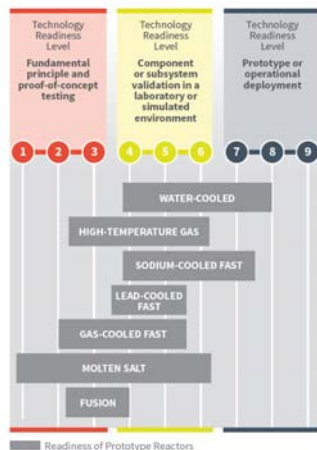


Assessment of Alberta and Saskatchewan Industrial Potential to Participate in an Emerging SMR Supply Chain in Canada

Canada’s path to net zero greenhouse gas emissions by 2050 includes achieving 100 per cent net zero electricity. Nuclear, and specifically Small Modular Nuclear Reactors (SMRs), have potential to contribute to net-zero goals by supplementing baseload generation, while meeting Canada’s growing electricity needs. Consideration of SMRs in Canada’s energy future is underpinned by policies such as the Government of Canada’s SMR Roadmap and Action Plan. As signatories to the SMR Memorandum of Understanding, Alberta and Saskatchewan have signaled their intent to collaborate with other provinces to advance SMRs as a clean energy option. Prairies Economic Development Canada commissioned the consulting firm Hatch Ltd. to conduct this study to assess the industrial opportunities and challenges within Alberta and Saskatchewan to participate in a pan-Canadian SMR supply chain.



SMR technologies Readiness
(Courtesy Canadian SMR Roadmap: On-Grid Applications Workshop Report)



RECIPIENT:
Hatch Ltd.



PARTNERS:
Prairies Economic
Development
Canada



TOTAL BUDGET:
\$140,910



AI FUNDING:
\$46,970



PROJECT DATES:
JAN 2022 –
MAY 2022



PROJECT TRL:
N/A

APPLICATION

SMRs have potential to play a role in supplying reliable, zero emissions heat and electricity to industry and communities. SMRs have potential use in both on- and off-grid configurations, as well as in grid-scale applications and local district energy systems.



ALBERTA INNOVATES CLEAN RESOURCES

CLEAN TECHNOLOGY

RENEWABLE & ALTERNATIVE ENERGY – ELECTRICITY GENERATION

PROJECT GOALS

The study takes a cross-sectoral and technologically-agnostic approach to:

- Summarize emerging and unique requirements for entering the SMR supply chain
- Provide an assessment of the industry, and
- Review the emerging global and domestic risks and opportunities within the nuclear and SMR industry.

BENEFITS TO ALBERTA

- Supports the pathway towards a net zero Alberta grid.
- Potential to achieve economic benefits from leveraging a portion of Canada's domestic SMR market, which is estimated to be worth \$5.3 billion between 2025 and 2040.
- Increase energy security and supply of net zero electricity within Alberta by deploying a portion of Canada's domestic SMR potential capacity, which is projected to be 35 Gigawatt equivalent off-grid and 6.6 Gigawatt equivalent on the grid.
- Helps to reduce risk of electricity shortages, extreme price fluctuations and power outages, and associated social impacts on Albertans, and economic impacts on industry.

CURRENT STATUS

MAY 2022

The study is complete and the executive summary is available on the Alberta Innovates website. Both provinces have broad potential for SMRs, not only as grid-scale electricity generation, but also for industrial process heat and power, and district heating. The study identified strengths and challenges for Alberta and Saskatchewan to participate in the SMR supply chain. Both provinces have strong industrial economies and industrial clusters that have capacity for modularized equipment fabrication and building of facilities and infrastructure. Existing industries would need to upgrade their certifications, qualifications or quality assurance practices in order to operate in the highly-regulated nuclear sector.