Canadian Nuclear Utilities co-operation on Development and Deployment of Small Modular Reactors (SMRs)

Paul D Thompson
NB Power, Senior Strategic Advisor

Canada-Romania Partnership in Nuclear Technologies
March 3, 2021

Nuclear Scene in Canada

- No central Federal design and development Nuclear Company
- Industry met this challenge with through cooperation between the Canadian Nuclear utilities
- Private / Public partnerships
- Leveraging strengths; operating experience, supply chain, national laboratory, Universities and Nuclear Regulator

Canadian Federal Government

- Federal priorities – climate change, economic development & innovation
- Nuclear needs to be an essential part of the climate change solution
- SMRs can offer advantages over new build of the current generation of plants
- SMR Roadmap 2018
- Clean Energy

Chief Executive Officer (CEO) SMR Forum

Achieve industry alignment on a framework for a coordinated, optimized SMR development and deployment strategy for Canada

ONTARIO POWER GENERATION

SaskPower
Powering the future®

Bruce Power™

Énergie NB Power
the power of possibility

Canadian Nuclear Laboratories
Laboratoires Nucléaires Canadiens

CANDU Owners Group Inc.
COG
"Excellence Through Collaboration"

CEO Forum Works with other Enabling groups

- SMR Secretariat
  - Action Plan
  - SMR contribution to GHG reduction
- Canadian Nuclear Association and Federal Government
- Regulatory engagement & efficiency
- Fuel supply
- Waste management
- Nuclear security
- Nuclear liability
- Inter-Provincial working group

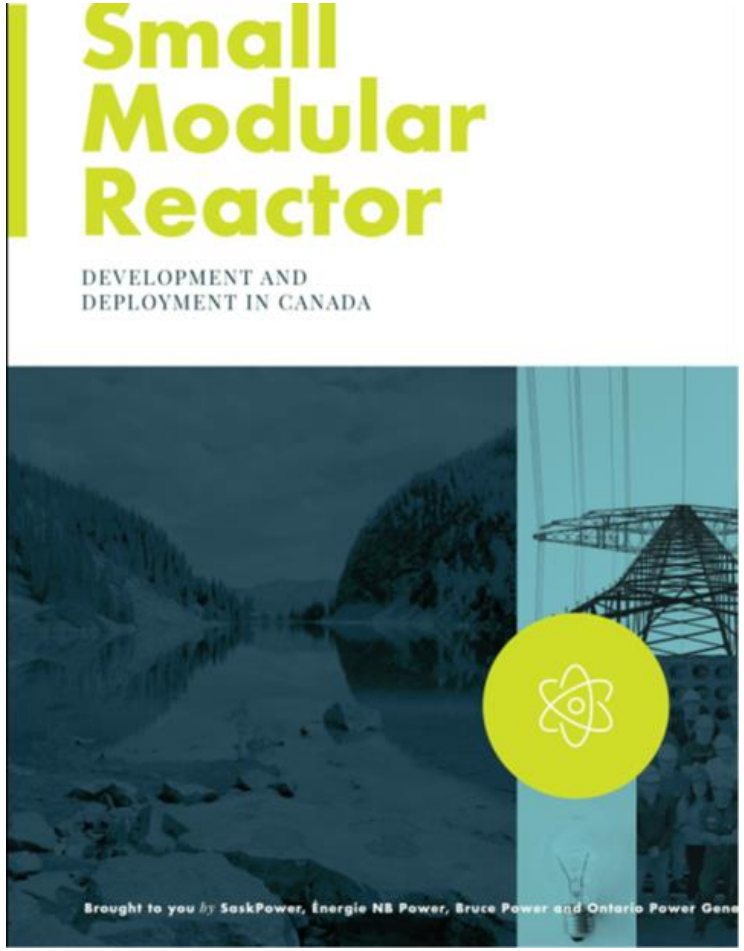
Inter-Provincial working group

2019 Memorandum Of Understanding (MOU) between Saskatchewan / Ontario / New Brunswick

- Feasibility report
- Strategic deployment plan
- Alberta intends to join

Feasibility Study

Lays out the strong economic benefit, how SMRs align with major policy initiatives of the Federal Government and what is required to make this tremendous opportunity feasible.



SMR Approach for Canada

Stream 1

On-Grid “ready deployable” SMR by late 2020’s at Darlington

Stream 2

On-Grid Advanced SMRs being developed in New Brunswick that bring additional benefit for deployment in early to mid 2030

Stream 3

Micro SMR for resource extraction and remote communities

Potential Green House Gas reductions

- Different SMRs can reduce GHG through:
- Electrical grid(reduced oil/coal/gas)
- Transportation(electrification/hydrogen generation)
- Industry(heat/hydrogen generation)
- Home(electrification/hydrogen generation)

Opportunities for greater collaboration between Canada and Romania

Opportunity to leverage our existing cooperation to explore the potential for SMR application abroad

Canadian Nuclear Utilities co-operation on Development and Deployment of Small Modular Reactors (SMRs)

Paul D Thompson
NB Power, Senior Strategic Advisor

Canada-Romania Partnership in Nuclear Technologies
March 3, 2021