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Modernizing Canada's Radioactive Waste Policy

Engagement Summary Report 2

Preliminary Report on Engagement Results
(February 20 – May 14, 2021)

The feedback in this report is reflective of what we have heard from interested participants from the end of February to mid-May, but does not reflect policy direction, nor Natural Resources Canada's intent.

Context

On November 16, 2020, the Honourable Seamus O'Regan Jr., Minister of Natural Resources, launched an inclusive engagement process to review and modernize Canada's radioactive waste policy.

Canada has been a leader in the development and application of nuclear technologies for over half a century. While all radioactive waste is being managed safely, the intent of this review is to ensure we have a strong Radioactive Waste Policy in place that is based on the best available science, continues to meet international practices, and reflects the values and principles of Canadians.

To continue to manage radioactive waste in a responsible, safe, and environmentally friendly way, the Government of Canada is engaging with Indigenous peoples, the general public, stakeholders, experts, and any other interested parties to review and modernize Canada's Radioactive Waste Policy for future generations. Officials from Natural Resources Canada (NRCAN) are leading the engagement process and policy review with the support of other federal government departments with responsibilities for the management of radioactive waste in Canada.

This policy review provides an opportunity to stimulate discussion on the safe, effective and environmentally responsible management of radioactive waste in Canada, as well as to listen and obtain views from Canadians on what should be included in a modernized radioactive waste policy to provide clearer direction and greater leadership on radioactive waste management over the long-term.

About this Report

This report is the second of two engagement summary reports intended to provide a snapshot of some of the main points of feedback that NRCAN has received. It includes comments received between February 20 and May 14, 2021. Our aim is to help participants build on the conversation by having a window into some of the key ideas introduced so far and encourage moving the discussion forward. The ideas presented here are in addition to the online [discussion forums](#), which can be viewed at any time, for a complete picture of the conversation happening there. This feedback is reflective of what we have heard from interested participants from the end of February to mid-May, but does not reflect policy direction, nor Natural Resources Canada's intent. It does not mean to suggest through this report that there is any consensus on major issues, as there is not. This is highlighted in numerous areas throughout the report.

How are we engaging?

In the fall, NRCAN began outreach to Indigenous peoples and interested parties through emails, phone calls, and virtual meetings and information sessions to inform interested participants of the process, and seek their views on how they would like to be engaged. We have been incorporating that feedback in our approach, and working with various organizations to ensure we have fulsome representation at our engagement meetings and roundtables.

Our engagement process is structured around three key avenues of engagement:

- An online engagement forum at <http://www.radwastereview.ca/> featuring discussion papers on some key topics, including waste minimization, waste storage facilities, decommissioning and waste disposal, and an open forum available to all Canadians to suggest ideas and discuss issues.
- Written submissions from individuals and organizations – NRCan will consider all written submissions from interested parties submitted via the engagement forum or by email.
- A series of over 150 calls and virtual engagement sessions, including 17 roundtables, with participants such as environmental groups, interested organizations and citizens, Indigenous peoples, industry, other levels of government, youth, and academics.

Next Steps

At a future date, NRCan will publish a “What We Heard” report that reflects the information received throughout the engagement process, and a draft policy will be released for public comment. NRCan will ensure there is sufficient time following the release of the report for meaningful feedback from Canadians and Indigenous Peoples.

General Feedback

We received views on the big picture with respect to a radioactive waste policy, focusing on overarching principles that should inform the policy, roles and responsibilities, and general comments on the policy beyond the focused discussions on minimization, storage, decommissioning, and disposal detailed below in this report. Key ideas we heard are:

Governance for radioactive waste management

A major theme that ran through many discussions is dissatisfaction with, and a lack of trust in, the current governance system for radioactive waste, particularly on the part of public interest groups and some Indigenous peoples. Many described their perception as that of a governance system dominated by industry views, and serving nuclear industry interests. First, some respondents felt that there exists a contradiction for the Minister of Natural Resources as both an advocate for the industry and being responsible for radioactive waste policy and oversight. Second, some felt that the Canadian Nuclear Safety Commission, the responsible party for regulating and licensing the industry, relies too heavily on industry information. Third, some participants expressed dissatisfaction with the means by which they have been engaged on licensing, review, policy development and other processes relating to radioactive waste management and specific projects. They noted that processes have been challenging to access, that information is difficult to obtain, and that industry representatives have far greater resources, granting them a louder voice at the table.

Other respondents suggested that governance issues are related to the need for proper communication of the different roles and responsibilities at play within the system. There are several different groups with responsibilities, and it can be difficult to understand the unique place of each. These respondents suggested the need for more and better communication on these roles.

We heard suggestions that Canada should create some type of independent radioactive waste management body or advisory council, separate from the Nuclear Waste Management Organization. Suggestions included an organization that reports directly to Parliament, or one that sits within the portfolio of the Minister for Environment and Climate Change Canada, and a governance structure that formally includes Indigenous peoples and other interested Canadians as part of oversight and decision-making. The key point here is the creation and maintenance of an independent body has a high degree of social support and inclusion.

“Polluter pays” is a sound principle, but the polluter is the public

The polluter pays principle, i.e. that waste producers and owners are responsible for the funding, organization, management, and operation of disposal and other facilities required for their wastes, is enshrined in the current policy and we heard that on its face it is a sensible approach. However, we also heard that in practice, because nuclear energy is integrated into our electricity system, the paying “polluter” is also the rate-payer for power. In this sense, the public is not insulated from the cost of radioactive waste management because it ultimately pays.

Scope of the policy should be broad

Respondents told us that their view of the scope of a revised policy should extend to all sources and instances of radioactive waste. This includes uranium extraction processes, mines, tailings ponds, transportation, processing, and every other step in the chain. The message being that Canada’s new policy should be broad, and not limited to just energy generation and subsequent waste.

International obligations are important

We heard that Canada's international obligations are an important part of the framework for radioactive waste management, and should be considered and included in the design of a new policy. Importantly, we heard that there are international practices, guidelines, and standards, which are informative and helpful, but there are also international conventions that are binding. It is important to recognize the distinction, to ensure that Canada meets its international obligations under relevant conventions and agreements, but also to meet the highest applicable standards for radioactive waste management.

Roles & responsibilities: Indigenous peoples and public interest groups

As noted in the discussion of governance, above, we heard important feedback on roles and responsibilities within the system. A key point of feedback is a desire to see a clearer role for interested parties and rights holders within the policy, beyond the roles of government, waste owners and regulators. It was noted that Indigenous peoples and public interest groups have important perspectives and unique knowledge that can help Canada do the best possible job in managing radioactive waste. Resourcing is a critical element to make meaningful participation possible on a sustainable basis. This is especially true for smaller communities, and Indigenous communities, where technical and scientific expertise must often be contracted out to help inform analysis, and where a lack of both financial resources and time can make full participation difficult (i.e. bringing in relevant expertise on an unplanned basis can take a long time, and communities can miss their window to input into decision-making).

Roles & responsibilities: other key federal government players

We heard that other entities within the federal government have important roles to play in terms of radioactive waste management, notably: Environment and Climate Change Canada (ECCC) and the Impact Assessment Agency. With respect to ECCC, we heard that the government should consider using provisions under the *Canadian Environmental Protection Act* to regulate and control radioactive waste, either as an alternative or in addition to the present regulatory regime. With respect to Impact Assessments, we heard questions about how Impact Assessments and radioactive waste-producing projects are approved, and what provisions apply. It was suggested that the policy should be clear in defining roles for the many federal players with an interest in aspects of radioactive waste, from pollution prevention to transportation, to Indigenous consultation and engagement, to non-proliferation, to name a few.

Resourcing participation

Some participants told us that resourcing of participation in nuclear industry governance and oversight should be provided. It was noted that large operators have access to significant financial resources and expertise that other players (including Indigenous peoples, small communities and public interest groups, among others) simply do not. It was suggested that the policy make arrangements not just for ongoing fora for public engagement, but also encourage resources to make that engagement possible at a level equal to the importance of the subject. We heard that other jurisdictions may have implemented means to do this and there may be examples from which Canada can learn.

Joint engagement

The engagement process included two joint engagement tables, which brought together Indigenous peoples, environmental and public interest groups, industry, youth, health and safety, and academia, to discuss modernizing Canada's radioactive waste policy. This format allowed people from different constituencies and holding different views to dialogue with one another and share perspectives. Feedback from participants on this format was positive.

Regular policy review and evaluation

Participants told us that the new policy should contain provisions for regular review and updating on a reasonable schedule, including regular review of management plans. The existing policy has been in place for about twenty-five years, and Canada should not wait another quarter century before looking at the new policy, once it is in place. In addition, some respondents told us that without any kind of review of the effectiveness of the current policy, it can be difficult to take informed positions on what a new policy should aim to do. Thus, some element of radioactive waste policy evaluation will be important in the future.

Value of nuclear energy in the climate change era

We heard contrasting opinions about the overall value of nuclear energy as a means of combating climate change. Some respondents saw an important role for nuclear as a non-emitting energy source, whereas others view the overall environmental impact of the industry as problematic. All of this to emphasize that among respondents there is a lack of consensus on the overall role and value of nuclear energy.

Reprocessing and proliferation risks

We heard differing views related to reprocessing used fuel. Some are opposed to reprocessing of used nuclear fuel for new Small Modular Reactors (SMRs) in Canada, noting concerns related to nuclear proliferation risk, as well as calls for Canada to use the precautionary principle in this regard. Others viewed SMRs as having potential to reduce greenhouse gas (GHG) emissions, and in some cases aid in addressing Canada's radioactive waste challenge. Some stated that any adoption of SMR technology should be considered in light of Canada's commitment to non-proliferation, as well as its obligations under international treaties. We heard that the waste policy should affirm Canada's commitment to the peaceful use of nuclear technology.

Politicizing the science

Many of the key issues involved in radioactive waste management depend on science and having informed policy debate about a shared set of scientific data. Some participants noted that all parties must be mindful not to politicise science, and that simply asking the public for their "concerns", without nuance or educational engagement on technical issues, does a disservice to the process. This is not to say that everyone will agree on every point, but that public engagement needs to be deeper than just quick opinions on what is a complex and multi-faceted issue.

Specific Considerations with respect to Indigenous Views and Perspectives

We received extensive feedback from Indigenous peoples, included throughout this report in the relevant sections. We also received overall feedback about Indigenous-specific views and perspectives that are highlighted here:

Radioactive waste management policy in the overall legal and policy context for Indigenous rights

We heard that Indigenous peoples expect any future policy on radioactive waste management to conform to the current and evolving legal context for Indigenous rights, including those enshrined in Treaties, the Constitution, and espoused in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Canada's relationship with Indigenous peoples, not just as interested parties, but also as rights holders, must be upheld in the radioactive waste policy. We also heard, specifically, the importance of the UNDRIP commitment to seek the free, prior, and informed consent of Indigenous peoples on decision affecting them, as well as ensuring proper Crown-Indigenous engagement and consultation.

Impact on Indigenous communities and traditional territories

We heard that several key aspects of the nuclear industry have a particular impact on Indigenous peoples, because of where these activities take place (or in the case of long-term storage, where sites may be located in the future). These activities are more likely to be conducted in remote areas, away from major population centres, but in territories used not just historically by Indigenous peoples, but right through to today. These lands, participants told us, are not "remote" or empty, but are vital parts of traditional and contemporary Indigenous ways of life. Risks to water, land, air, animals, plants, and use of traditional territories are therefore especially important to Indigenous peoples, making it even more important that the future policy make clear the need to engage or consult with Indigenous peoples on practices that affect them. It was further noted that the potential effects of radioactive waste could be broad and persistent, making the geographic scope of interested parties much greater than just a local community whose legal boundaries are near to a proposed storage site or mining operation.

Achieving and maintaining balance

Indigenous participants shared with us the importance of achieving and maintaining balance in all natural systems, including air, water, soil, fish, game, medicine, and more. There was a suggestion to use the wording "in the balance" as it is closer to the value system instead of "as practicable" which sounds economical. The integrity of the entire system is critical to the long-term health of the land and of the people who share in its bounty. Radioactive waste presents a singular challenge to this concept, because it has the potential to unbalance ecosystems for very long periods of time, given its persistence in the environment. Canada, in designing policy, should carefully think through how long-term ecological balance can be achieved while safely managing radioactive waste. Bringing Indigenous perspectives and knowledge to bear in designing such policy objectives would be helpful and insightful.

Beyond seven generations

It was noted that radioactive waste is unique for its long lifecycle, especially as compared to other forms of waste or disturbance of the natural environment. Indigenous teachings tell us to think and plan for seven generations ahead, and that the resources of today are not ours, but are merely borrowed from those yet to come. We heard that radioactive waste management pushes this obligation much further, beyond seven generations. Indigenous peoples told us that the policy should account for the full

lifecycle of waste, and include responsibilities for its management over the very long term. Furthermore, we heard that we should not plan to abandon waste or in any way walk away from our obligations to future generations, and there is a need for proper knowledge management to ensure that our collective responsibility to future generations is upheld. Indigenous participants also stressed the importance of restoring land that has been used for waste management to its natural environment. Some respondents told us that they expect to see long term, rolling stewardship of waste, and not a model that plans for eventual permanent disposal of waste altogether.

Importance of monitoring and Indigenous involvement

Participants told us that monitoring of radioactive waste is critical to ensuring the ongoing safety of people and the environment. Canada's monitoring obligations will extend well into the future, and we heard of the need to work collectively to design monitoring approaches that are sound and complete. Indigenous participants told us that Indigenous peoples and communities have an important and unique role to play with respect to monitoring. Indigenous peoples – especially elders – have traditional knowledge and insight into land, air, and water that are distinct from Western knowledge, and enhance our understanding of natural systems significantly. Moreover, Indigenous peoples as stewards of their land, have opportunities to observe changes that are important elements of any monitoring framework. Thus, we were advised by participants that the policy should make clear the importance of involving Indigenous peoples, and especially elders, in the ongoing monitoring of radioactive waste.

Social effect on Indigenous communities

We heard that divisive issues like energy policy, or waste disposal locations, may entail additional harmful effects for Indigenous communities: fracturing communities along project acceptance or not, driven by inequity in economic participation in projects, or the design of consultation processes. Some participants told us that industry's practices towards Indigenous engagement can sometimes feel like they are using their ample financial resources to buy consent on the part of communities. There is no simple solution for this issue, we heard, but it must be weighed along with the other effects on Indigenous peoples; engagement approaches and governance design should be informed by these considerations.

Theme: Minimization

We asked Canadians and engagement session participants for their views on the role of radioactive waste minimization in the future policy. This discussion was informed by a short discussion paper, found at the [radioactive waste policy review website](#). In the context of this discussion paper, we asked some key questions, featured below. Highlighted feedback includes:

Disagreement on the role of nuclear energy

With respect to minimization of radioactive waste some respondents told us that they believe that the risks and costs of nuclear energy are simply not worth taking. We heard that concepts like the waste hierarchy or efforts to make operations more efficient in terms of waste generation obscure concerns that the industry produces waste that is potentially dangerous, complex to manage, and can impose a burden on future generations. Some told us that, instead, Canada should move to immediately cease new nuclear energy development, and plan to close existing plants, as is planned by some other jurisdictions. At the core of this view is the idea that real minimization of waste begins with not generating waste in the first place, and looking to develop other, less impactful, energy sources.

We also heard that continued commitment to nuclear energy should not unintentionally crowd-out the development of other energy resources like renewables (e.g. solar, wind, and tidal energy). At the same time, we heard that all energy resources have downsides. For instance, we heard that the resources and materials needed for renewables, and potential waste, is much greater than for nuclear energy.

At the same time, we also heard from respondents who see nuclear energy as an important part of Canada's energy mix, and as a positive contributor to the fight against climate change. Within the context of waste minimization, in particular, we heard that the nuclear industry has made great strides in minimizing waste, and the emerging technology offers the promise of further improvement.

Participants understood that a waste management policy review cannot, by itself, set energy policy for the country. To that end, we heard requests for Parliamentary debate and high-level, inclusive policy discussion and decision on the core question: what is the role of nuclear energy in Canada? We heard, from some, a lack of confidence in the ability of the system to both address – and be seen to address – critical health, safety, and environmental needs, as well as a belief that Canada drifted into the nuclear energy system it has today without comprehensive debate and public support.

This makes the question of waste minimization in particular nuanced, in terms of the feedback we heard. In some cases, we heard suggestions to improve the existing system, while some participants felt it difficult to engage with an industry and set of practices with which they fundamentally disagree. We note this to make clear that there are important fundamental questions and a wide diversity of viewpoints.

Theme: Minimization Discussion Questions

What are your views on waste minimization?
Should Canada continue to use the concept of the waste hierarchy?

What should be the role of government, regulator and waste owners with respect to minimizing radioactive waste?

Are there other principles, beyond those identified by the International Atomic Energy Agency, that you feel are important to consider when designing and implementing a waste minimization program?

Questions of practicality

Today's waste management system makes allowances for waste owners to take action within the realm of what is "practical", and this concept of practicality includes affordability. Many respondents told us that safety and security requirements should be defined by science and public interest, and not be limited by what is deemed practical or affordable. This applies to waste minimization, and all the other topics, to some degree. There was debate and discussion about how much minimization is enough, and what level of risk should Canada be willing to accept in terms of waste generation and minimization. We also heard that the goal of radioactive waste management should not be to simply eliminate all risk at any cost, and that there is a level at which stakeholders and the public can feel that every reasonable precaution has been taken. This raised questions around the most productive use of limited resources; i.e. it may be more beneficial to invest in research to improve waste minimization and other technologies, than to make marginal improvements in existing practices.

For some people, we heard that minimizing waste as a goal is a good place to start, and that there is an inherent incentive for industry to minimize waste to reduce storage and disposal costs. But we also heard of the need not to force undue burden on some smaller businesses in the industry. For others we heard expectations that safety and waste minimization should be maximized, regardless of the cost. While no single direction emerged, participants generally expect the new policy to provide some further clarity or definition of what is practical and a framework for encouraging minimization of waste.

Reuse and Recycling

Another strategy for waste minimization is to reuse, repurpose, or recycle waste streams. We heard from some participants on this topic that they have reservations as to whether new nuclear technologies – Small Modular Reactors foremost among them – will be capable of repurposing used nuclear fuel. They suggest that doing so could actually increase the challenges of managing radioactive waste due to the emergence of new forms of waste, such as liquid wastes, as well as proliferation risks.

For some, the terminology of Canada's waste hierarchy is unclear. Some people told us that the idea of radioactive waste "recycling" is misleading, and may lean more toward branding than science. Similarly, we heard that terminology such as "recycling" and "reprocessing" should not be conflated. For instance, we heard that recycling processes are currently used to minimize low-level waste; whereas reprocessing is a different process altogether that pertains to used nuclear fuel.

Some respondents expressed the view that future technology may play an important role in enabling the reuse or recycling of waste in ways that we cannot envision right now. Therefore, the policy should enable the adoption of new technologies, and not limit Canada to only what is practical today.

Theme: Storage

We asked Canadians and engagement session participants for their views on the role of radioactive waste storage in the future policy. This discussion was informed by a short discussion paper, found at the [radioactive waste policy review website](#). In the context of this discussion paper, we asked some key questions, featured below. Highlighted feedback includes:

Information: Waste Inventories

We heard concern and even frustration with the transparency of information available to Canadians with respect to inventories of waste in storage today. Respondents told us that, even for those who want to get engaged, and provide views on policy and practices, a lack of clear information on what waste Canada currently possess, and where, can make debate and good decision-making difficult. We heard that those who seek to have informed views need to know what waste we have, its characteristics, volume, and other key information. This is a point that runs through many of the other topics. That is, without a comprehensive picture and understanding of the state of radioactive waste in storage today (and projections for the future), some participants expressed that it was difficult to know exactly what to recommend in other areas. Returning to an earlier idea, engagement from public interest groups, in particular, depends on complete and up to date information.

Theme: Storage

Discussion Questions

What are your views on how radioactive waste is currently stored in Canada?

What should be the roles and responsibilities of government, the regulator, and waste owners with respect to radioactive waste storage?

Security and safety of storage sites

A number of participants shared concern with the state of storage facilities today, in terms of their security, safety, and proximity to major water bodies. We heard questions around whether the storage facilities of today are, in fact, as safe and secure as they appear in official records. Participants had questions about how waste is moved within facilities, whether there have been releases, or whether there is today an overreliance on wet storage of used fuel (with the potential to not have room to unload a reactor in case of emergency). Many of the concerns we heard were technical, or specific to particular sites, but the overall point was that members of the public would like greater insight into how facilities are designed and managed, and more transparency around potential risks. We hear a clear desire for public engagement into how waste management systems are operated and monitored.

Respondents expressed questions about whether some sites are adequately protected from either natural disaster or attack. This is particularly the case for storage sites located near major water bodies (i.e. Lake Ontario or the Ottawa River), where the potential damage of a breach – through accident or malevolence – is even greater given the proximity to the drinking water sources of millions of people.

At the same time, we also heard from those who believe that existing storage sites are well managed, meet regulatory requirements, and are sufficiently hardened to offer adequate protection against either natural disaster or attack. It may be the case that improved transparency and/or access to information will answer questions and allow a window into how Canada is meeting its safety, security, and monitoring obligations.

Emergency Response Preparedness

Some participants highlighted the importance of emergency response preparedness. In the event of an emergency a number of local emergency response organizations – a web of first responders and other groups, crossing many jurisdictions – will have to be quickly mobilized to respond. This can involve difficult issues such as those linked to communication and coordination. The radioactive waste policy could therefore include some principles or guidance to ensure that emergency response is effective and coordinated.

Storage implications on transportation

Many storage and, ultimately, disposal solutions will and do necessitate the transport of radioactive waste across Canada. Many participants felt that there is a gap in terms of public engagement and information on the transport of waste, and that many Canadians may not even realize that they live near transportation corridors for radioactive waste. Moreover, there are concerns that government approval and oversight of waste transportation to storage facilities is lacking. It was recommended by some that the new policy cover transportation specifically, and that it make provisions for public engagement on transportation questions (while acknowledging that waste transportation greatly broadens the constituency of communities, citizens, and Indigenous governments and territories potentially directly affected by radioactive waste).

On this subject, some respondents noted that the transportation of radioactive waste has a strong track record for safety, and that – while not without risk – the transportation of waste can be part of a safe and secure system, and enable consolidated storage solutions, rather than many smaller sites.

Small Modular Reactor Implications

Participant views were very much split on the role of Small Modular Reactors (SMRs) and their implications for storage, amongst other issues. Specifically, we heard that the presence of SMRs in remote locations, far from existing storage facilities, would create a need for either more dispersed storage capacity, or even more waste transportation from remote locations. On the other hand, we also heard from those who see promise in SMR technology, both at a technical level, and in terms of the benefit those reactors could bring to communities who would otherwise have difficulty accessing energy. This points to a general consideration for Canada's radioactive waste policy development: a need to address existing circumstances, but also to account for change related to potential new technologies, most notably SMRs, which have the potential to bring nuclear energy, and radioactive waste issues, to many new communities (and communities who, by virtue of their size, likely would not have significant resources for analysing and addressing these risks).

Theme: Decommissioning

We asked Canadians and engagement session participants for their views on the role of radioactive waste management in the decommissioning of sites in the future policy. This discussion was informed by a short discussion paper, found at the [radioactive waste policy review website](#). In the context of this discussion paper, we asked some key questions, featured below. Highlighted feedback includes:

Criteria for *in situ* decommissioning

The use of *in situ* decommissioning as a decommissioning strategy was a focus for many participants. We heard two key points. First, concerns that Canada is not following International Atomic Energy Agency guidelines and requirements with respect to *in situ* decommissioning. The IAEA holds that *in situ* approaches only be undertaken as a last resort, and participants expressed reservations about Canada seeming to take a more permissive approach. Overall, participants urged the government to ensure that a new policy clearly affirm and recognize Canada's international commitments on decommissioning and other areas. We also heard that *in situ* decommissioning may be entirely appropriate, but that siting may be the issue, more so than the specific risks of the facility in question.

Second, we heard that Canada's approach has been to consider *in situ* decommissioning for legacy research reactor sites like those in Pinawa, Manitoba, and Rolphton, Ontario, dating from Canada's early nuclear industry and not designed with modern decommissioning strategies in mind. However, participants expressed concern that these sites, in particular, are located very close to major waterways, and therefore *in situ* risks are actually greater for these sites. Overall, participants asked for greater clarity as to why legacy sites should be treated differently.

Legacy sites

Canada has several legacy sites, dating from the beginnings of the nuclear industry. These sites are distinguished by their age, of course, and also the fact that they were developed in an era where considerations for waste management and environmental protection were not nearly as advanced as the expectations of today. In addition, these sites were created in an era with significantly less information and public engagement; thus, their host communities did not have the same opportunity as later developments to input into designs and practices. We heard specific feedback about these sites, in terms of their decommissioning, and more broadly: some respondents have particular concerns about the integrity of legacy sites and fears that their contents are not fully known, or that legacy approaches to storage and decommissioning present undue risk. It was suggested that the new policy define an outlook for the management of legacy sites, in particular, as their needs and context are unique and they may require particular attention.

Knowledge management

Participants told us that decommissioning is a lengthy, complex process, with major implications on future generations. Therefore, knowledge management is crucial, so that workers, governments, waste

Theme: Decommissioning Discussion Questions

What do you feel are important policy considerations that should influence the choice of decommissioning strategies by nuclear operators and should be considered as part of Canada's radioactive waste policy?

In what ways should Canada's policy address the setting of end-state objectives for decommissioning?

owners, and the public, have detailed records of the decisions and processes made at the time, to inform future action. We heard that the policy should emphasize the importance of knowledge management and knowledge retention, to the benefit of all.

Planning for decommissioning

We heard that detailed decommissioning plans should be prepared at project inception, but currently seem to be developed much later in the lifecycle of a facility. This has the unintended effect of potentially obscuring the full cost of a project, or of deferring other major decisions into the future (e.g. where will the waste from decommissioned facilities go?). Not knowing (or being confident in) the full cost of decommissioning makes the case for nuclear energy more difficult to analyse.

Theme: Disposal

We asked Canadians and engagement session participants for their views on radioactive waste disposal in the future policy. This discussion was informed by a short discussion paper, found at the [radioactive waste policy review website](#). In the context of this discussion paper, we asked some key questions, featured below. Highlighted feedback includes:

Stewardship, not abandonment

Many people expressed to us the view that the ultimate desired end state for radioactive waste in Canada should be rolling stewardship. Their view is that there is unlikely to ever be a time when waste is permanently disposed of, and Canada will take on a responsibility to monitor and steward waste in perpetuity. Participants stressed that Canada should not attempt to get to a point of “walking away” from waste, as its persistence and long-term risks to humans and the environment require ongoing management.

We heard consistently that radioactive waste is and will be with us for a long time, and that all system planning should be predicated on the notion that waste management is a permanent obligation. This notion has a further implication on the financial structure of the nuclear industry. Who bears the cost of ongoing stewardship or monitoring? Is there a point at which waste owners are released from responsibility? If so, are costs transferred to the public?

Site selection

We heard a range of viewpoints on site selection for disposal sites. First, we heard that Indigenous and public engagement is crucial, and that communities should have community host agreements, if selected as a disposal site. It should be noted that Indigenous involvement in such a process is as a rights holder, not simply an interested party. We heard that more could be done as part of selection processes to engage relevant Indigenous peoples and other interested parties, or to listen to and address community concerns.

Second, we heard discussion of deep geological repositories, and some hold the view that no such site would ever be suitable or safe for large volumes of waste. In general, there is widespread acknowledgement that Canada needs direction and decision on disposal sites, so that decommissioning and other important activities can begin and conclude. A lack of clear disposal options and locations is an obvious bottleneck in the system, but it is not clear how that bottleneck will be addressed. What is clear is that there is an expectation for broad engagement, on a transparent basis, and that the policy should provide some guidance to aid decision-making.

Theme: Disposal Discussion Questions

What do you feel are important policy considerations that should influence the choice of disposal approaches by waste owners and should be considered as part of Canada’s radioactive waste policy?

What should be the roles and responsibilities of government, the regulator, and waste owners with regards to radioactive waste disposal facilities, including:

- Funding?
- Closure of a disposal facility and its institutional control?
- Indigenous and public engagement and involvement in site selection and post-closure?

Monitoring

We heard that transparent, ongoing monitoring will be crucial to ensure that long-term risks are managed adequately. This type of monitoring can take many forms, and include a variety of data. In particular, we heard that Indigenous peoples and Indigenous knowledge should be involved in long-term monitoring frameworks, and the new policy should set out clear expectations for monitoring.

Shared definition of disposal

We heard that a successful radioactive waste management system could begin with a shared, clear definition of disposal outcomes. Today there is a lack of clear consensus on this issue, which makes designing appropriate steps to achieve disposal challenging. Some of this disagreement may be as a result of ambiguity in language, where “disposal” means different things to different parties, and the new policy could provide greater clarity.

Retrieval of waste

A number of participants told us that ability to retrieve waste should be a key characteristic of any disposal solution. This is important both to enable better monitoring, and action if there is an issue, as well as to allow future technologies to remediate waste, if and when such technologies become available.

Import/export of waste

We heard from some that Canada should not become a radioactive waste disposal site for the world and that there should be no import or export of waste. Others urged for the policy to recognize Canada’s current ongoing waste trade (e.g. transboundary shipments of some waste to be reduced/minimised and then returned).

Flexibility of approaches

We heard that International Atomic Energy Agency guidelines call for appropriate disposal facilities befitting the type of waste involved. Canada’s policy should follow this guidance, and allow for reasonable flexibility and a diversity of sites that address the specific needs of the waste in question.