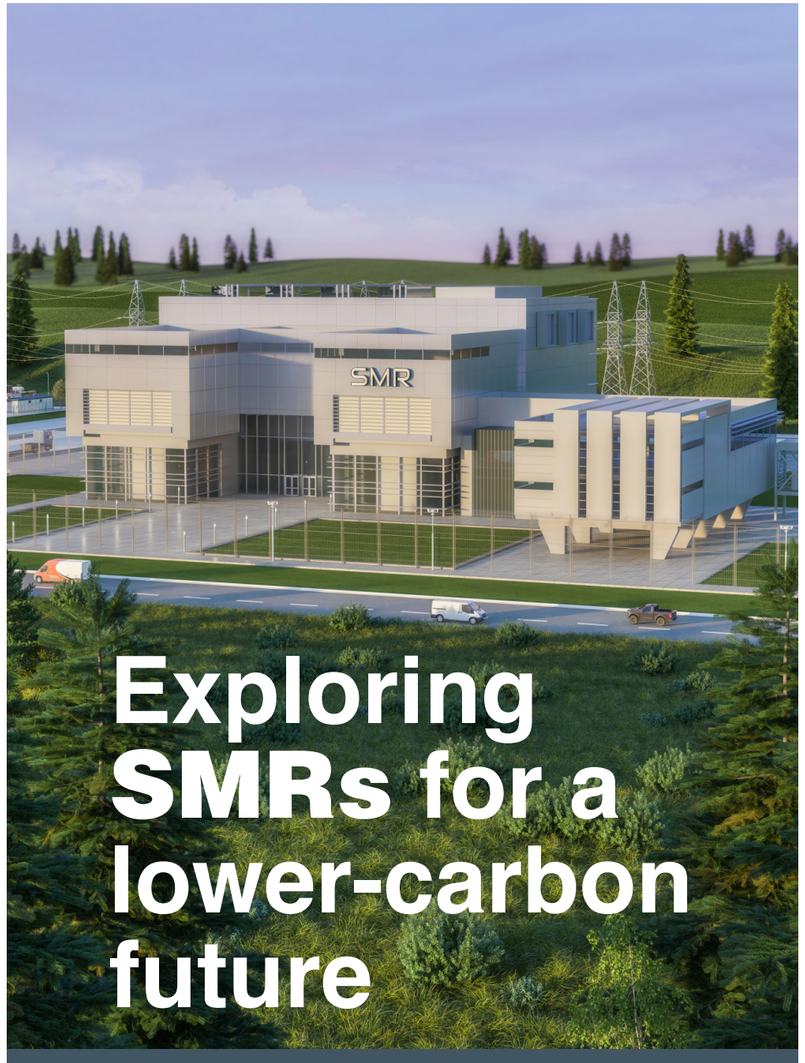


Exploring SMRs for a lower-carbon future

Capital Power and **Ontario Power Generation (OPG)** are exploring the feasibility of developing small modular reactor (SMR) nuclear power generation in Alberta.

Capital Power

OPG

Positive Support. Positive Results. Positive Future for SMRs in Alberta.

The feasibility study advances our belief that SMRs can be a viable solution to support Alberta's growing need for a reliable and balanced energy mix that communities need, attracting both investment and economic growth that Albertans want.

The study confirms SMRs are **technically feasible**, have early **positive support** from local and Indigenous communities, and have significant potential to **boost the province's GDP**.

Deployment of a 600 MW SMR facility is **expected to create:**

$16 billion GDP impact over its operational life. **Over 80%** stays in Alberta

1,100 operations-phase jobs and **4,200 construction-phase jobs**, totaling $10 billion in wages for Albertans

What We Delivered

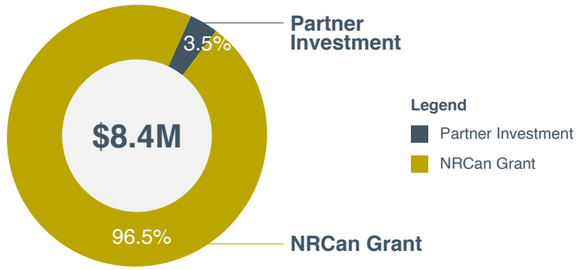
Capital Investment

Partner investment
$0.3 million

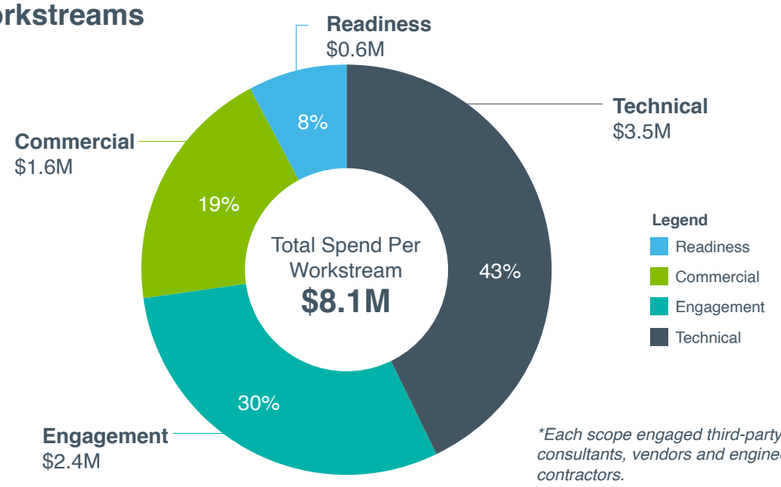
NRCan grant
$8.1 million

People Power

14,703 hrs (14.1 FTEs)



Workstreams

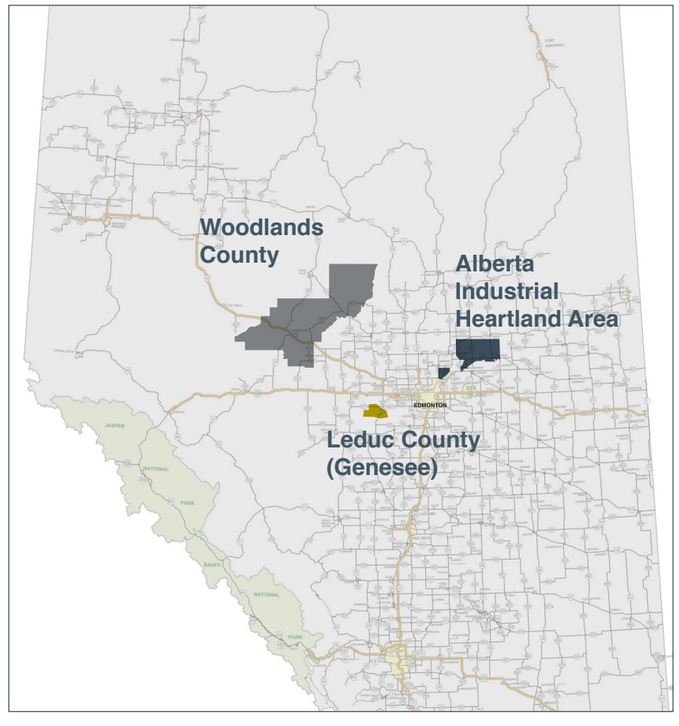


**Each scope engaged third-party consultants, vendors and engineering contractors.*

Impact

- Met with **465 local residents**
- Hosted **7 public open houses**
- Met with **30 Indigenous communities**
- Toured **15 Indigenous communities** at the Darlington Nuclear Generating Station
- Over **100 feedback forms** received

Potential Host Regions



Candidate Site Screening

Three regions were broadly screened for potential candidate sites that meet technical, social, and environmental requirements:

Woodlands County
- 3 candidate sites

Alberta Industrial Heartland Area
- 5 candidate sites

Leduc County (Genesee)
- 3 candidate sites

11
Candidate Sites

Commercial

TOP INSIGHT ▶ Deployment of a SMR nuclear project in Alberta could generate significant economic and social benefits.

Social and Economic Benefits – Conference Board Study

4,200 construction jobs and **1,100 operations jobs** / yr over 65 years

Up to **$4.8 billion of new tax revenues** across municipal, provincial and federal governments; with **~$4 billion staying in Alberta**

Could grow Alberta's existing, **robust supply chain to support nuclear grade** components and fuel

Could grow localization of **goods and services by 80%** by leveraging advanced manufacturing capabilities

Could mean **~$10 billion in wages for Alberta's workforce** through construction and operations phases

Up to **$16 billion** to Canada's GDP, with **$13 billion** staying in Alberta

Technical

TOP INSIGHT ▶ SMRs position Alberta at the forefront of innovation bolstering its status as an energy leader and hub for cutting-edge technology and exportable expertise.

Technology screening

This workstream evaluated five potential SMR technologies and selected two for further review based on their proven technologies and operating profiles.

Screening Criteria	Vendor A	Vendor B
Basic Operation	High	High
Maturity and Design Effort	High	Moderate
Technology Capability	High	Moderate
Cost and Commercial Related Factors	Moderate	High

Legend Low attractiveness · Moderately attractive · Highly attractive

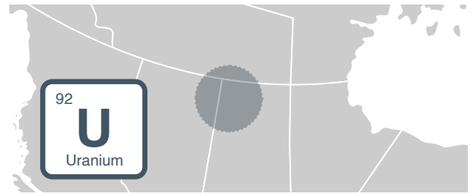
Regulatory Roadmap

TOP INSIGHT ▶ SMRs may take several years and significant early capital investment before reaching **Final Investment Decision (FID)**.

Fuel Supply Chain

TOP INSIGHT ▶

- **Alberta has rich uranium deposits** with potential to become a significant player in uranium mining and milling
- Alberta's industrial capacity and skilled workforce position it as a **potential hub for nuclear fuel fabrication**



Engagement

TOP INSIGHT ▶ Communities across the three potential host regions are nuclear curious, receptive to learning more about SMRs.

What We Heard

Top Interests and Concerns

1. Waste storage, transportation and disposal
2. Water use and quality
3. Radiation safety and human health
4. Equity and commercial partnerships
5. Training, employment, and economic opportunity

Early Indications of Public Perspectives: Region-by-Region

Leduc County (Genesee)

90 Open house visitors
37% Contributed feedback

Industrial Heartland

109 Open house visitors
34% Contributed feedback

Woodlands County

254 Open house visitors
18% Contributed feedback

Early Indications of Indigenous Nation Perspectives

Legend
Low support
Moderate support
High support

Treaty 6 Nations

17 Communities engaged

82% Introductory meetings complete
35% Darlington tour uptake

Treaty 8 Nations

9 Communities engaged

22% Introductory meetings complete
11% Darlington tour uptake

Métis Settlements and Organizations

13 Communities engaged

100% Introductory meetings complete
62% Darlington tour uptake

What We Learned

TOP INSIGHT ▶ SMRs are technically feasible and 'right fit' for Alberta's established resource and emerging technology sectors.

Reliable Baseload

Complements a balanced mix of generation assets to achieve a reliable and affordable grid

Catalyst to Investment

Attracts investment into Alberta's energy, industrial and technology sectors creating new economic opportunities

Seamless System Integration

Maximizes existing **transmission interconnection** and **system capabilities**