

Canada's New Nuclear Gamble

An Imbalance of Perspectives on Small Modular Reactors (SMRs) in Canada's House of Commons

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Background

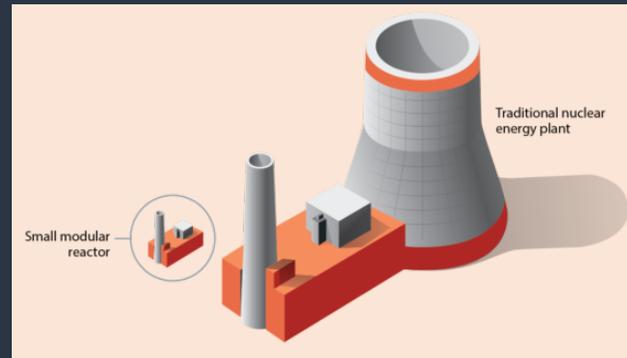
- A transition away from fossil fuel-based energy towards clean energy is imperative if we are to limit our impact on the climate
- Nuclear power** is seen as a viable low-carbon energy source as it does not emit carbon dioxide in generating electricity
- Some countries have chosen to **phase out nuclear power** (e.g. Germany, Switzerland)
- Canada has chosen to support its nuclear industry and the deployment of SMRs
- Promising** technology, but largely **untested** and **highly risky**
- Planned uses in Canada include powering **Indigenous, rural, and remote communities** as well as industry, particularly in the Albertan oil sands
- Ontario, New Brunswick, Saskatchewan and Alberta** have signed an **SMR Memorandum of Understanding** to work cooperatively towards the development, demonstration and deployment of SMRs
- The **SMR Action Plan** was released in Dec 2020 detailing the steps stakeholders will be taking to deploy SMRs within the coming decade.

Research Questions

- Why is the Canadian government banking on risky first-of-a-kind technology to achieve their climate goals?
- What are the perspectives of the key stakeholders in the Canadian nuclear industry and how have they shaped the Canadian government's stance on SMRs?

Methodology

- Literature review** of academic papers, government reports, and
- Content and thematic analysis** was performed on 25 House Standing Committee proceedings and 14 Parliamentary Hansards
- Key stakeholder's references to predetermined themes were recorded and analysed using **NVivo**



What are SMRs?

- "Small":**
Smaller in size; smaller power capacity; ideal for decentralized power generation
- "Modular":**
Can be prefabricated in a factory, transported in components and assembled on site; can be added to other units to increase capacity
- "Reactors":**
72 different reactor designs; Generation III, III+, and IV reactor types; Fast Reactors (*Wasteburner*)

What Proponents are Saying:

- SMRs are safer and cheaper
- SMRs generate less waste
- SMRs are proliferation resistant
- SMRs can help remote communities and industry move away from diesel as main energy source

Who are the Key Stakeholders:

- Federal (NRCAN) and provincial governments (ON, NB, SK)
- Canadian Nuclear Safety Commission
- Interested utilities (OPG, Energie NB Power, Sask Power)
- SMR developers (Terrestrial Energy Inc, NuScale Power, etc.)
- Experts, academics and research institutions
- Indigenous, rural and remote communities
- Canadian public

4 Key Concerns of Conventional Nuclear Power

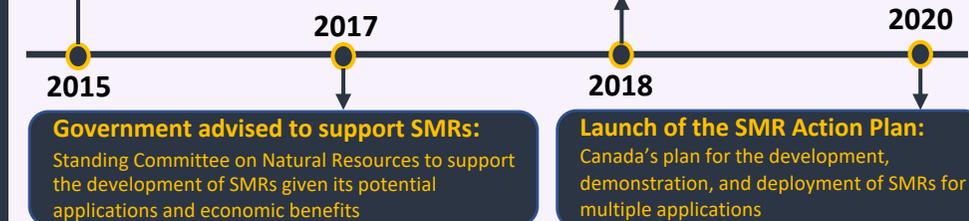
- High capital requirements
- Nuclear Waste
- Risk of nuclear accidents
- Nuclear Proliferation

COP 21 "Mission Innovation":

Canada pledges to double investment in clean energy technology

SMR Roadmap – "A Call to Action":

Natural Resources Canada convened a working group comprising of interested utilities and provinces to gain feedback on the possible deployment of SMRs



Findings

- All stakeholders failed to recognize the proliferation risks associated with SMRs.
- Very minimal opposition from Members of Parliament in the House of Commons. Most MPs who spoke referred to SMRs tended to emphasize nuclear and SMRs as a critical emissions-free energy source.
- The most dominant theme that stakeholders raise is related to the applications of SMRs in Canada and the economic opportunity it may create
- The majority of standing committee witnesses are experts, academics, and research institutions, all of which have close ties with the industry

Conclusions

- The manner in which the standing committees select their witnesses only served to skew the perceptions of SMRs.
- ENGOs and other SMR opponents such as Indigenous peoples found limited opportunities in front of the standing committees.
- Parliamentary processes are not equipped to provide the government a balanced view on nuclear energy and has blinded the government from the potential risks.

