



Canadian Small Modular Reactor (SMR) Roadmap
Feuille de route pour les petits réacteurs modulaires (PRM) au Canada

Indigenous Engagement Session
Saint John, April 18, 2018

May 18, 2018

Preface

This report provides a summary of discussion from the Small Modular Reactor Roadmap Project's *Indigenous Engagement Session* held in Saint John, NB on April 18th, 2018.

This session, like the Project, was not driven by any proposal to build or operate a small modular reactor in Canada. Rather, the Project's intention is to consider Canadians' requirements and concerns around SMRs, from a pan-Canadian viewpoint, well in advance of any such project.

Similarly, this session's intention was to engage Indigenous people at an early stage, with a view to laying solid and respectful foundations for more engagement, in the event that actual SMR projects are proposed in Canada in the future.

The ex ante Agenda for the day is contained in Appendix A, and Attendees are listed in Appendix B.

Introduction to the Small Modular Reactor Roadmap

A **Small Modular Reactor (SMR)** is an advanced nuclear reactor that produces electric power up to about 300 MWe, designed to be built in factories, and shipped to a site for installation as required. SMRs provide a range of benefits including reduced greenhouse gas emissions, improved affordability, shorter construction and installation times, a wider range of users and applications, site flexibility, and integration with renewables.

In its October 2017 response to the House of Commons Standing Committee report on Nuclear Energy, the Government committed to initiating a dialogue with key stakeholders to develop a **Canadian Roadmap for SMRs** ("SMR Roadmap" or "Roadmap"). The development of the Roadmap was considered critical in light of the following:

- SMRs are a promising potential source of non-emitting power for various applications;
- The technology is at an early stage of development, with many questions that still need answers;
- Future success involves risks and costs, potentially involving both the private and public sectors across Canada; and
- A pan-Canadian approach would help guide important decisions and reduce uncertainty.

Initial research and analysis in support of the Roadmap identified three main applications/markets for SMRs domestically, which are listed below.

- 1) **On-grid power** generation to replace fossil fuel plants in the existing electric power grid system (~150 to 300 MWe).
- 2) Providing non-emitting heat and power for **heavy industry** sites such as resource extraction operations (~10 to 50 MWe).
- 3) Replace existing diesel power generation for electricity, district heating, and desalination in **off-grid northern and remote communities** (~1 to 10 MWe).

Prepared remarks from government and industry

Following brief personal introductions and an opening prayer, Diane Cameron (Director, Nuclear Energy Division, Natural Resources Canada, and SMR Roadmap Project Chair) and Brett Plummer (Chief Nuclear Officer, New Brunswick Power) presented brief welcoming remarks.

John Stewart (Director of Policy and Research, Canadian Nuclear Association, and SMR Roadmap Project Manager) then gave an informal introduction to how nuclear energy works and its role in Canada today. To aid discussion, John sketched out the following simplified comparison of major energy sources. John qualified this by saying this was his own characterization of the picture and did not necessarily reflect views of the CNA or its members.

	Gas/oil/coal	Wind/solar	Hydro	Nuclear
Drawbacks	GHGs Dirty air Fuel cost varies	Land use Irregular power Disposal?	Hard to build Land use River flow	Hard to build Unfamiliar Disposal?
Advantages	Easy to build Familiar	Remote avail. May be cheap	Clean Variable power Long-run cheap	Clean High skill High income

Both at this point and later in the day, Indigenous participants expressed the view that nuclear energy has more drawbacks, or at least drawbacks that are perceived as being more serious, than other energy sources. They also repeatedly emphasized their desire to hear all sides of an issue, so as to have a sound basis for informed decision making.

Diane Cameron (Director, Nuclear Energy Division, Natural Resources Canada, and SMR Roadmap Project Chair) then began speaking to a formal slide presentation that provided a national-level view of Government of Canada positions, programs and policies related to SMRs and the SMR Roadmap Project.

Indigenous participants raised comments and questions related to the SMR Roadmap Project, as well as engagement in the process:

- One remarked on participants’ variances in perspective, saying “We Indigenous people are born asking the question, How do we stop the Earth from being killed?”
- One asked, “What is the good of international conventions and agreements [such as those governing nuclear technology] that do not have enforcement mechanisms?”
- One commended the Project for starting this engagement with Indigenous people at an early stage, rather than at a stage where a specific development has been proposed and the proponent is “just asking how to mitigate the impacts.” He emphasized that land use is the most important question in the mind of Indigenous people.
- One commended talking with “grassroots” Indigenous people, including youth and elders, and including visiting elders in their homes, as opposed to focusing on provincial or national representatives.

- One remarked on Indigenous people's preference for face-to-face dialog, saying "Governments love slide shows and questionnaires, but you won't see those coming from us."
- There was strong priority placed on questions of financial compensation and equity participation for Indigenous people.

These conversations allowed for early discussion about appropriate engagement of Indigenous groups, as well as the intention of the SMR Roadmap Project in holding workshops with Indigenous groups.

Key discussion questions

Phil Carr (Project Facilitator) shifted into the roundtable part of the discussion by introducing a set of what he considered possible key questions that might be raised when Canada's Indigenous people are engaged on SMRs.

In response, participants raised many questions of their own, including:

- How is the nuclear industry regulated?
- Who might actually own SMRs?
- Who would own the waste, and how could we be assured it won't be abandoned on the land?
- How would SMRs and used fuel be transported?
- How would environmental monitoring occur, particularly in the very long run?
- There may be financial provisions today at the corporate level to manage nuclear waste and decommissioning, but what's the backup to those provisions?
- What if the quality of Canada's governance system deteriorates in the future?
- What about future trends or pressures toward privatization and deregulation?
"Regulations can get changed to favour big industry, and we can't stop that."

While this session was aimed at learning generally about Indigenous priorities, expectations and concerns, and did not allow enough time to discuss much of the substance of these topics, some information was presented by way of preliminary answers to key questions, such as:

- The strength, independence, record, and global reputation of the Canadian Nuclear Safety Commission.
- The fact that nuclear waste management, disposal and decommissioning is effective in Canada and is fully funded in advance by the price paid for nuclear energy.
- The existence of many models for environmental monitoring, including models using citizen volunteers with data collection kits.

A Steering Committee representative reflected that the principal concerns that had been heard so far from Indigenous participants seemed to be:

1. Waste,
2. Transportation,
3. Monitoring,
- and 4. Land footprint

And that the principal opportunity mentioned seemed to be: Education.

Questions about engagement process

Phil Carr (Project Facilitator) asked some questions about how the SMR Roadmap Project should proceed when engaging Indigenous people, including: “How far should engagement go, and how do you know when you’ve done enough of it?” Indigenous participants made a number of important points, including:

- Make sure everyone concerned has been given a chance to be heard.
- Don’t just hold community meetings; rather, seek out the elders in their homes.
- Nuclear is not in the educational curriculum, so create opportunities for high school students to learn more about it.
- Indigenous people in different regions have common basic understandings of what stewardship and ownership of the land implies, though they may reach different specific decisions on individual issues. “It’s all about the land and about Indigenous people getting some of the benefits, and about us not living in poverty.”

Afternoon Session

Following lunch, Phil Carr (Project Facilitator) invited a deeper discussion, starting with the possible implications of using nuclear energy and, more specifically, small modular reactors. Advantages and disadvantages were not presented as demonstrated facts, but rather as possibilities yet to be proven, and the point was to elicit Indigenous participants’ ranking of priorities and interests.

This resulted in the following tentative grouping of Indigenous participants’ high, medium, and low priorities among possible implications of SMR deployment. Items within each group are in no particular order.

HIGH PRIORITY

Reciprocity / revenue-sharing with Indigenous people
Indigenous involvement and/or equity ownership
Mature “ecosystem” (meaning supporting industries, regulatory regime, skills, etc)
Low greenhouse gas emissions
Low land footprint
Contributing to Canadian Indigenous people’s international leadership

MEDIUM PRIORITY

Innovation and high-knowledge jobs
Energy system is scaleable to meet future needs
Mitigating local air pollution
Containment of environmental impact

LOWER PRIORITY

Lower energy cost
Facilitating the integration of various energy sources (“hybrid” energy system)
Availability of energy in remote areas
Resource independence from the grid/province
Flexibility of the electricity grid

A Steering Committee representative observed that nuclear’s pattern of public support appears counterintuitive: people who live closest to nuclear facilities tend to be nuclear’s strongest supporters, and the most anti-nuclear jurisdictions (BC and Quebec) tend to be those with virtually no nuclear industry. There was some discussion of this topic.

An industry representative noted that this counterintuitive support pattern cannot be explained strictly as a result of local opinion being swayed by numbers of people who work in the industry, since the large suburb of Pickering, Ontario has only a small percentage of residents working at the nuclear plant, but still has high public support for nuclear.

Key Points We Heard

Project team members who participated came away with a number of valuable learnings from the session, which could be articulated as follows:

- 1) Importance of early and meaningful engagement (i.e. not just mitigation plans);
- 2) Compensation/reciprocity and revenue sharing;
- 3) Indigenous groups have concerns related to the storage and transportation of nuclear waste and want to be engaged in those solutions;
- 4) The independence and rigour of Canada's nuclear regulatory regime is important and must be maintained, and
- 5) SMRs could be a potential source of the future clean energy mix. The most important aspects of SMRs would be that they are: safe, low impact to the environment, and confer appropriate benefits to Indigenous groups.

Next Steps in the SMR Roadmap Process

Indigenous participants were asked to share their thoughts (via NB Power's Kathleen Duguay and/or through smrs@cna.ca) on how the Project, or possible future proponents of an SMR, might proceed with engaging Indigenous people.

The SMR Roadmap Project plans two or three additional workshops between May and July 2018, of which the next is a two-day workshop in Iqaluit, Nunavut on May 10-11 that will involve leaders from several majority Indigenous communities and other organizations. There will also be a day of Indigenous engagement in Calgary in June, and a possible further day of engagement in Ontario in July.

Principal learnings from the SMR Roadmap Project will be articulated to the Energy and Mines Ministers' Conference (EMMC) in Iqaluit in August.

Discussions during the SMR Roadmap Project visioning workshop in Mississauga in March, the Saint John Indigenous engagement session, and the subsequent two-day on-grid workshop on April 19-20 in Saint John, all revealed that there are many different viewpoints to consider when framing the future of SMRs in Canada. There are no self-evident directions and solutions, and there is much dialogue needed to understand and balance the various inputs.

APPENDIX A -- AGENDA

Canadian Small Modular Reactor (SMR) Roadmap Indigenous Engagement Session

Kennebecasis Room, Hilton Hotel, 1 Market Square, Saint John, NB
9:00am – 4:00pm
April 18, 2018

Overview:

- This workshop is an opportunity to facilitate early discussion between Indigenous groups, governments and utilities on Indigenous views, priorities, and concerns related to the future of Small Modular Reactors (SMRs) in Canada.
- There are currently no SMR projects planned in Canada, as the technology is at an early stage of development. Most SMRs technologies are 10 to 15 years away from deployment, and many questions need to be answered before their potential could be realized.

Proposed Agenda:

Time	Item
9:00 – 9:15	Roundtable Introductions
9:15 – 9:20	Opening Prayer
9:20 – 9:40	Welcoming Remarks <ul style="list-style-type: none">• Diane Cameron – Director, Nuclear Energy Division, Natural Resources Canada• Brett Plummer – Vice President Nuclear and Chief Nuclear Officer, NBPower
9:40 – 10:00	What is Nuclear Power and its role in Canada today?
10:00 – 10:30	The next generation of nuclear – Small Modular Reactors (SMRs) The Canadian SMR Roadmap
10:30 – 10:45	BREAK
10:45 – 12:00	Discussion: Your views on SMRs <ul style="list-style-type: none">• What questions do you have related to SMRs?• In your opinion, what do you see as the opportunities and challenges with SMRs?
12:00 – 13:00	Lunch (to be provided)
13:00 – 14:00	Discussion: Your role <ul style="list-style-type: none">• Do you see any opportunities associated with entrepreneurship and economic development with SMRs?• What value/role can SMRs provide to your communities?• What role would you want to play in potential future SMR development?

14:00 – 14:15	BREAK
14:15 – 15:30	<p>Discussion: Further engagement</p> <ul style="list-style-type: none"> • What further engagement would you like to see related to SMRs? • What additional information regarding SMRs and nuclear power in general would you like to have?
15:30 – 16:00	<p>Workshop wrap up</p> <ul style="list-style-type: none"> • Next steps for the SMR Roadmap and SMRs in Canada • Final comments or further request for information.

APPENDIX B -- ATTENDEES

Indigenous

Kopit Lodge - Elsipogtog First Nation
Mi'gmawe'l Tplu'taqnn Inc.
Mawiw Council Inc.

Industry

NB Power
Qulliq Energy Corporation Ontario Power
Generation
Canadian Nuclear Association

Government

Natural Resources Canada
New Brunswick Ministry of Energy

Observers

Canadian Nuclear Association (Project Coordinator)