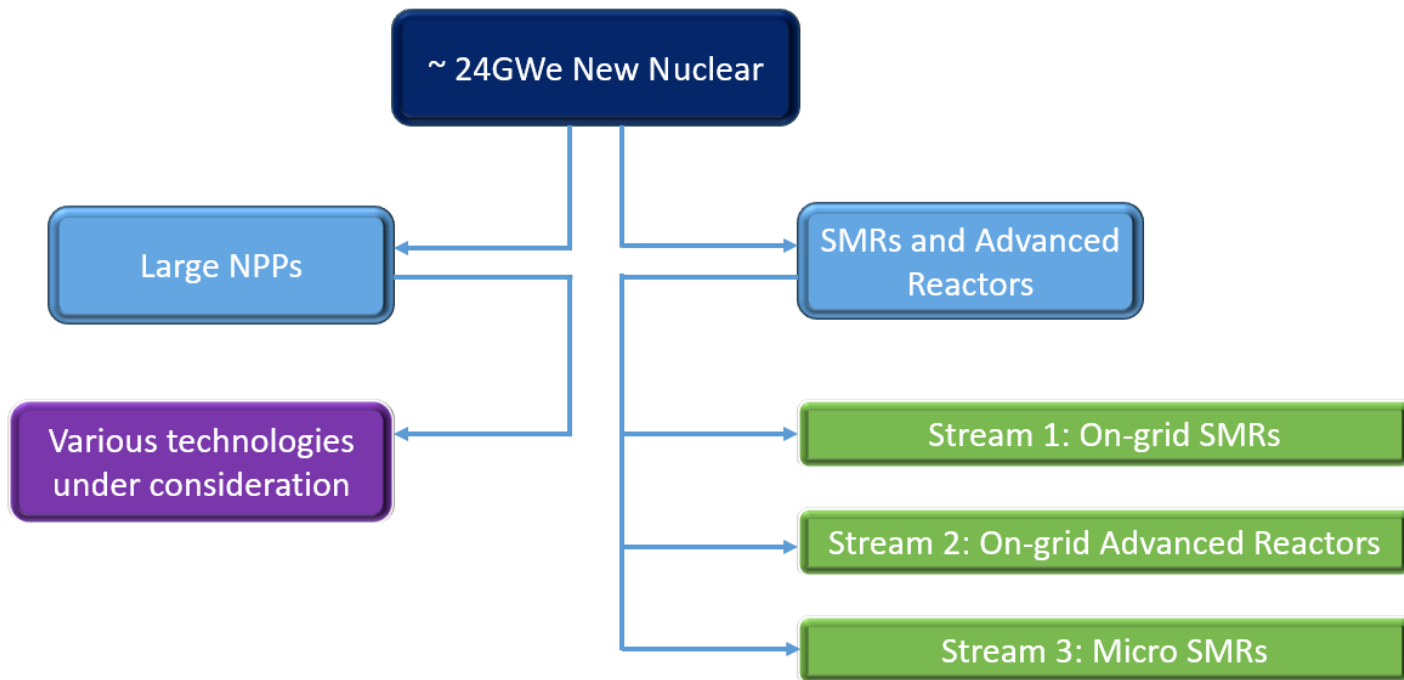


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02 Canada's Climate Change Goals

Current SMR Landscape in Canada



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02 Canada's Three Stream Strategy Current SMR Landscape in Canada

- Stream 1: On-grid SMR deployment
 - **OPG:** GE-Hitachi BWRX-300 to be constructed at the Darlington nuclear site in Ontario
 - To be constructed as early as 2028, with commercial operation in 2029
 - Submitted Licence to Construct
 - Planning for three additional BWRX-300 reactors at the Darlington site

02 Canada's Three Stream Strategy Current SMR Landscape in Canada

- Stream 1: On-grid SMR deployment
 - **SaskPower:** Selected GE-Hitachi BWRX-300 for potential deployment in Saskatchewan
 - Plan to have 2 potential sites selected by early 2024
 - Decision on whether to build an SMR will be made in 2029
 - Deployment expected in mid-2030s

02 Canada's Three Stream Strategy Current SMR Landscape in Canada

■ Stream 2: On-grid advanced reactor development

- **NB Power:** Selected two Generation-IV advanced SMRs to be developed at the Point Lepreau site
 - ARC-100 targeted to be operational by early 2030s
 - Submitted License to Prepare Site
 - Moltex Energy spent fuel recovery system and stable salt reactor (SSR) expected to be in operation by the early 2030s

02 Canada's Three Stream Strategy Current SMR Landscape in Canada

- Stream 3: Micro-SMR deployment to replace diesel use in remote communities and mines
 - **OPG:** Partnered with USNC on a First of a Kind (FOAK) commercial demonstration project to develop and deploy a MMR™ at the CRL site around 2028
 - Environmental and licensing assessments are ongoing
 - **SRC-Nuclear:** Pursuing the demonstration of an eVinci™ micro reactor in Saskatchewan
 - Expected to be operational by 2029

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02 Canada's Three Stream Strategy Current SMR Landscape in Canada

■ Recent announcements

- **KAERI** and Government of Alberta signed MOU to collaborate on deployment of SMRs, including SMART Reactor (**April 2023**)
- **ARC Clean Technology** and Invest Alberta signed agreement to support the deployment of advanced SMRs in Alberta (**May 2023**)
- **KAERI** and **AECL** signed a MOU to drive innovation in clean energy and nuclear technologies (**September 2023**)
- **OPG** and **Capital Power** partner to advance new nuclear in Alberta (**January 2024**)

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3 COG SMR Program

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03 COG SMR Forums

COG SMR Program

Small & Medium Sized Reactor Technology Forum

- Enable successful deployment of SMRs
- Approaches to SMR Regulation in Canada
- Trusted advice to Decision Makers
- Support of development of industrial and human capacity
- International Harmonization
- Support achievement of Canada's NZ goals

SMR Vendor Participant Program

- Share Vendor perspectives
- Address common challenges
- Contribute to common technical positions
- Ensure a strong network supporting SMR deployment
- Assist Vendors to understand operator challenges

Fuel Supply, Enrichment &
Recycling TTs

Radioactive Waste
Management TT

Nuclear Security TT

Nuclear Liability TT

SMR Industry Regulatory TT

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03 Membership COG SMR Program

Members:



Observer Participants:



SMR Vendor Participant Program (VPP) Members



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4 Summary

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04 Summary

- Increased nuclear generation capacity is needed to meet climate change goals
- Various SMR and advanced reactor projects are progressing across Canada
 - Expect additional projects to be announced
- Collaboration will be key to ensuring successful SMR development and deployment in Canada

5 Discussion

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THANK YOU

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