NWMO Public Attitude Research and Dialogue – Focus Group Technical Report

NWMO-SR-2017-02 October 2017

Hill + Knowlton Strategies

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ABSTRACT

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Abstract
The NWMO commissioned Hill + Knowlton Strategies to lead a series of focus groups, workshops and a public dialogue on transportation planning for the long-term care of Canada's used nuclear fuel. Activities included 20 in-person focus groups (10 in Ontario, six in Quebec, and four in New Brunswick); a day-long public dialogue session; and two workshops with individuals involved in the site selection process in Ontario, one bringing together representatives from municipalities and indigenous communities.

These activities aimed to solicit participant input and engagement on five questions outlined in NWMO's Planning Transportation for Adaptive Phased Management discussion document (2016) as follows*:*

1. What basic requirements or factors should form the starting foundation for the APM transportation plan?
2. Which objectives, principles and key questions should guide development of an APM transportation plan?
3. How can we ensure the design and implementation of the APM transportation plan is sufficiently inclusive to ensure good decisions are made?
4. What information will we need from technical specialists to develop the plan and support decision-making?
5. What factors should be considered in future decisions about modes and routes?

The **NWMO Public Attitude Research and Dialogue: Focus Group Technical Report** presents findings from focus groups held in Ontario, Quebec, and New Brunswick. This report, together with the three other reports listed below present the composite findings from the Hill and Knowlton Strategies research:

1. The NWMO Public Attitude Research and Dialogue: Workshop Technical Report.
2. The NWMO Public Attitude Research and Dialogue: Public Dialogue Technical Report.
3. The NWMO Public Attitude Research and Dialogue: Integrated Report.

Research findings as well as ongoing conversations with communities involved in the siting process and others that are interested, will be used to develop the NWMO's draft transportation planning framework for the APM process.

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NWMO PUBLIC ATTITUDE RESEARCH AND DIALOGUE

FOCUS GROUP TECHNICAL REPORT

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CONTENTS

1. OBJECTIVES AND METHODOLOGY

1.1. OBJECTIVES

The NWMO sought to broaden its understanding of the range of public attitudes and perceptions towards transportation planning for used nuclear fuel. The overarching objective of this research project was to engage a cross-section of citizens in discussions about the five questions outlined in *Planning Transportation for Adaptive Phased Management – Discussion Document* (the Discussion Document) encompassing: the basic requirements of a plan; objectives, principles and key questions that should guide plan development; how best to ensure inclusiveness; necessary support from technical specialists; and criteria for the selection of transportation modes and routes. [1] Perspectives and feedback from these discussions, as well as ongoing conversations with communities involved in the siting process and others that are interested, will be used to develop the NWMO's draft transportation planning framework for APM.

A series of 20 focus groups were conducted in Ontario, Quebec and New Brunswick as part of a broader study aimed at addressing the study issues. The broad objectives of the focus groups were to:

- Enrich the NWMO's understanding of public attitudes towards the transportation of used nuclear fuel; and
- Identify the key values, principles and other planning considerations that the public will want to see reflected in the development of the future transportation planning framework and to do so by using the core elements of the NWMO's discussion document and related five questions (i.e. basic requirements of a plan, objectives, principles and key questions which should guide plan development, how best to ensure inclusiveness, needed support from technical specialists, and criteria for the selection of modes and routes).

1.2. METHODOLOGY

A total of 20 focus groups were conducted between May 23rd and September 13th, 2017, based on the following specifications:

- Six focus groups in the GTA, including four held in downtown Toronto and two in North York;
- Four focus groups held in Ottawa;
- Four focus groups held in Montreal;
- Two focus groups held in Quebec City;
- Two focus groups held in Moncton; and
- Two focus groups held in Saint-John.

[1] *Planning Transportation for Adaptive Phased Management: Discussion Document*, NWMO, September 2016.

- All focus groups were conducted in English, except in the province of Quebec where they were held in French;
- The focus groups were two hours in length and took place in dedicated focus group facilities, with the exception of the Saint-John groups, which were held in a hotel meeting room;
- Participants were randomly selected members of the public drawn from an EKOS Research's ProbIt Panel.[2] Recruitment was based on several socio-demographic and attitudinal screening criteria developed to ensure that the views of a wide cross-section of the population were heard;
- Ten participants were recruited for each focus group in the hope of having eight participate. A total of 156 people participated in the focus groups;
- A semi-structured focus group moderator's guide was developed in consultation with NWMO officials. Some minor refinements were made to the guide for use in the three different provinces. (see Appendix A);
- Two fact-based handouts and two informational videos were used to provide participants with basic information about APM and potential elements of a transportation framework (see Appendix B). The handouts were developed based on the Planning Transportation for Adaptive Phased Management Discussion Document, though greatly condensed and simplified for use in a two-hour focus group; and
- At the end of the focus groups, participants completed a post-questionnaire, designed to assess their views on the research subject-matter, including trust in institutions, perceptions of nuclear power generation, and attitudes towards the transportation of used nuclear fuel. This questionnaire replicated items from an online survey of the general population conducted prior to the focus groups to create a pool of potential respondents. The results of the survey were also used to develop the focus group recruitment criteria (i.e. to ensure that, collectively, those who participated would mirror the general public's initial, uniformed attitudes towards nuclear power and the transportation of used nuclear fuel). By comparing the results of the pre- and post-test surveys, we assessed the extent to which, if any, their exposure to information and discussion had on their views.

This technical report summarizes the findings that emerged from the focus groups. These results will be synthesized in a final report that will include the results of all other research components of the study.

[2] ProbIt consists of over 90,000 randomly-recruited individuals. Panellists are recruited by telephone using random digit dialling and are confirmed by live interviewers. The seed sample is generated from landlines and cell phones.

2. SUMMARY OF KEY FINDINGS

Participants were very engaged in the subject matter. Overall, we found a great deal of commonality across the focus groups, particularly with respect to the principles, objectives and values that should inform the NWMO's transportation plan. Below we summarize the key findings that were consistent across the focus groups conducted in the three provinces. We then highlight the views that were either unique or much more pronounced in Ontario, Quebec and New Brunswick.

2.1. CONSENSUS VIEWS

Collectively, participants exhibited high awareness and knowledge levels about how electricity is generated in their province. Almost everyone was also aware that Canada has a history of using nuclear power to meet some of its electricity needs, and that used fuel is a by-product of nuclear energy production.

The first handout explained used nuclear fuel, how much Canada has of it, and what is done with it temporarily. It had the effect of highlighting the need for a permanent approach, which many participants thought would involve burying the spent fuel "underground" (e.g. in an "abandoned mine") in a remote part of Canada – probably Northern Ontario.

The handout and ensuing discussion led participants to appreciate the inter-generational and inter-regional aspect of a permanent solution for dealing with Canada's used nuclear fuel. For example, throughout the focus groups, there was general agreement that it would not be "right" for the generations that have benefitted from nuclear power to keep passing the challenge of dealing permanently with used nuclear fuel onto future generations.

The handout also prompted some initial questions and concerns about how the used fuel would be transported. A few more transportation questions surfaced after participants watched a video describing Canada's plan (e.g. What mode and route will be used? How will safety and security be ensured?) The video also raised questions about the following aspects:

- How much will this cost? And who will pay for it?
- How is the host community being selected? What exactly does the NWMO mean when it says that the repository will be located in a "willing and informed" community?
- What is the federal government's role in this plan? Who is overseeing the project? Who is ultimately responsible? Who is accountable?
- What is the status of the organizations behind NWMO (i.e. OPG, NB Nuclear Power, Hydro-Quebec and Atomic Energy of Canada Limited)? Are they private companies, crown corporations, public-private partnerships?
- Will there be enough money put aside to ensure the completion of the project?

The research suggests that Canadians would be reassured to know that the federal government is playing a major leadership, oversight and regulatory role in the plan's design and implementation.

Before reviewing potential elements of a framework for the transportation of used nuclear fuel, participants were asked to develop their own list of objectives, principles, and anything else they thought it should include. They had no trouble doing this, and overall there was a great deal of consistency between participants' expectations (identified below), and the potential framework elements contained in the handout.

- **Safety:** Seen as the top priority (e.g. planning for contingencies/emergencies, routes away from population centers, training, design of transportation vehicles and containers)
- **Security:** For many participants, this element is as important as safety and has to do with ensuring that the used nuclear fuel does not fall into the hands of "terrorists" (e.g. tamper-proof transportation containers, route variations, vetting of employees and contractors).
- **Communications/engagement/"education":** Considered a key element, pertaining to a wide range of stakeholders, and taking different forms depending on the audience (e.g. very good communications and coordination between levels of government, officials and employees, demystification through education and information dissemination, engaging with community along prospective routes).
- **Drawing on best practices** (e.g. learning from other countries, relying on experts, building in flexibility to accommodate new technologies and scientific advances).
- **Selection of the transportation mode** (e.g. mostly rail, weighing the pros and cons of modes in light of principles and objectives).
- **Selection of transportation routes** (e.g. away from population centers, and weighing pros and cons of aspects such as total distance vs. proximity to population).
- **Managing costs**, ensuring oversight, accountability and transparency (e.g. clearly identifying who is responsible and then holding them to account in transparent fashion, sufficient financial resources to ensure successful completion of the project). Here it was clear that participants did not want to see a diffusion of responsibility, notwithstanding the involvement of many different players. They also wanted the plan to be free of political "interference" (e.g. the issue being exploited for political gain, new governments compelled to put their imprimatur on the plan).
- **Environmental protection** (e.g. plans to prevent environmental damage, and plans to mitigate and repair environmental damage should it occur).

Participants' reaction to the identified principles, objectives and key questions was mostly positive; they were impressed by the similarity between their thinking and the material outlined in the document. Perhaps the main difference between the two was the participants placed more emphasis on engaging with local governments, and less on engaging with Indigenous communities.

Participants' suggestions for improving upon the elements contained in the handout revolved around enhanced clarity and specificity. Key points included:

- **Principle – Indigenous rights,** treaties and land claims: Participants were divided. Some worried that "take into account" signals "lip service". Others took an opposite view expressing concern that NWMO may be setting itself up for protracted negotiations in its desire to be seen as sensitive to an aggrieved segment of society.
- **Principle – Inclusiveness**: Use of the term "… where appropriate" raised a number of questions. There was general agreement that it could be removed without committing the NWMO to obtaining the consent of affected communities.
- **Objectives**: The terms "shared interest" and "environmental integrity" were thought to be unclear/confusing. "Ensuring fairness" was seen as subjective: "It's in the eye of the beholder".
- **Key Performance Indicators** (KPIs) should be included in order to reliably measure success and improve accountability.
- The need to ensure the plan's long-term viability and "continuity", from one government to the next, should be addressed.
- **Guiding questions**: Essentially fine; consistent with participants' own questions.

There was general agreement among participants that the biggest challenge facing the NWMO in implementing APM is gaining social license. That is, using facts to assuage public concerns and gaining its confidence. There was also consensus that "experts", "scientists", first responders, and municipal, provincial and federal governments had to be involved in the development of a transportation plan, along with the NWMO, and agreement that the public at large should know of Canada's plan for dealing permanently with used nuclear fuel.

At the beginning of the focus groups, people sometimes differed on the extent to which the NWMO should engage with communities along a prospective route (i.e. seek consent vs inform). After having discussed the implications of including community consent as part of their discussion of potential framework elements, the vast majority of participants concluded that it was both impractical and unnecessary to do so, based on the following rationale:

- It would be unfair to leave the challenge of dealing permanently with used nuclear fuel to future generations;
- Canada's plan for dealing permanently with Canada's used nuclear fuel seems to be solid/well thought-out;
- Canada's used nuclear fuel needs to move from its current temporary location to a permanent repository (i.e. it cannot stay where it is now);
- Used fuel can be transported safely;
- It would be impossible to obtain the consent of every community along a potential route; and
- Hazardous materials are currently transported throughout the country without the public's explicit knowledge.

In the end, participants hoped that with 30 years to prepare and with the type of information they had received during their focus group, it would be possible for the NWMO to help potentially affected communities attain a reasonable comfort level with Canada's plan for transporting used nuclear fuel. Echoing this sentiment, participants all thought that the NWMO's initial thinking about potential elements to include an eventual transportation framework was going

down the “right track”, albeit sometimes with a few qualifiers. Their finals words of advice tended to focus on the need for early and transparent communications, particularly with potentially affected communities.

A comparison of the pre- and post-focus group survey results showed that the discussion and the focus group materials (i.e. handouts and videos) had a significant positive impact on participants’ views of nuclear energy production and the transportation of used nuclear fuel.

2.2. ONTARIO DIFFERENCES

Ontario participants displayed higher awareness and knowledge levels about the use of nuclear energy to generate electricity. Their view of nuclear energy was also more positive; although seeing it as a doubled-edged sword -- relatively inexpensive and free of CO2 emissions on the one hand, but producing nuclear waste and having the potential (however small) for disaster.

On the question of what being “inclusive” to ensure good decisions are made, participants included discussion of what the extent and nature of NWMO’s engagement should be with communities along a prospective route, Ontario participants were much more likely to initially suggest that NWMO seek approval or permission although came to a similar conclusion as others after further reflection.

Ontario participants were more likely to question some of the wording in the NWMO potential objectives and principles for guiding the development of an eventual APM transportation planning framework (see Appendix B, Handout #2).

2.3. QUEBEC DIFFERENCES

Quebec participants displayed more negative views of nuclear energy, with some going as far as describing it as a “taboo” subject in the province.

Quebeckers also displayed deeper levels of cynicism towards the private sector and of its potential role in the transportation of used nuclear fuel.

As could be expected, there was more frequent mention of the Lac Mégantic event in the Quebec groups. These participants were also more likely to talk about the debate surrounding TransCanada’s Energy East pipeline. It was apparent that these two issues influenced the way in which participants viewed the transportation of used nuclear fuel, particularly where the role of the private sector is concerned.

Some questions were raised and concerns expressed about the relative influence that Quebec will have on the transportation plan, given that relatively little of the used fuel comes from Quebec.

2.4. NEW BRUNSWICK DIFFERENCES

Views of nuclear energy were more positive among New Brunswick participants, particularly in St. John where many stressed the significance of the Point Lepreau Nuclear Generating Station to the local economy.

Overall, New Brunswick participants were most pragmatic in their discussion of the issues. For example, they were less likely than their counterparts in Ontario and Quebec to think that people would resist having used nuclear fuel transported through (or near) their community.

New Brunswick participants were also much more likely to talk about the positive economic impacts flowing from the implementation of APM, including improved/expanded transportation infrastructure. They hoped that their province would obtain their "fair share" of benefits, despite having to "negotiate" with Canada's two largest provinces. The New Brunswick focus groups were also noteworthy for participants' frequent mention of the state of disrepair of their province's transportation infrastructure.

3. DETAILED FINDINGS

3.1. KNOWLEDGE AND AWARENESS OF NUCLEAR POWER GENERATION

The focus group discussions began with a word association "ice-breaker" exercise designed to get people thinking about the topic and to assess their initial perceptions of nuclear energy. Specifically, participants were asked what came to mind when they thought about how electricity is generated in their province.

In Quebec, electricity generation was mainly associated with hydro, with almost no spontaneous mention of nuclear energy. Several participants spoke with pride about how Quebec has "chosen" to use mainly "clean", "renewable" and "environmentally-friendly" ways of generating electricity. Prompting revealed that most participants knew that Quebec had until recently produced some of its electricity through nuclear power. Knowledge about the use of nuclear power in other provinces was low, with some surprise and dismay expressed upon hearing that Ontario generates half of its electricity from nuclear power.

Ontario participants included "hydro", "wind", "natural gas" and "nuclear" on their lists, with nuclear included by almost everyone. Other, less frequent images that came to mind included coal and solar, as well as references to the perceived high cost of electricity in the province: "We pay a lot for hydro."

Nuclear energy was also top of mind in New Brunswick, many were also familiar with the recent history of Point Lepreau refurbishment efforts.

Most participants guessed that Ontario receives between 30 and 60 per cent of its electricity from nuclear power. When informed that the amount is about 50 per cent, hardly anyone was surprised. It is worth noting that almost all participants could name at least one of Ontario's nuclear power plants (i.e. Bruce, Darlington, Pickering), and many could name two locations. Subsequent reaction to the 50 per cent figure was usually neutral among Ontario participants, with a slight lean towards positive among those who voiced an opinion.

Across the focus groups, the main benefits of nuclear produced electricity were that the process does not emit CO2 into the atmosphere, and, to much a lesser extent, cost. New Brunswick participants also viewed nuclear energy as an important source of good paying jobs for the province. The main drawback of nuclear power was thought to be used nuclear fuel, variously described as "waste" and "spent fuel", and the perceived possibility of catastrophe.

3.2. UNPROMPTED VIEWS ON ELELMENTS TO INCLUDE IN A TRANSPORTATION PLANNING FRAMEWORK

One of the purposes of the focus groups was to identify the objectives and principles that members of the public would want to see included in an APM transportation planning framework. To this end, participants were asked to develop a list. For context, they were reminded that in about 25 years Canada's used nuclear fuel will start to be moved from licensed interim storage locations to a deep geological repository for long-term containment and isolation,

and that the NWMO is beginning to put in place a plan for this transportation (i.e. the transportation plan within Canada's overall plan to deal with used nuclear fuel).

Participants had no difficulty identifying elements for inclusion in a transportation planning framework, with many presenting a list of eight or more items. Collectively, the following principles and objectives were the most often identified across the 20 focus groups:

Safety: Seen as the top priority, along with security, and encompassing the following aspects:

- "Secure" "trauma-proof" transportation containers (e.g. through rigorous testing);
- Studying, understanding and mitigating risk;
- Safety of workers (e.g. limit exposure through use of robots and other technology);
- Need for "contingency" and "emergency" response planning with first responders along the transportation route (e.g. need to coordinate with local officials);
- In the design of the trucks or trains used to2 transport the used fuel (e.g. armored car inspired design, dedicated trains);
- Selecting routes that are away from population centers;
- Planning for weather (e.g. some even suggest not transporting by truck in winter);
- Clearing/closing roads in advance of a truck shipment;
- Use of specially trained and certified staff and transportation companies: "It can't transported by "Joe's Trucking."

Security: For many participants this element is on par with safety, and has to do with ensuring that the used nuclear fuel does not fall into the hands of "terrorists". It includes the following aspects:

- Tamper-proof transportation containers;
- Police or military escort of shipments;
- Route variations (e.g. ensuring that shipments take place at different times of day and using different routes);
- Tracking systems to ensure that containers are accounted for;
- Vetting of employees and contractors.

Communications/engagement/"education": Considered a key element, pertaining to a wide range of stakeholders, and taking different forms depending on the audience. This element also sparked some discussion of the trade-offs between open and transparent communications and security (i.e. does one compromise the other?): "There is a need for communication, but there is also risk with communication. Like terrorism, you don't want people to know exactly when and where it will be moving." Similarly, participants discussed, and sometimes debated, the extent to which people living along the routes should be informed and engaged. Elements include the following:

- The need for very good communications and coordination between levels of government, officials and employees; essentially, everyone with a role to play in the transportation of used nuclear fuel (e.g. federal, provincial and local governments, first responders, hospitals, military, transportation companies, employees and contractors);
- The need to "educate people" to demystify the issue and dispel myths and misconceptions: "You need to educate people on how safe transporting used nuclear waste is by comparison to other stuff that is transported." "It boils down to how they plan on communicating, how to deal with public fears and concerns." "La pédagogie, c'est extrêmement important… et 25 ans d'avance, c'est le temps de commencer! Commencer d'avance, c'est le moyen le plus efficace et économique de favoriser l'acceptabilité sociale."[3]
- "Communicating with people who live along the route": There was general agreement that people living and working in proximity to one of the routes should know about the plan well in advance of the first shipment: "If you try to keep this from people and they find out, you're going to have a disaster." "I would definitely want to know." There was less agreement, however, about how much people should know. For example, some expected that shipment dates and times would be published, while others argued that this could compromise security. We also found that some participants expected that people living along a route would have to consent to the planned route, while others felt that informing the public was sufficient.
- Communicating with the population at large (i.e. not living in proximity to a route): There was general agreement that Canadians should know about the plan and have the opportunity to learn more about it.

Drawing on best practices: This suggestion was made throughout the focus groups and included the following elements:

- Study how other countries have transported used nuclear fuel and seek the advice of international experts;
- Ensure that the eventual transportation framework includes the best and latest science, technology and engineering;
- Given the long-term nature of the plan, ensure that changes in technology and science can be incorporated (e.g. self-driving vehicles, ways of recycling used nuclear fuel); and
- Measure/evaluate performance.

Selection of transportation mode: The vast majority of participants addressed the question of transportation mode as part of their list of potential framework principles and objectives. In some cases, they said that they would expect plan designers to weigh the pros and cons of potential methods, such as rail and truck, and possibly ship (e.g. for parts of the New Brunswick and/or Quebec trajectory). Most participants, however, tended to identify the mode they preferred, or were leaning towards. Key considerations for mode selection included:

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[3] Translation: "Education, it's really important… and with 25 years of lead time, now is the time to start. Starting early, that's the most effective and economical way to obtain social acceptance."

- Risk of accident;
- Risk of security breach;
- Adequacy of the transportation infrastructure (e.g. quality of roads and tracks)
- Ease of containment and access by first responders in the event of an incident; and
- The advantages and disadvantages of bigger loads over fewer trips versus smaller loads over more numerous trips.

Selection of transportation routes: As with the discussion of transportation modes, participants expected that the routes would be selected by experts based on a consideration of trade-offs and pros and cons, including:

- Proximity to population centers;
- Proximity to schools;
- Proximity to sensitive environmental areas;
- Response time for first responders/emergency response;
- Potential need to improve existing or build new infrastructure (e.g. extension of rail track)
- Conditions of the routes during winter and inclement weather;
- Trade-off between a longer route that goes through less densely populated areas versus a shorter route that goes through more densely populated areas; and
- The need to vary routes for security reasons.

Managing costs and ensuring accountability and transparency: This was an important set of issues for participants, especially in light of the project's large scale, long timeline, complexity, and the involvement of many stakeholders and levels of government. Specific aspects included the following:

- There should be insurance in place to compensate people in the event of an accident;
- There should be sufficient financial resources available to ensure that the project is completed (e.g. funds held in trust or escrow);
- The project should be managed cost-effectively, but not at the expense of safety or security; and
- There needs to have a high level of accountability in place, including a transparent way to demonstrate it to the public, as well as a set of penalties/sanctions to punish and deter unscrupulous people.

Oversight and regulation: This was viewed as closely related to the issues of cost management and accountability. Mainly, however, participants wanted to be sure that there was a person or organization with the necessary authority to play a central oversight and coordination role. Given the number of different organizations involved, a number of participants felt that it was important that someone or something be clearly "in charge".

Environmental protection: Some participants included care for the environment as part of their list of elements to include in an eventual APM transportation framework. In particular, these people were concerned about the possibility that an accident or act of terror could cause radioactive material to seep into the soil and water (notwithstanding the fact that used nuclear fuel is in solid form). Aspects included:

- Measure to prevent environmental damage from occurring; and
- Plans, resources and equipment to mitigate and repair environmental damage should it occur.

In addition to the potential elements of an APM transportation framework, a few participants (mainly in Ontario) included consultations/engagement with Indigenous populations/bands living along the routes. They felt that this was necessary given that the repository would likely end up being in a remote part of Ontario, close to Indigenous land. They also felt that it was the right thing to do in light of the sometimes harsh way that governments in Canada have dealt with Indigenous peoples in the past.

3.3. VETTING ELEMENTS FOR INCLUSION IN AN EVENTUAL APM TRANSPORTATION PLANNING FRAMEWORK: OBJECTIVES, PRINCIPLES AND GUIDING QUESTIONS

Having listed and discussed the elements they thought should be included or at least considered as part of the APM transportation plan, participants were then asked to review potential objectives, principles and key questions for guiding the plan's development. It was stressed to participants that the handout was a very brief summary of a much more detailed discussion document.

Prior to proceeding with their review, the focus groups were shown a short video on the testing and certification of transportation packages, including footage from actual tests (e.g. a speeding train ramming into a container causing a spectacular crash, but leaving the container intact and secure).

The most common reaction from participants was that the video reassured them about the safety and security of shipping containers, as well as the rigour of testing and certification: "I was pretty reassured. It looks pretty safe." "We don't even have trains that go that fast in this country, so I feel pretty safe." The fact that some of the testing was conducted in the UK in 1984 and Germany in the early 1990s shed some light on international cooperation and best practices, as well as on the history of transporting used nuclear fuel (i.e. that several countries have been doing this for many years) – issues that had been raised earlier by participants.

A few participants suggested that the video may have been produced to reassure people and thus included only footage of successful tests: "What about the tests that failed?" "My only information comes from a video promoting it, so it's pretty hard to say. I'd need more information." Some wondered why the tests shown in the video were "so old": "Haven't tests been conducted more recently?"

Participant reaction to the principles, objectives and key questions contained in the second handout was mostly positive, notwithstanding caveats about "the devil being in the details", etc. Overall, they felt that what they read covered the right themes and areas of importance: "I think the principles are very comprehensive, they seem to cover

everything I would want covered." "This is about 90% perfect. This is a very good blueprint. Aboriginal rights may not be as respected as they should."

Most of the participants' criticism and suggestions for improvement centered on wording, most notably in Ontario. For instance, several participants were unsure how to interpret some of what they read (e.g. "shared interest"), with a few wondering whether the document might be deliberately vague in spots to provide the NWMO with as much "wiggle room" as possible. Reaction to the (French) wording was quite positive in Quebec, with the notable exception of the principle pertaining to Indigenous rights, treaties and land claims. Here, some expressed concern that implementation of the plan could get mired in protracted negotiations. There was also some resentment expressed about the possibility that Indigenous communities receive "special" treatment: "Toutes les communautés sont importantes, autochtones ou non."[4]

The results of the review are summarized in the following three tables.

[4] Translation: "All communities and important, Indigenous or not."

Table 1: Principles

PRINCIPLE	SUMMARY
Safety is the overarching principle guiding all APM planning and activities: Safety, security, and protection of people and the environment are central and must not be compromised by other considerations.	+ Wide agreement with primacy of the principle of safety. + Clearly articulated but some (in Ontario) question the use of "must" as opposed to "will", which sounds more definite. + Some suggest that given the salience of security as a concern, it should not be subsumed as an aspect of safety. In other words, many participants felt that it needed to be more explicitly acknowledged. + Similarly, though much less frequently mentioned, some felt that the environment also merited its own principle.
Meet or exceed regulatory requirements: The plan must meet, and if possible, exceed all applicable regulatory standards and requirements for protecting the health, safety, and security of humans and the environment, and respect Canada's international commitments on the peaceful use of nuclear energy.	+ Wide agreement on the importance of this principle. Addresses questions and concerns about testing, oversight and the role of government(s). + Some wonder whether this refers to current or future regulations, however, given the long-term nature of the project.
Indigenous rights, treaties and land claims: The plan must respect Indigenous rights and treaties, and take into account that there may be unresolved claims between Indigenous peoples and the Crown.	+ Often raised for discussion by participants (second only to the principle of inclusiveness), especially in Quebec. + Many, mainly in Ontario, support this principle, particularly in light of past wrongs, though some worry that it could simply be a sop, pointing to the words "take into account". + Others, however, reacted negatively. Some took issue with acknowledging Indigenous communities in particular: "What about the other communities along the route?" Others said that this principle conjured image of road blocks, protests and drawn out negotiations, and they expressed concern about the possibility that Indigenous groups/bands could impede or even halt the project.

Inclusiveness: The plan must respond to and address, where appropriate, the views of those who are most likely to be affected by the plan.	+ Seen as very important and consistent with participants' emphasis on the need for strong communications and effective engagement. + "… where appropriate", raised eyebrows in Ontario, with many asking: "Who decides what is appropriate?" It sounded to participants like the NWMO was giving itself an out: "'Where appropriate' seems to say 'We'll respond when we want.' In the end, a number of participants suggested that the two words could be removed without tying the NWMO's hands: "Removing 'where appropriate' doesn't mean requiring consent."
Informing the process: The plan must be informed by the best relevant available knowledge, including science, social science, Indigenous Knowledge and ethics. This information used to develop the plan must also be made public.	+ Wide agreement on the importance of this principle. + Seen as responding directly to participant questions and concerns about best practices, and the pre-eminence of science and expertise (over politics and profit).
Ongoing engagement of governments: The NWMO must involve all potentially affected provincial governments in the development and review of the plan.	+ Wide agreement on the importance of this principle. + Municipal/local governments seen as conspicuously absent, however: "I don't see how you can do this without talking to the mayors along the route." + Some (in Ontario) see use of "affected" as another example of a needless caveat.

Table 2: Objectives

OBJECTIVE	SUMMARY
Protect public health and safety from the risk of exposure to radioactive or other hazardous materials, and from the threat of injuries or deaths due to accidents;	+ Broad agreement with this objective; no concerns raised or suggestions given for alternative wording.

Protect workers from, and minimize hazards associated with, managing used nuclear fuel;	+ Consistent with the core elements of participants' own transportation framework elements (i.e. "need to protect employees")
Ensure fairness in the distribution of costs, benefits, risks, and responsibilities;	+ The objective that elicited the most response. + Seen as very relevant, but raises questions and generates scepticism about who the arbiter of "fairness" is: "Fairness is in the eye of the beholder. Who decides what is fair?" + Acknowledgement that this is a very complex issue. + In New Brunswick, concern that as a smaller province, it might not get its "fair share" of economic benefits.
Ensure the well-being of all communities with a shared interest;	+ Well-being of communities seen as a worthy objective, but many question what is meant by "shared interest". For example, is this different than communities who are "most likely to be affected by the plan?"
Ensure the security of facilities, materials and infrastructure;	+ Consistent with the core elements of participants' own transportation framework elements (i.e. the threat of terrorism and other crimes).
Ensure that environmental integrity is maintained over the long term;	+ Consistent with the core elements of participants' own transportation framework elements (i.e. "need to protect the environment"). + Questions raised, however, about the term "environmental integrity". Why "integrity"? Was this NWMO trying to give itself "wiggle room"? Is there a reason why the objective speaks of "integrity" rather than "protection", which is a much more familiar term to the average person?
Ensure economic viability of the used nuclear fuel management system;	+ This objective addresses the prevalent concern that the project somehow peters out prematurely (e.g. bankruptcy of the proponents, lack of political will). + Would probably benefit from being more explicit (e.g. "… until the project is completed according to plan.) + Should not be used to rationalize the cutting of corners: "Il ne faudrait pas que ça puisse être interprété comme un

	permission de prendre des décisions motivées par le profit… Il faut plutôt parler d'assurer la pérénité du projet."[5]
Ensure a capacity to adapt to changing knowledge and conditions over time.	+ This objective was clear and seen as important. + The term Adaptive Phased Management didn't mean much to most participants. The concept, however, is intuitively grasped, and indeed, was raised unprompted by participants earlier in the discussions (e.g. using new science and technology and adapting to change). + Will there be a way to measure success/need for course correction (e.g. through KPIs)?

Table 3: Guiding Questions

ITEM	SUMMARY
+ How will used fuel transportation containers ensure safety of people, plants, animals, land, and water along the route? + How will we prepare for emergencies, and what will security measures look like? + What is the risk to workers, the public, and the environment during transport and during the unlikely event of a breach of containment? + How can this risk be minimized? + What accident scenarios are being considered, and do they cover what is needed? + What oversight, checks and balances are in place?	+ Less attention was devoted to obtaining participant reaction to the guiding questions. + Overall, the feedback that was provided by participants was uniformly positive. The questions were seen as relevant and covering the key issues. Analysis suggests that these questions respond to some of the main concerns and questions that participants had raised earlier in the discussions.

[5] Translation: "This should not be interpreted as license to make decisions based on the profit motive… Rather, we need to emphasize the sustainability of the project."

3.4. ENSURING THAT THE EVENTUAL APM TRANSPORTATION PLANNING FRAMEWORK IS SUFFICIENTLY INCLUSIVE TO ENSURE GOOD DECISIONS ARE MADE

There was general agreement among participants that the biggest challenge facing the NWMO in implementing APM centers around the issue of social license, or as they put it: "securing public buy-in", "selling the public on this", "educating the public", "communications", "PR", "getting the public onside" and overcoming "nimbyism": "People get up in arms over a garbage dump. I can't imagine how they would react to something like this."

Participants used various terms to highlight the importance of communicating with the public, including: "consultation", "engagement", "educating", "involving", "informing", "getting approval", "coordinate", "advise", "discussing", "involving", "reaching out to", "letting the communities know", etc. Most participants seemed to be using these terms interchangeably, at least at the beginning; with only a few drawing an immediate distinction between providing information to the public and seeking public approval. Participants began to pay more attention to this important difference as the discussions, as well as some of their views, evolved.

Towards the end of the focus groups, participants were all able to discuss the pros and cons of having an eventual framework that would require the NWMO to obtain the "consent", "permission" or "agreement" of people living in communities located along a potential transportation route, in contrast to one that would require it to "inform" people living along a route.

The vast majority of participants felt that requiring the consent of the communities was impractical, if not impossible to achieve: "Who is going to say "okay, have nuclear waste go by my house every week?'" "If you go the consent route, you won't get anywhere." This view was most prevalant in New Brunswick and Quebec, as compared to Ontario: "Si on veut tout savoir, avoir toutes nos opinons, ça peut poser des limites à l'efficacité. Il faut que le public ait la chance d'être informé, d'exprimer ses opinions, mais ça prend une équipe qui gère, qui prends des décisions et qui rend des comptes."[6] While New Brunswick participants agree that obtaining social licence was the NWMO's biggest challenge, they were less likely than other participants to envision vehement opposition along the route, as least as far as their provinces is concerned: "They, there are offering to take the stuff out of the province and put it in Ontario. This a good deal for us. I don't think people are going to complain that much."

To substantiate their argument, some participants pointed to the fact that there will be many dozen, if not hundreds, of communities along potential routes, making consensus "impossible". Others emphasized that if one accepted the premise that Canada's used nuclear fuel bundles could not stay in their current locations, then there was little choice left in the matter: "We don't have a choice. Even if we turn off all the nuclear reactors tomorrow, we still have to deal with the waste. It can't stay where it is." In terms of principles, several participants said that the potential opposition of a relatively few people should not be allowed to stand in the way of what they considered to be the greater good.

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[6] Translation: "If we want to know everything, and have all our opinions heard, that could hinder the effectiveness of the process. The public has to have a chance to become informed, to express their views, but we need a team that manages the process, that makes decisions and is accountable."

There were one or two participants across the focus groups who thought that the bundles could and should remain where they are now (e.g. until scientists can develop a practical way to recycle them). Everyone else, however, expressed that the bundles had to move to a permanent repository.

In addition to the argument that public countenance on this issue is impractical, many said that such an approach was also unnecessary based on 1) a belief that used nuclear fuel can be transported safely, and 2) the reality that hazardous materials, such as propane and chlorine, are frequently transported through communities now without the public's explicit knowledge, much less its approval: "Nuclear provokes hysteria, so people are not always rational. But from what I've seen tonight, I would think that the odds of an incident happening with used nuclear fuel is a lot lower than it is for some of the other stuff that gets transported across the GTA every day, and that we don't even know about."

It is important to note that a number of participants spoke about how their views had been informed by the handouts, videos and discussion, particularly the video on container testing: "People are going to be opposed, but if you could give them some information and show them that video, they might not be happy, but they might accept it."

There were a few participants who at the end of the discussions still maintained that the NWMO's eventual transportation framework should include a way for potentially affected communities to give their consent. They thought it was almost inconceivable that "radioactive waste" could be transported on a weekly or even daily basis within a stone's throw of someone's home for 40 years without giving them a choice in the matter other than moving. A few added that regardless of whether the public's fears were warranted, affected communities would inevitably suffer economically through declining property values and reduced development/investment: "You are going to affect people's lives, but you're not going to give them a choice? It doesn't seem like something you'd see in Canada." When challenged by others around the table about the impracticality of what they were proposing, some of these participants suggested that perhaps financial compensation should be offered as a way of promoting acceptance.

In the end, many participants, including some of those who had been advocating for public countenance of transportation routes, suggested that given that the NWMO had about 30 years to work with before any used fuel moved, it was possible to get people living in affected communities to accept the plan by providing them with credible information. In this regard, many spoke about the need to "educate" the public, including in school: "I won't be here. We're talking about the next generation, they may feel a lot different about this stuff than we do."

3.5. ENGAGEMENT LEVELS AND APPROACHES

In terms of levels of engagement and potential approaches, there was consensus that "experts", "scientists", first responders, and municipal, provincial and federal governments had to be involved, along with the NWMO.

There was also agreement that the public at large (i.e. not living in communities along the route) should have the opportunity to know about the plan (e.g. though news coverage) and the opportunity to learn more about it, for example by visiting a website. It is also important to note that participants expected municipal officials to be involved

in planning, logistics and coordination, but very few thought that a mayor and council should be able to prevent a route going near or even through their town: "I doubt they would even have jurisdiction or the legal right to do that."

As indicated above, there was general agreement that members of the public living in affected communities should be informed of the plan, and that communications should take place well in advance of the plan's execution. Most thought that the approach should also include the opportunity for community members to engage with NWMO officials and experts (e.g. to hear presentations and ask questions). Other participants thought that in-person engagement might not be necessary and possibly too expensive and time-consuming: "I'm not sure I'd go that far. I think they need advance notice, they need to be made aware and they should be able to get more information if they want to, but I'm not picturing a bunch of open houses."

There was some debate about how to engage with Indigenous leaders and communities to ensure the plan's development is sufficiently inclusive to reach good decisions. Some participants, notably in Quebec, thought that they should be engaged like "any other" community located along a proposed route. Others, however, argued that there was a difference: the potential of disputed land claims and a history of governments and companies riding roughshod over Indigenous people required a "higher level" of engagement. Participants suggested that with enough time and good will, a mutually satisfactory solution could be found.

3.6. IS NWMO ON THE RIGHT TRACK?

At the end of the focus groups, participants were asked to carefully consider everything they had heard and to indicate whether they felt the NWMO was on the right or wrong track in its thinking about the elements that could be included in the development of the APM transportation framework.

No one felt that NWMO was going down the wrong track. At the same time, however, quite a few participants expressed qualified approval: "I'd say it's a good start." "It sounds like they have a good plan and they're doing things like this focus group, which is good, but the devil will be in the details." "To me they're on the right track, but 30 and 40 years down the road, a lot can happen in that time."

Finally, participants were encouraged to offer some words of advice to the NWMO. Suggestions included focusing on public engagement/education, as well as others:

- "This is a really good framework. Consulting the right people is the most important thing."
- "You need to educate an entire generation a few years from now."
- "You need to inform the public via the media."
- "I think this is a good high-level plan, but they need to consult with people."
- "I think it's on the right track in terms of technicalities. However, the transparency part needs to be addressed."
- "My biggest concern is security. Make sure the waste is accounted for."
- "It's on the right track, but make sure they do it properly. No matter the cost, this needs to be done right."

- "[Other companies] have great principles and objectives too, but they've failed to deliver."
- "As a smaller province we always need to make sure that [New Brunswick] doesn't lose out in the negotiations."
- "La communication… c'est là que tout va se jouer. C'est ce qui a tué les pipelines au Québec."[7]
- "Prendre nos responsabilités pour les déchets qu'on a créé envers les générations futures, c'est un message positive à vendre pour ls SGDN."[8]

[7] Communication… that's where it's all going to play out. It's what killed pipelines in Quebec."

[8] That we need to take responsibility for the waste that we risk leaving for future generations, that's a positive message that the NWMO can sell."

4. OVERVIEW OF PRE- AND POST-SURVEY RESULTS COMPARISON

As noted in the description of methodology, surveys were conducted in Ontario, Quebec and New Brunswick to create pools of potential focus group participants to recruit from. The survey results were also used to develop recruitment criteria to ensure that the attitudes and demographic characteristics of focus group participants reflected those of the public at large.

The research was also used to explore the extent to which participants' initial, uninformed reactions (as measured by a pre-test questionnaire) were influenced by information and discussion (as measured by a post-test questionnaire that participants completed at the end of their focus group). The survey results are presented below, followed by the results of the pre- and post-test.

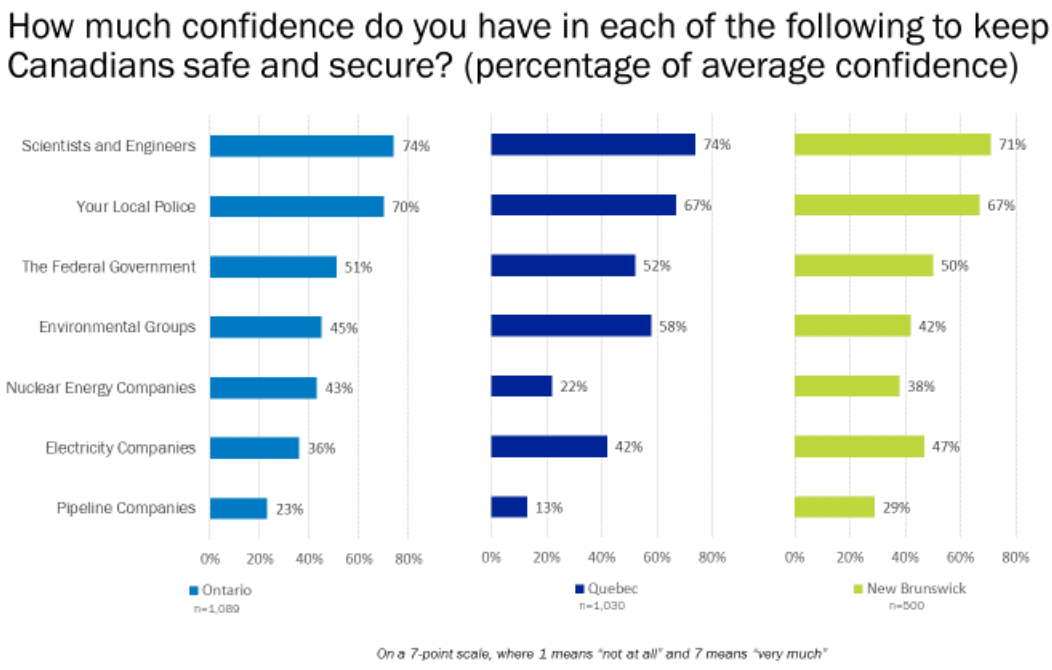
4.1. SURVEY RESULTS

The survey results provide a measure of *uniformed* public perceptions of nuclear power and used nuclear fuel. In this case, "uninformed" pertains to attitudes and perceptions expressed without the influence of the type of fact-based information used in the focus groups.

Overall, the public opinion context is characterized by a significant degree of skepticism towards nuclear power in general and the transportation of used nuclear fuel more specifically. This is particularly true in Quebec, where views tend to differ significantly from those in Ontario and New Brunswick.

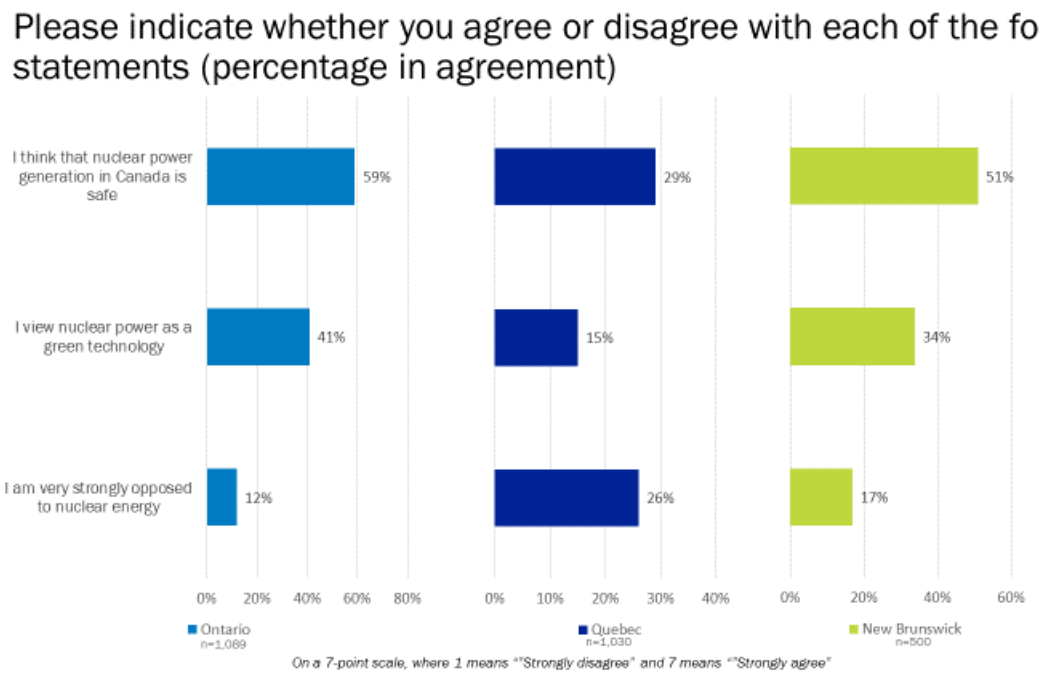
Trust and confidence are important drivers of social acceptance. As shown in Chart 1, the survey results from Ontario and New Brunswick place nuclear energy companies in a middle tier of organizations and occupations with respect to confidence in keeping Canadians safe and secure. In Quebec, however, nuclear energy companies rank towards the bottom of the list, outranking only pipeline companies. Of note is the fact that scientists and engineers are the most trusted in all three provinces. We also see that in Ontario and New Brunswick, the federal government receives higher confidence ratings than environmental groups, but not so in Quebec.

Chart 1. Confidence in organizations and professions?



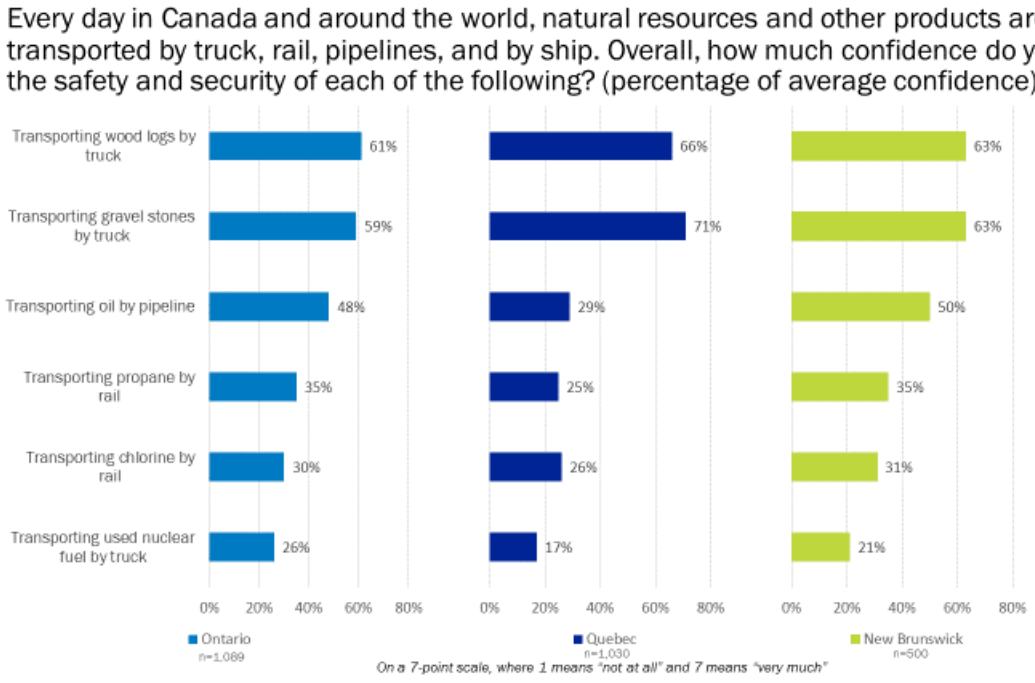
The results presented in Chart 2 provide further evidence of how views in Quebec differ from those in Ontario and New Brunswick. For example, most respondents from Ontario and New Brunswick believe nuclear power to be safe, while less than one third of Quebecers share this view.

Chart 2. Perception of safety of Nuclear Energy



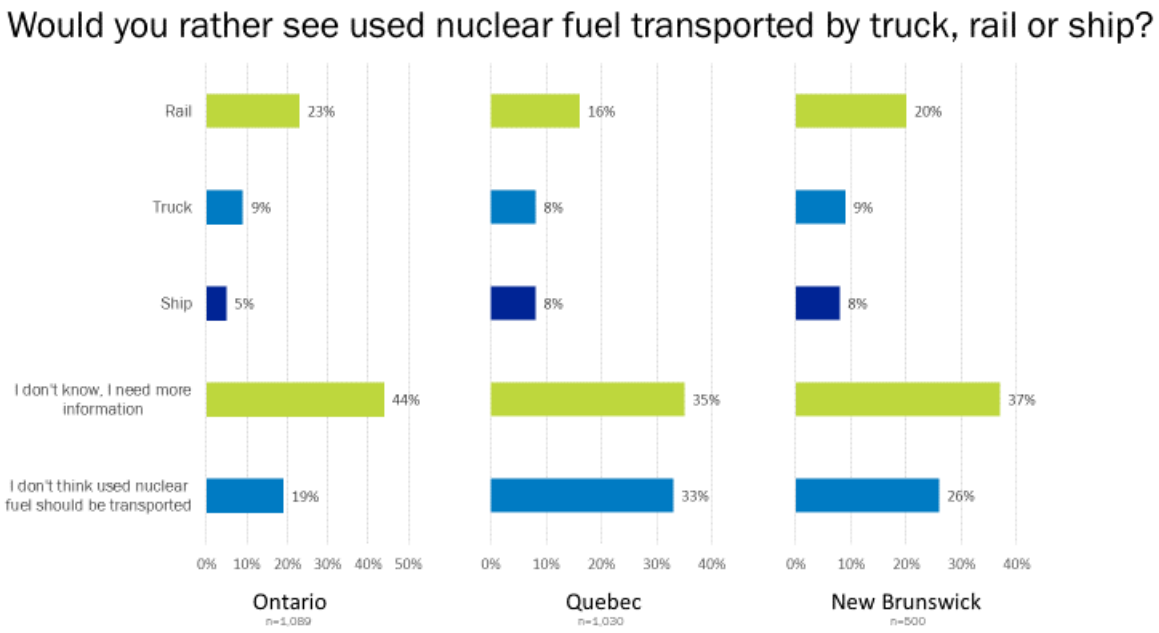
Moving from general perceptions of nuclear power to the question of transporting used nuclear fuel, differences between attitudes in Quebec and those in Ontario and New Brunswick persist, though are not as pronounced. For example, in Chart 3 only about one quarter of respondents outside of Quebec express confidence in the safety and security of transporting used nuclear fuel by truck, while within Quebec confidence is somewhat lower at 17 per cent.

Chart 3. Confidence in the safety and security of transporting dangerous goods and other cargo by different modes of transportation



Respondents were asked if they would rather see used nuclear fuel transported by truck, rail or ship. They also had the option of selecting two other response categories (i.e. “I don’t know, I need more information” and “I don’t think used nuclear fuel should be transported”). Rail is the preferred mode in all three provinces. More telling, however, is that four in 10 indicated that they do not know and need more information. Of note, sizable minorities in all three provinces, with the largest in Quebec, believe that used nuclear fuel should not be transported.

Chart 4. What mode of transportation would you rather be used to transport used nuclear fuel?



4.2. PRE- AND POST-FOCUS GROUP SURVEY RESULTS COMPARISON

The results of the pre- and post-test experiment are presented in the tables below. These results pertain to the 151 focus groups participants who completed both the pre- and post-focus group survey. Overall, we find that participation in the focus groups had a very positive net impact on the views of participants. This impact was particularly positive with respect to opinions about nuclear energy and the transportation of used nuclear fuel. For example, the proportion of participants who initially thought that used nuclear fuel should not be transported, fell from 11 per cent to three per cent in Ontario, from 21 per cent to 0 in Quebec, and from nine per cent to 0 in New Brunswick.

The tables should be read as follows:

PRE-FG NET CONFIDENCE: Pertains to the results of the survey completed by participants before their focus group. The score is obtained by subtracting the total percentage of respondents who indicated low confidence (i.e. rated 1-3 on a 7-point scale) from the total percentage of respondents who indicated high confidence (i.e. rated 5-7). For example, results of 50% high confidence, 20% neutral (i.e. rated 4) and 30% low confidence, produce a net confidence score of +20%

POST-FG NET CONFIDENCE: Same calculation as the PRE-FG CONFIDENCE, but for the results of the survey that was completed after their focus group.

INDIVIDUAL NET CHANGE: This is an aggregate measure of individual change (or movement). Through a comparison of the pre- and post-survey results, we determined the percentage of participants that provided a more negative rating after their focus groups and subtracted this number from the percentage of participants that provided a more positive rating to an item. For example, if 50% provided a higher rating in their post-FG survey, 20% provided the same rating and 30% provided a lower rating, the INDIVIDUAL NET CHANGE is +20%.

Table 4: How much confidence do you have in each of the following to keep Canadians safe and secure? (7-point confidence scale)

ONTARIO

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Federal Government	+55%	+76%	+21%
Electricity Companies	+26%	+39%	+23%
Pipeline Companies	-15%	+9%	+37%
Environmental Groups	+33%	+44%	+17%
Airlines	+28%	+33%	-7%
Scientists/Engineers	+77%	+86%	+25%
Local Police	+79%	+78%	-2%
Nuclear Energy Companies	+40%	+67%	+25%
NWMO[9]	NA	+68%	NA

QUEBEC

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Federal Government	+31%	+53%	+17%
Electricity Companies	+39%	+36%	-17%
Pipeline Companies	-59%	-56%	+9%
Environmental Groups	+27%	+44%	+7%
Airlines	+8%	+6%	-5%
Scientists/Engineers	+60%	+81%	-5%
Local Police	+63%	+59%	-26%
Nuclear Energy Companies	-25%	-2%	+13%
NWMO	NA	+49%	NA

NEW BRUNSWICK

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Federal Government	+39%	+55%	+18%
Electricity Companies	+57%	+32%	-5%
Pipeline Companies	0%	+39%	+34%
Environmental Groups	+27%	+4%	-13%
Airlines	+29%	+18%	-14%
Scientists/Engineers	+63%	+77%	+13%
Local Police	+65%	+72%	+4%
Nuclear Energy Companies	+18%	+59%	+32%
NWMO	NA	+54%	NA

[9] NWMO not included in pre-session survey.

Table 5: Every day in Canada and around the world, natural resources and other products are transported by truck, rail, pipelines, and by ship. Overall, how much confidence do you have in the safety and security of each of the following? Transporting… (7-point confidence scale)

ONTARIO

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Used nuclear fuel by truck	13%	+41%	+32%
Oil by pipeline	+21%	+26%	+4%
Propane by rail	+9%	+23%	+4%
Gravel stones by truck	+62%	+67%	-2%
Chlorine by rail	+2%	+22%	+11%
Wood logs by truck	+64%	+60%	-5%

QUEBEC

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Used nuclear fuel by truck	-46%	+35%	+63%
Oil by pipeline	-23%	-21%	+12%
Propane by rail	-11%	-19%	0%
Gravel stones by truck	+75%	+66%	+15%
Chlorine by rail	-27%	-11%	+32%
Wood logs by truck	+71%	+69%	+26%

NEW BRUNSWICK

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
Used nuclear fuel by truck	0%	+59%	+41%
Oil by pipeline	+27%	+59%	+22%
Propane by rail	+13%	+46%	+9%
Gravel stones by truck	+69%	+63%	-5%
Chlorine by rail	+13%	+32%	+13%
Wood logs by truck	+66%	+58%	0%

Table 6: Please indicate whether you agree or disagree with each of the following statements. (7-point agree/disagree scale)

ONTARIO

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
I think that nuclear power generation in Canada is safe	+51%	+77%	+25%
I view nuclear power as a green technology	+24%	+47%	+25%
I am very strongly opposed to nuclear energy	-62%	-72%	-25%
I am confident that used nuclear fuel can be transported safety and securely	NA	+81%	NA

QUEBEC

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
I think that nuclear power generation in Canada is safe	+15%	+48%	+39%
I view nuclear power as a green technology	-9%	-45%	-24%
I am very strongly opposed to nuclear energy	-19%	-13%	0%
I am confident that used nuclear fuel can be transported safety and securely	NA	+41%	NA

NEW BRUNSWICK

ITEM	PRE-FG NET CONFIDENCE SCORE	POST-FG NET CONFIDENCE SCORE	INDIVIDUAL NET CHANGE
I think that nuclear power generation in Canada is safe	+18%	+64%	+55%
I view nuclear power as a green technology	+4%	+41%	+50%
I am very strongly opposed to nuclear energy	+44%	+56%	0%
I am confident that used nuclear fuel can be transported safety and securely	NA	+59%	NA

Table 7: Would you rather see used nuclear fuel transported by truck, rail or by ship?

ONTARIO

ITEM	PRE-FG SELECTION	POST-FG SELECTION
Rail	43%	55%
Truck	13%	24%
Ship	11%	4%
I don't know, I need more information	23%	14%
I don't think used nuclear fuel should be transported	11%	3%

QUEBEC

ITEM	PRE-FG SELECTION	POST-FG SELECTION
Rail	19%	50%
Truck	13%	33%
Ship	13%	8%
I don't know, I need more information	35%	8%
I don't think used nuclear fuel should be transported	21%	0%

NEW BRUNSWICK

ITEM	PRE-FG SELECTION	POST-FG SELECTION
Rail	43%	59%
Truck	13%	33%
Ship	22%	9%
I don't know, I need more information	13%	19%
I don't think used nuclear fuel should be transported	9%	0%

APPENDIX A: FOCUS GROUP GUIDE

NWMO Public Attitude Research and Dialogue
REVISED Focus Group Guide
(May 30th)

1.0 Introductions and Ground Rules (10 minutes)

- Moderator welcomes participants and explains purpose of the focus group: "To have a dialogue and hear your views about a few issues related to the production of energy (e.g. electricity)."

- There are no "right" or "wrong" answers. Feel free to agree or disagree. Even if you are just one person that takes a certain point of view, you could represent thousands of other residents in this province who feel the same way as you do.

- Part of my role is to watch for time and introduce new topics. I also have to make sure that everyone gets a chance to speak.

- All comments are anonymous and nothing you say will be associated with your name.

- You are being audio taped for research purposes and a few members of the study team are observing and taking notes.

- Please turn off any cell phones, pagers.

- Let's go around for some quick introductions. In addition to your first name, tell us briefly about the sort of work you do if you work outside the home, and who lives with you in your home.

2.0 Knowledge and Awareness of Used Nuclear Fuel (10 minutes)

1. Let's warm up with some word association. Please jot down the words or images that come to mind when you think of how this province generates electricity.

   Let's hear about what you've written…

2. This province gets about xx% of its electricity from nuclear power. How many of you were aware of that? [For Quebec we can say: "… until recently Quebec used to get …"]

Used nuclear fuel is a by-product of electricity generation by nuclear power plants. Here is a handout that will tell you all more about what used nuclear fuel is and what we do with it now. [MODERATOR DISTRIBUTES HANDOUT (1)]

3. What do you think of what you've just read? What stands out the most for you?

4. The handout says that "used nuclear fuel is safely stored on a temporary basis in licensed facilities located at reactor sites where it is produced." What do you make of this: if this is what is done with the fuel temporarily, what do you imagine is done permanently?

3.0 Canada's Plan (10 minutes)

Canada has a plan to deal permanently with used nuclear fuel, and an organization called the Nuclear Waste Management Organization or NWMO is responsible for implementing the plan. Let me tell you a little about the NWMO:

The Nuclear Waste Management Organization (NWMO) was created under federal legislation in 2002 by Canada's nuclear electricity producers to provide recommendations on the long-term management of used nuclear fuel and to implement the approach selected by the Government of Canada. Ontario Power Generation Inc., NB Power Nuclear and Hydro-Québec are the founding Members, and along with Atomic Energy of Canada Limited they fund the NWMO's operations.

I'm going to play for you a short video that will explain a lot about the plan and something about the technology. [MODERATOR SHOWS THE SHORT VERSION OF THE APM CLIP. THE ONE MIKE SENT MOST RECENTLY]

5. After seeing this video, what is your reaction to Canada's plan? What stood out for you?

- What more do you want to know?
- Do you have any questions or concerns so far?

4.0 Unprompted Views on What the Planning Framework Should Include (20 minutes)

As we saw in the video, Canada's plan will require all of Canada's used nuclear fuel being brought to the one location where the repository will be sited. The siting process is still underway and that location has not yet been selected. However, we know that used nuclear fuel will need to be transported from several locations to the repository site no matter where it is located. Transportation of used nuclear fuel is an important part of the plan.

Within the next 30 years, Canada's used nuclear fuel will start to be moved from licensed interim storage locations to a deep geological repository for safe and secure, long-term containment and isolation. The NWMO is now beginning to put in place a plan for this transportation (i.e. the transportation plan within Canada's overall plan to deal with used nuclear fuel).

The rest of our discussion will focus on getting your thoughts on how we should go about planning for this future transportation. Things to make sure we do and have in place, things to avoid, questions that need to be answered, concerns that need to be addressed and the objectives and principles we need to keep in mind in future decision-making.

6. What are your first thoughts and initial comments?

    - What does the NWMO need to make sure of?
    - What will it be important for the transportation plan to include?

5.0 Background the CPM Planning Framework: Requirements of the Plan, Science and Technology, and Modes & Routes (10 minutes)

There are several aspects to the planning framework:

- *Principles, objectives and key questions to inform the plan;*
- *How technical research, technology development and demonstration fits into the plan; and*
- *Preliminary considerations for selecting modes and routes.*

We'll be focussing on the first one of these: 1) Principles, objectives and key questions to inform the plan.

The next video handout I have for you will help us set the stage for the rest of our discussion. It's about how transportation packages are designed, tested and approved.

{MODERATOR PLAYS Certifying package designs (3:53) https://www.youtube.com/watch?v=bJ1h8zZkZrc

7. Did anything in what you saw in the video stand out for you?

8. Did any questions or concerns come to mind as you watching the video?

6.0 Vetting the CPM Planning Framework: Principles, Objectives and Key Questions to Inform the Plan (35 minutes)

Let's talk more about the objectives, principles and key questions that might guide the plan's development.
[MODERATOR DISTRIBUTES HANDOUT (2)]

9. What is your overall reaction to what you read?

   Did anything surprise you, or did you find anything confusing or unclear?

10. Let's look at the principles. What do you think of this list? Are these the right principles for guiding the development of an APM transportation plan?

    - How well does this list match your own thinking about what is important to consider when developing the framework that will be used to decide how and where the used nuclear fuel will be transported?

    - Are there other guiding principles that should be considered? Which ones?

    - Which principles, if any, would you say are most important for the development of an APM transportation plan?

11. Let's look at the list of objectives now. What do you think of this list? Are these the right objectives for guiding the development of an APM transportation plan?

    - How well does this list match your own thinking about what is important to consider when developing the framework that will be used to decide how and where the used nuclear fuel will be transported?

    - Are there other objectives that should be considered? Which ones?

    - Which objectives, if any, would you say are most important for the development of an APM transportation plan?

12. Let's turn to the guiding questions. How well does this list reflect the basic questions that you have about transporting used nuclear fuel?

    - Are there other any key questions that are missing from this list? Which ones?

    - Is there one questions that standout to you as particularly key, or are the all equally important in guiding the plan's development?

13. Do you have any other thoughts or comments on objectives, principles and key questions that might guide the plan's development?

Additional probe for this section: Are there any words or phrases that are confusing, unclear or that bother you in any way?

7.0 Vetting the CPM Planning Framework: Ensuring the Plan's Development is sufficiently Inclusive to ensure good decisions are made (15 minutes)

Based on everything you've seen tonight about the issues and planning, what would you say is the biggest challenge facing NWMO in moving forward with the plan for transporting used nuclear fuel?

One of the comments the NWMO has heard is that they need to make sure that people outside the organization are involved in developing transportation plans.

14. Who needs to be included in decision-making to ensure good decisions are made? What would be their role and how will they help ensure good decisions are made?

15. How important is it that the views of people who live far away from the sites and the transportation route(s) be included in developing the plan? Why?

16. How important is it that the views of people on the transportation route are included? Why?

8.0 Conclusion and Wrap-up (10 minutes)

17. DISTRIBUTE THE DISCUSSION DOCUMENT. NWMO is trying to get an early conversation started on how we should go about planning future transportation as part of Canada's plan. They have suggested five questions to get folks talking. We have discussed a few of the questions here today. Based on what you've seen, would you say that the NWMO is generally on the right track?

    - Is anything missing?

18. Do you have any parting words of advice for NWMO, or any other comments you'd like to make?

Thank you very much for your participation!

APPENDIX B: HANDOUT

Canada's Used Nuclear Fuel (1)

What is used nuclear fuel?

Used nuclear fuel is a by-product of electricity generation by nuclear power plants. Canadian nuclear power plants are fuelled by uranium pellets that are sealed inside zirconium tubes and arranged into fuel bundles. Once a fuel bundle has been used to generate electricity, it is highly radioactive and although this diminishes over time, it must be carefully managed for a very long period of time, essentially indefinitely. One nuclear fuel bundle generates enough electricity for 100 homes for a year.

How much used nuclear fuel exists in Canada, and how is it being managed now?

Canada has been generating electricity from nuclear power for more than 40 years. In that time, we have produced just over two million used fuel bundles. Each bundle is about the size and shape of a fireplace log, weighing approximately 24 kilograms. If the entire current inventory of 2.6 million used fuel bundles could be stacked like cordwood, they could fit into a space the size of seven hockey rinks from the ice surface to the top of the boards. About 90,000 used nuclear fuel bundles are produced in Canada each year.

Used nuclear fuel is safely stored on a temporary basis in licensed facilities located at reactor sites where it is produced. After a fuel bundle is removed from a reactor, it is first placed in a water-filled pool for seven to 10 years where its heat and radioactivity decrease. Afterwards, used fuel bundles are typically placed in dry storage containers, silos or vaults.

Objectives, Principles and Key Questions for Guiding the Development of the APM Transportation Plan (2)

The NWMO's five fundamental values are integrity, excellence, engagement, accountability, and transparency. In addition to corporate values, there are principles and objectives that will shape APM transportation planning. A preliminary list of these is outlined below, along with some key guiding questions.

Principles: The following initial set of principles emerged from conversations with citizens:

- **Safety is the overarching principle guiding all APM planning and activities**: Safety, security, and protection of people and the environment are central and must not be compromised by other considerations.
- **Meet or exceed regulatory requirements**: The plan must meet, and if possible, exceed all applicable regulatory standards and requirements for protecting the health, safety, and security of humans and the environment, and respect Canada's international commitments on the peaceful use of nuclear energy.
- **Aboriginal rights, treaties and land claims**: The plan must respect Aboriginal rights and treaties, and take into account that there may be unresolved claims between Aboriginal peoples and the Crown.
- **Inclusiveness**: The plan must respond to and address, where appropriate, the views of those who are most likely to be affected by the plan.
- **Informing the process**: The plan must be informed by the best relevant available knowledge, including science, social science, Indigenous Knowledge, and ethics. This information used to develop the plan must also be made public.
- **Ongoing engagement of governments:** The NWMO must involve all potentially affected provincial governments in the development and review of the plan.

Objectives: The following set of preliminary objectives were identified through dialogue with Canadians:

- Protect public health and safety from the risk of exposure to radioactive or other hazardous materials, and from the threat of injuries or deaths due to accidents;
- Protect workers from and minimize hazards associated with managing used nuclear fuel;
- Ensure fairness in the distribution of costs, benefits, risks, and responsibilities;

- Ensure the well-being of all communities with a shared interest;
- Ensure the security of facilities, materials and infrastructure;
- Ensure that environmental integrity is maintained over the long term;
- Ensure economic viability of the used nuclear fuel management system; and
- Ensure a capacity to adapt to changing knowledge and conditions over time.

DISCUSSION:

1. **Are these the right objectives and principles for guiding the development of an APM transportation plan?**
2. **Are there other objectives and guiding principles that should be considered?**
3. **Which principles and objectives would you say are most important for the development of an APM transportation plan?**

Key Guiding Questions:

- How will used fuel transportation containers ensure safety of people, plants, animals, land, and water along the route?
- How will we prepare for emergencies, and what will security measures look like?
- What is the risk to workers, the public, and the environment during transport and during the unlikely event of a breach of containment? How can this risk be minimized?
- What accident scenarios are being considered, and do they cover what is needed?
- What oversight, checks and balances are in place?

DISCUSSION:

4. **Are these the right key questions for guiding the development of an APM transportation plan?**
5. **Are there other questions that should be considered?**

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