

Report of the Advisory Council 2020-22

The Honourable Jonathan Wilkinson
Minister, Natural Resources Canada
Ottawa, ON K1A 0A6

March 2023

Dear Minister,

On behalf of the Advisory Council to the Nuclear Waste Management Organization (NWMO), I am pleased to submit our three-year review, included in the NWMO's Triennial Report 2020-22.

This is our fifth independent review of the NWMO's progress in implementing Adaptive Phased Management (APM), Canada's plan for the safe and secure, long-term management of used nuclear fuel. The Advisory Council comments are submitted as required under Sections 8 and 18 of the [Nuclear Fuel Waste Act](#).

The first section of our report provides an overview of our mandate, approach and framework for evaluating the NWMO's work. This is followed by a summary of the Advisory Council's activities over the past three years and our comments on the work of the NWMO from 2020 to 2022. The third section includes a review of the NWMO's five-year implementation plan, *Implementing Adaptive Phased Management 2023-27*, with comments and suggestions. In the final section, we provide our reflections on planning for long-term nuclear waste management in Canada.

Overall, we find that the NWMO is fulfilling its obligations with respect to the *Nuclear Fuel Waste Act*. In our last triennial report, Council stressed that the success of APM relies on the continuing and steadfast commitment of the Government of Canada to this technical and management approach. We note that on June 23, 2022, the Government reaffirmed its 2007 commitment to APM in its [response](#) to the NWMO's 2021 Annual Report. Your government's continuing support remains critical.

As the NWMO moves into the next major phase of its work, the Advisory Council is of the view that the Government of Canada needs to ensure there is increased clarity and coherence of government policy and regulatory expectations relevant to the project.

There are two major regulatory processes governing the APM project. The Canadian Nuclear Safety Commission is responsible for licensing of the APM project under the [Nuclear Safety and Control Act](#), while the Impact Assessment Agency of Canada is responsible for assessing the environmental, economic, social and health effects of the project, as well as its impact on Indigenous groups and their rights, under the [Impact Assessment Act](#). Policy and procedural coherence within and between these two regulatory processes, currently absent, is fundamentally important in order for the NWMO to carry out its mandate successfully.

Another key piece of federal government legislation, one that attempts to define Indigenous consent, is the [United Nations Declaration on the Rights of Indigenous Peoples Act](#), which became law in Canada in June 2021. This is yet a third piece of relevant federal government legislation that requires further clarity. The Advisory Council is looking forward to the federal government's action plan due by June 2023, which we hope will clarify the process for implementing this legislation and how it will affect the NWMO's future implementation of site selection and regulatory processes.

In summary, both the continuing and steadfast commitment of the Government of Canada to APM and the increased clarity and coherence of government policy and regulatory expectations will be crucial to supporting the NWMO in achieving the safe and responsible, long-term management of Canada's nuclear waste.

It is our hope that you and your government find this report helpful, and that it provides useful guidance to the NWMO as it implements the next phase of APM.

Sincerely, on behalf of the members of the Advisory Council,

A handwritten signature in black ink that reads "David Cameron". The signature is written in a cursive, flowing style.

Dr. David R. Cameron
Advisory Council Chair

Copy: NWMO Advisory Council
Mr. Joseph Cavalancia
Dr. Monica Gattinger
Dr. Dean Jacobs
Ms. Diane M. Kelly
Dr. Dougal McCreath
Mr. Donald Obonsawin, Vice-Chair
Dr. Stella Swanson
Ms. Linda Thompson

Mr. Glenn Jager
Chair of the Board of Directors
Nuclear Waste Management Organization
22 St. Clair Avenue East, 4th Floor
Toronto, ON M4T 2S3

March 2023

Dear Mr. Jager,

On behalf of the Advisory Council to the Nuclear Waste Management Organization (NWMO), I am pleased to submit our comments for inclusion in the NWMO's Triennial Report 2020-22.

We provide comments as required of the Advisory Council under Sections 8 and 18 of the *Nuclear Fuel Waste Act*.

Respectfully submitted on behalf of the members of the Advisory Council,

A handwritten signature in black ink that reads "David Cameron". The signature is written in a cursive style with a large initial 'D'.

Dr. David R. Cameron
Advisory Council Chair

Copy: NWMO Advisory Council
Mr. Joseph Cavalancia
Dr. Monica Gattinger
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Ms. Diane M. Kelly
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Mr. Donald Obonsawin, Vice-Chair
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Ms. Linda Thompson

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1 Introduction and background

This Advisory Council (Council) report fulfils the requirement in the *Nuclear Fuel Waste Act (NFWA)* that the Council comment every three years on the process and findings of the Nuclear Waste Management Organization (NWMO).

Section 1 provides an overview of the mandate, approach and framework that we developed for the purpose of evaluating the NWMO's work. Section 2 provides a summary of our activities over the past three years and our evaluation of the work the NWMO has undertaken during that period. Section 3 includes comments and recommendations on the NWMO's plans for future work as described in its implementation plan, *Implementing Adaptive Phased Management 2023-27*. Finally, in Section 4, we provide our reflections on planning for long-term nuclear waste management in Canada.

1.1 NUCLEAR FUEL WASTE ACT REQUIREMENTS

As required by the *NFWA*, the NWMO Board of Directors established the Advisory Council in 2002. The *NFWA* specifies that the membership of the Council should reflect a broad range of scientific and technical disciplines related to the management of nuclear fuel waste, as well as expertise in public affairs, social sciences and Indigenous Knowledge. Council members are profiled on the NWMO's [website](#).

The Council is required by the *NFWA* to comment every three years on the previous three years of NWMO activity. In addition, the Council is obliged to comment on the organization's five-year strategic plans and budget forecasts. These comments on the NWMO's work are published in the NWMO's triennial reports; they are submitted to Canada's Minister of Natural Resources and made public at the same time.

Advisory Council – Current members

David R. Cameron, Chair	2002-ongoing
Joseph Cavalancia	2015-ongoing
Monica Gattinger	2018-ongoing
Dean Jacobs	2015-ongoing
Diane M. Kelly	2015-ongoing
Dougal McCreath	2008-ongoing
Donald Obonsawin, Vice-Chair	2002-ongoing
Stella Swanson	2020-ongoing
Linda Thompson	2015-ongoing

Advisory Council – Former members

Marlyn A. Cook	2008-15
Helen Cooper	2002-08
Wesley Cragg	2012-15
Gordon Cressy	2002-08
David Crombie (past Chair)	2002-17
Frederick Gilbert	2002-15
Rudyard Griffiths	2008-11
Sue Hartwig	2018-21
Eva Ligeti	2002-17
Derek Lister	2002-22
Michel R. Rhéaume	2010-15
Daniel Rozon	2002-09

1.2 RELATIONSHIP WITH THE NWMO

The Council follows the development of the NWMO's plans and activities closely, and provides ongoing counsel and advice. We generally meet four times a year. The Chair works with staff to set the agenda. At our meetings, staff members make presentations on the NWMO's work, and members of the Council ask questions, request more information, raise issues, consider the NWMO's work, and provide advice. We hold an in-camera session at the end of most of our meetings, during which we deliberate without the presence of NWMO management or staff. The Council Chair provides a report to NWMO Board meetings to ensure a comprehensive exchange of information. Council members and the NWMO Board of Directors meet annually for an exchange of views, and in recent years, a focused discussion on one or two strategic issues.

In order to fulfil our legislated reporting requirements, the Council provides written comments on the NWMO's work. Previous comments were provided in the following documents:

- The NWMO's Final Study Report, *Choosing a Way Forward – The Future Management of Canada's Used Nuclear Fuel* (2005)
- The NWMO's Triennial Report 2008 to 2010, *Moving Forward Together* (2011)
- The NWMO's Triennial Report 2011 to 2013, *Learning More Together* (2014)
- The NWMO's Triennial Report 2014 to 2016, *Progress Through Collaboration* (2017)
- The NWMO's Triennial Report 2017 to 2019, *Moving towards partnership* (2020)

In addition, several Council members have participated in activities related to the NWMO's work or the context in which it occurs.

On Nov. 21-22, 2020, David Cameron chaired the Canada/U.K. Colloquium on Nuclear Energy. The Colloquium is in its 50th year; it was set up by Paul Martin Sr. when he was high commissioner to the U.K. Each year, a different topic is chosen, and a representative group from each of the two countries come together to discuss it; in 2020, the event was hosted by the Munk School of Global Affairs & Public Policy at the University of Toronto. Council members Stella Swanson and Derek Lister, as well as NWMO CEO Laurie Swami, also attended.

In November 2020, Dean Jacobs attended the NWMO's annual Indigenous Knowledge and Western Science Workshop, held online. He also attended the workshops in 2021 and 2022.

In April 2021, Monica Gattinger chaired a panel session for the NWMO's Canadian Radioactive Waste Summit.

On Aug. 19, 2021, Derek Lister gave a seminar in the Engineering Faculty at the University of New Brunswick in Fredericton: "Canada's Policy for the Management of Used Nuclear Fuel: NWMO's APM."

Derek Lister became a Member of the Order of Canada on Nov. 22, 2019, and at his investiture on May 13, 2022, the citation noted his membership on the Advisory Council to the NWMO.

The Council's activities are summarized on a yearly basis for inclusion in the NWMO annual report. The NWMO also documents the actions taken by the organization in response to our advice. They are recorded in tracking matrices, which are posted on the NWMO's website, in the [Advisory Council section](#).

1.3 EVALUATION FRAMEWORK

In order to fulfil our obligations to provide an independent review of the NWMO's work, we developed criteria for evaluation. In developing these criteria, we considered the mandate and mission of the NWMO, which are described earlier in the NWMO's triennial report. We paid particular attention to the organization's [Ethical and Social Framework](#), and to the experience and recommendations of the Seaborn Panel, a Canadian Environmental Assessment Agency panel chaired by Blair Seaborn between 1989 and 1998. The panel examined the disposal concept for used nuclear fuel management proposed by Atomic Energy of Canada Limited (AECL) – placement in a deep geological repository. A major finding in the panel's report, entitled [Report of the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel](#), was that while the concept was technically sound, it did not have sufficient public support to allow the government to proceed.

Advisory Council evaluation criteria/principles

In 2005, the Council developed a statement – [How the Advisory Council of the Nuclear Waste Management Organization Intends to Fulfill its Mandate](#). The statement included four evaluation criteria (comprehensiveness, fairness and balance, integrity, and transparency) to provide a basis for our assessment of the NWMO's work.

In 2010, 2013, 2016 and 2019, we updated these criteria. Just as one of the cornerstones of Adaptive Phased Management (APM) is adaptability, the evaluation criteria are also slightly modified over time to reflect the evolution of the NWMO's work. In 2021 and 2022, we reviewed the criteria and concluded they stand, along with the NWMO's Ethical and Social Framework, as solid principles by which to evaluate the NWMO's work over the last three years, and to look ahead.

Advisory Council evaluation criteria/principles:

1. **Comprehensiveness.** Is the NWMO effectively evaluating and taking into account all reasonable alternative approaches and experiences of other organizations and jurisdictions? Is the NWMO comprehensively planning for all aspects of the project, including siting, transportation, and moving staff to the host community? Is the organization appropriately assessing the consequences to the community of the arrival of a major project? Is the organization itself evolving and changing to keep pace with the growing and emerging needs of the project? Is the NWMO identifying and proactively mitigating political, policy, regulatory and legal risks associated with project approval and construction? Is the organization appropriately incorporating Indigenous Knowledge? In addition to answering these questions, we evaluate how effectively the NWMO has integrated the guidance and knowledge it acquired from the [APM Geoscientific Review Group](#) (APM-GRG), the [Council of Knowledge Holders](#) (formerly named the Council of Elders and Youth) and the [Municipal Forum](#) into its work.
2. **Fairness and balance.** Is there fairness and balance in the siting process as the NWMO seeks to ensure there is a compelling demonstration of willingness on the part of the communities at the site selected? Is adequate consideration being given to diverse points of view and representativeness in the voices sought out and considered? Is due consideration being given to fairness and balance in the treatment of communities that are not retained in the site selection process, of communities on transportation routes, and of NWMO staff as the organization plans its human resources requirements in the host community?

3. **Integrity.** Is the NWMO fulfilling its mandate with integrity, honesty and consistency? In seeking partnerships with communities, including Indigenous communities, is it respectfully undertaking meaningful deliberation and shared decision-making with those communities?
4. **Transparency and accountability.** Is the NWMO at all times transparent and accountable to the public, communities, government and stakeholders? Are decisions and activities clearly communicated? Is the NWMO appropriately involving communities in defining safety issues of societal concern?
5. **Technical and societal strength.** Does the NWMO have the human resources required to address the engineering and scientific dimensions of site characterization, repository design and safety assessment? Equally, does the NWMO have the human resources necessary to ensure the accurate understanding of the societal and Indigenous dimensions of the site selection process, as well as the delineation and evaluation of alternative transportation corridors? Is adequate provision being made to build capacity in the communities remaining in the site selection process, and once a site is selected, having in place, through retention, development and recruitment, the highly skilled people needed at the site?
6. **Financial capacity.** Does the funding formula adequately reflect the costs of the APM approach to dealing with Canada's nuclear fuel waste? Are cost estimates being kept up-to-date, and are financial contributions being adjusted to reflect these estimates?
7. **Culture of learning.** Is the NWMO actively pursuing new ideas and perspectives, and applying its learning – regarding science, technology, Indigenous Knowledge, history, ethics, sociology and culture – in an effective way? Is new knowledge being absorbed by its own staff, shared adequately with its partner organizations, and reflected adequately in all aspects of the work and activities of the organization?

In this triennial report, we provide our assessment of how effectively the NWMO is carrying out its mandate when viewed in light of these criteria/principles. This report focuses on the critical “pivot point” of planned site selection in 2024 (amended in 2022 from 2023) and the associated strategic imperatives we outlined in our Triennial Report 2017-19. Thus, Section 2 is structured according to those imperatives rather than following the organization of Section 2 in our previous reports, which listed specific activities.

2 Activities and comments: 2020-22

This section provides the Council's comments on the work of the NWMO during the years 2020-22. We provide an overview of our process and activities during the time period (2.1). Then we provide details of our discussions and comments on the NWMO's work (2.2).

2.1 OVERVIEW OF ADVISORY COUNCIL ACTIVITIES

During 2020, 2021 and 2022, the Council held, as usual, four formal meetings each year. Unlike the previous three-year reporting periods of Advisory Council, this one was defined by the COVID-19 pandemic and related lockdowns. Consequently, most of our meetings in this time period were held virtually. As in previous years, we were kept informed by the NWMO about significant activities and events between meetings. Council meetings included progress reports from the NWMO, discussions about current activities and plans, as well as updates on developments in other jurisdictions.

At our request, formal records of our meetings, our annual tracking matrix and copies of conference papers by Council members are posted on the NWMO [website](#). Summaries of our work are published regularly in the NWMO's [annual reports](#).

We viewed and discussed correspondence received from outside parties. At the Council's request, the NWMO staff provided regular updates and assessments of potential risks to the NWMO's work that might result from internal or external socio-political, economic, technical and organizational factors.

In the three-year period 2020-22, as the targeted end date of the site selection process came into sharp focus and the pandemic continued, the Council took a more proactive approach to setting the agenda for its meetings with the NWMO and providing the NWMO with counsel between meetings. The Council asked for increased frequency of updates from the NWMO on the following topics:

- Implementing the *Reconciliation Policy*: Increase to twice per year.
- Preparing for regulatory and political decision-making processes: Increase to four times per year, to become a standing item on the agenda.
- Safety – Implementation of a participatory and social approach to safety: Increase to twice per year.

Council also asked for and received from the NWMO regular briefings on risk-based planning with respect to the timing of site selection.

In order to prepare this triennial report, Council held a number of member-only meetings. This began in early 2021 and continued until January 2023.

Advisory Council meetings

2020

May 8
June 8
Sept. 21
Dec. 8
(included strategic issues discussions with Board of Directors)

2021

Jan. 7*
Feb. 2*
March 22
June 14
Sept. 20
Dec. 7
(included strategic issues discussions with Board of Directors)

2022

March 21
March 22*
May 16*
June 13
June 14*
June 24*
Sept. 19
Sept. 20*
Nov. 15*
Dec. 5
(included strategic issues discussions with Board of Directors)
Dec. 6*

2023

Jan. 6*

* Working sessions to prepare Triennial Report

The Council's activities include participation on other advisory groups to the NWMO. We have a principal representative on each of the Municipal Forum and the Council of Knowledge Holders, as well as an alternative representative for both groups. These representatives provide regular verbal reports and updates to the Council on the activities of these groups.

Guests

During the three-year period, the Council welcomed several guests to attend our meetings.

On March 22, 2021, two representatives from the Government of Canada attended the Advisory Council meeting. One was Shawn Tupper, who was at the time Associate Deputy Minister, Natural Resources Canada. The other was Jim Delaney, Director, Natural Resources Canada. Mr. Tupper and Mr. Delaney provided to the Advisory Council an update on the Government of Canada's nuclear file.

In March 2022, Pat Beauchamp, Vice-President, Data + Analytics at Hill+Knowlton Strategies, was invited to participate in an update to the Council of the NWMO's visibility and communications strategy.

The Council met with Tom Isaacs, the chair of the external Site Selection Review Group (SSRG), on Dec. 7, 2021. We asked to meet again with the SSRG in 2022 to receive an update on how the group is addressing some of the many complexities associated with site selection. This update was provided on Sept. 19, 2022.

On June 13, 2022, the Council received a presentation on the Great Earth Law by Indigenous Elder Fred Kelly. Elder Kelly is a consultant, spiritual advisor and citizen of the Ojibways of Onigaming, a community of the Anishinaabe Nation in Treaty 3.

On Dec. 5, 2022, the Council met with Mollie Johnson, Associate Deputy Minister, Natural Resources Canada, for an informal exchange of views.

Responding to Triennial Report 2017-19 recommendations

One of the Council's activities in 2020-22 was reviewing with the NWMO how the organization was addressing the Council's recommendations and suggestions from the Triennial Report 2017-19. The manner in which these recommendations were dispositioned is discussed in this chapter and is available on the NWMO [website](#).

2.2 DISCUSSIONS AND COMMENTS ON THE NWMO'S ACTIVITIES: 2020-22

Our discussions on the NWMO's activities from 2020 to 2022 were wide-ranging, covering all aspects of the organization's work.

We followed, in particular, how the NWMO was addressing the Council's recommendations and suggestions from the Triennial Report 2017-19. In that report, in Section 3, we noted four emerging strategic imperatives for the organization's attention. They were:

1. Ensuring the integrity, fairness and comprehensiveness of the site selection process;
2. Implementing the *Reconciliation Policy*;
3. Preparing for regulatory and political processes; and
4. Preparing the NWMO itself and communities for upcoming transitions.

We also identified three continuing items of importance. They were:

5. Safety;
6. Social willingness; and
7. Transportation.

The comments below refer first to these seven items and then to other items that the Council reviewed.

2.2.1 *Emerging strategic imperative: Ensuring the integrity, fairness and comprehensiveness of the site selection process*

For more than 10 years, the NWMO has been engaged in a multi-year, collaborative process to identify a site that will safely contain and isolate Canada's used nuclear fuel in a deep geological repository. The site selection process was initiated in 2010, and over the next two years, 22 municipalities and Indigenous communities voluntarily expressed interest in learning more and exploring their potential to host the project. Over time, the NWMO gradually narrowed its focus to two potential sites, through extensive social engagement and technical site evaluations to assess the safety of the repository and transportation, and the potential to build supportive and resilient partnerships.

Siting activities reviewed by the Council in 2020, 2021 and 2022 were focused on two remaining areas, both located in Ontario – the Wabigoon Lake Ojibway Nation (WLON)-Ignace area in the northwest and the Saugeen Ojibway Nation (SON)-South Bruce area in the south.

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.2.1)

We reviewed with the NWMO how it was addressing our recommendations and suggestions from Section 3.2.1 of our Triennial Report 2017-19. In that report, we noted that as the site selection process draws to a close, it would be necessary for the NWMO to ensure that the process used to select the preferred site is sound and defensible. The organization would need to stay true to the values that have served it well over the last many years. It would also need to demonstrate that it has continued to work very closely and collaboratively with communities, including Indigenous communities, in defining social willingness, ensuring community well-being, and building long-term resilience and capacity.

The Council noted it was vital that all decisions be clearly justified, the process be comprehensive, the rights of all parties be respected, and communications be effective.

In the years 2020, 2021 and 2022, the NWMO reported to the Council that it agreed with this advice and continued to keep these points at the forefront of planning and managing the site selection process.

We were assured that expert third parties are involved at each critical decision point, and we regard this as a key strength of the NWMO's site selection process. In the geoscientific realm, assessments are conducted using external contractors, and the [Geoscientific Review Group](#) (GRG) reviews that work. In the environmental realm, assessments are conducted using external contractors, and the [Environmental Review Group](#) reviews that work. In terms of partnership and willingness, assessments are conducted through external contractors, and the [Site Selection Review Group](#) (SSRG) reviews that work. In the three-year period 2020-22, the Council received a briefing and several updates from the SSRG and a briefing from the GRG.

Periodic updates were provided to the Council on how the NWMO was moving forward in terms of partnership and willingness. We discuss this in more detail in Section 3.

Discussions and comments 2020-22

Much of the Council's advice and guidance on site selection in these three years took into consideration that this time frame was contiguous with 2023, the year the NWMO had long said the comprehensive site selection process would draw to a close. The organization would select either the WLON-Ignace area in northwestern Ontario or the SON-South Bruce area in southern Ontario.

Unlike the previous years of the site selection process, this three-year period was defined by the coronavirus (COVID-19) pandemic's various waves and subsequent lockdowns. Because of the impact of the pandemic, and in particular the impossibility during much of the pandemic period of working face-to-face with the communities in developing confidence and mutual understanding, Council members discussed amongst ourselves and with the NWMO whether consideration should be given to delaying the final site selection until full confidence in the depth and strength of the relationships could be achieved. We told the NWMO we considered it a high priority that the organization undertake an early decision-making protocol and communication strategy regarding any potential change. Concerns related to this matter drove our requests for more frequent updates on risk-based assessments.

In August 2022, the NWMO announced that the timing for the site selection milestone was delayed by a year. It is now planned for 2024 rather than 2023. The Council supported this decision because it appropriately aims at striking a balance between continuing to move the project forward while providing the time to get it right.

2.2.2 *Emerging strategic imperative: Implementing the Reconciliation Policy*

In 2019, the NWMO released its [Reconciliation Policy](#) to apply to all its activities. This arose from the long-standing presence and guidance of the NWMO's Council of Knowledge Holders. Reconciliation, as defined by the [Truth and Reconciliation Commission of Canada](#), is an ongoing process of establishing and maintaining respectful relationships with First Nation, Métis and Inuit peoples. In addition to the policy, the NWMO has issued a Reconciliation assessment tool, an important and novel instrument in determining the effectiveness of its policies and procedures.

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.2.2)

In our previous report on 2017-19, the Council congratulated the NWMO for embracing the principles outlined in the *Reconciliation Policy* and for continuing to follow guidance from the Council of Knowledge Holders.

The Council noted that making the *Reconciliation Policy* and assessment tool increasingly central to activities was an opportunity and a challenge – to keep the policy alive and continuously weave Reconciliation into the fabric of the organization. We suggested the NWMO ask itself: Is engagement with Indigenous communities deep enough? Is it correcting its course where necessary? Is it continuously looking at its relationships and initiatives through a Reconciliation lens?

The NWMO reported to the Council it is continuing the process of applying the Reconciliation assessment tool to policies, procedures and standards. It stated that its Indigenous Relations team worked with an Indigenous-owned firm specializing in Indigenous evaluation and monitoring to create its annual Reconciliation report and Indigenous Relations dashboard, which will be evaluated against its Reconciliation baseline measurement to ensure it is meeting the commitments outlined in the *Reconciliation Policy*.

The NWMO further reported that it identified areas of improvement for the Reconciliation assessment tool and revised it to be more user-friendly, provide more clarity and ensure it is more accessible to facilitate deeper dialogue.

Discussions and comments 2020-22

Over the years 2020-22, the NWMO provided regular updates on Reconciliation to the Council.

The Council heard that in 2021, a large majority of the NWMO's staff had completed Indigenous cultural awareness training, as well as more advanced Reconciliation training.

Over the three-year period, the Council provided input on factors for the NWMO to consider in broadening and deepening Reconciliation efforts. We discuss this in more detail in Section 3.2.7.

2.2.3 *Emerging strategic imperative: Preparing for regulatory and political processes*

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.2.3)

In 2019, the Government of Canada put in place new impact assessment legislation, the [*Impact Assessment Act*](#).

In our Triennial Report 2017-19 (Section 3.2.3), we recommended that the NWMO work closely with the federal government to understand the evolving regulatory landscape, and that, equally, the federal government help to provide clarity and certainty with regards to what was necessary within the new regulatory parameters. The Council noted the NWMO needs to ensure decision-makers are made aware of the robust processes by which Adaptive Phased Management (APM) was designed and is being implemented.

On the regulatory side, we suggested it would be necessary for the NWMO to obtain a high degree of confidence that it is going to meet the regulatory requirements to move forward for both the selected

repository site and transportation of used nuclear fuel to the site. This would include preparing for formal impact assessment submission to the extent possible for both potential siting areas so long as they remain in the siting process.

At the time, the Council stressed the importance of clear communications when talking about this aspect of the NWMO's work. We suggested the organization aim very high in this regard, performing at the highest international standard on its technical, social and engagement communications work, as part of planning for the regulatory phase.

On the political side, we noted the NWMO would need to work closely with all provincial and federal governments involved, as well as opposition parties, not only to clarify the regulatory processes required to assess the project, but also to seek and receive from them clarity on their expectations and concerns. We encouraged the NWMO to start working more regularly with central agencies of the federal government, in particular the Privy Council Office, in addition to individual departments. We advised the NWMO and pertinent government bodies to work together to ensure there was a mutual and continual exchange of information.

Discussions and comments 2020-22

In the years 2020-22, the NWMO reported to the Council that it agreed with this advice. It continued to assure us that its overriding objective in implementing Canada's plan is protecting people and the environment for generations to come. The organization understands it will have to demonstrate that the project meets or exceeds strict regulatory requirements to protect the health, safety and security of people and the environment, while also respecting Canada's international commitments.

Over the three-year period, the Council was updated on the preparations being made by the NWMO for the impact assessment process and licensing by the Canadian Nuclear Safety Commission (CNSC). The NWMO intends to launch these processes in 2025 for the selected siting area, and we noted it was critical to start planning immediately.

In keeping with our advice, the NWMO continued to maintain and expand federal government outreach, with a particular focus on Natural Resources Canada and across other departments that will be involved in the impact assessment. The NWMO undertook to invite senior representatives from Natural Resources Canada to meet with the Council, which we found helpful. The Council asked the NWMO to confirm it has been interacting regularly with the Impact Assessment Agency of Canada (IAAC) and suggested that it might be appropriate in future for the Council, together with the NWMO, to meet with representatives from the IAAC and perhaps also Environment and Climate Change Canada.

We suggested the NWMO keep a watching brief on other projects that are making their way through regulatory processes for impact assessment and licensing, and the NWMO has followed this advice. This includes monitoring developments on existing projects, as well as processes for Indigenous-led assessments.

The Council asked for further discussion at our September 2022 meeting on the subject of preparing for the regulatory decision-making process. The purpose of this discussion was to gain a better understanding of issues that might arise, as well as the plans of the NWMO, particularly in relation to the adjusted timetable for site selection and the nature and extent of Indigenous involvement in impact assessments per the *Impact Assessment Act*. We discuss this topic in more depth in Section 3.2.3.

2.2.4 Emerging strategic imperative: Preparing the NWMO itself and communities for upcoming transitions

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.2.4)

In our Triennial Report 2017-19 (Section 3.2.4), the Council noted that the period 2020-24 would have a major impact on the NWMO itself.

The organization would undergo a transition in the nature of its work, from having a site selection focus to having a project implementation emphasis. Internally, the NWMO would need to ensure it has the human, organizational and information resources in place to proceed with implementing Canada's plan for the long-term management of used nuclear fuel.

We suggested the organization prepare for a major upheaval in moving resources from its current location in downtown Toronto to the selected site, either the WLON-Ignace area in northwestern Ontario or the SON-South Bruce area in southern Ontario. The Council suggested it was critical that the NWMO prepare immediately for this transition and continue to retain and recruit the highly skilled people it needs to carry out its mandate. We recommended the NWMO outline the impact that a major move from Toronto to a small community would have on the organization and on the community.

Simultaneously, we suggested the organization would need to support the selected site with capacity-building and other initiatives. The APM project represents a large social, economic and technical project for communities in the selected region, including Indigenous communities and neighbouring municipalities. We felt it was crucial for the NWMO to attend to both its own transition priorities and the transition-related and infrastructure-related needs of these communities.

The organization assures us it is exploring the needs of communities pertaining to the upcoming transition through its ongoing partnership road map discussions, as well as work it is doing to develop multi-year funding agreements and near-term investments.

Among initiatives the NWMO is undertaking with communities to envisage the project in their area, implementation plans have begun to lay out dates for key activities, register associated human resources requirements and make other preparations.

Discussions and comments 2020-22

Three years into this five-year time frame, the Council has been assured the NWMO is continuing to advance its staffing plan in preparation for mobilization to the selected siting area. We note there were senior staff changes in the organization to prepare for next steps and emerging needs. Workforce projections are being completed in each of the two remaining siting areas.

The extension of the site selection timeline to 2024 will delay but not lessen the impact of the upheaval on the organization. The NWMO provided the Council with information on the age distribution of current staff members, statistics that may indicate there will be major staff departures due to retirement in the next several years. The Council advised the NWMO to confer with other industries that have had to recruit and retain staff in less populated areas and identify relevant strategies and tactics that can be implemented before and at site selection.

2.2.5 Continuing item of importance: Safety

A concept for the deep geological disposal of nuclear waste that was developed by Atomic Energy of Canada Limited (AECL) was reviewed by a federal environmental assessment panel (the Seaborn Panel) over a period of 10 years, from 1988 to 1998. Two of the key panel conclusions from the [Seaborn Report](#) were:

- “Safety is a key part, but only one part, of acceptability. Safety must be viewed from two complementary perspectives: technical and social.”
- “From a technical perspective, safety of the AECL concept has been on balance adequately demonstrated for a conceptual stage of development, but from a social perspective, it has not.”

Over many years, the Council has emphasized that these dual components of safety, i.e., both the technical and the social perspectives, must be fully incorporated into NWMO safety analyses.

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.3.1)

Six years ago, in our Triennial Report 2014-16 (Section 3.5.4), we recommended that the NWMO develop a participatory approach to engage the public and potential host communities in identifying, analyzing and addressing safety concerns. Three years later, in our Triennial Report 2017-19 (Section 2.2.1), we reported that we were pleased to see the continued prominence of safety in the NWMO’s work, and acknowledged that specific steps were being taken to define what safety means from a social perspective.

Discussions and comments 2020-22

In the period 2020-22, the NWMO continued to assure the Council that it recognizes the importance of taking a participatory approach to understanding and addressing the safety concerns expressed by potential host communities, and provided the Council with periodic updates on the specific steps being taken in this regard.

The NWMO shared with the Council documentation it is developing on the social definition of safety, which includes background on how this has been incorporated in the site selection process from the beginning and how it continues to be incorporated into the program going forward. We discuss this topic in more depth in Section 3.2.5.

2.2.6 Continuing item of importance: Social willingness

The technical end point of APM, as stated by the NWMO, is the centralized containment and isolation of Canada’s used nuclear fuel in a deep geological repository located at a safe site in an area with informed and willing hosts.

The Council continues to focus a great deal of attention on the subject of willingness. Six years ago, in our Triennial Report 2014-16 (Section 3.8), we recommended that the NWMO explain, in its communications with the public and communities in the siting study areas, how its understanding of the willing host concept has been enhanced to include supportive and inclusive partnerships.

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.3.2)

We noted in our Triennial Report 2017-19 (Section 2.2.1) that the NWMO has shared with us how the willing host concept is evolving to include supportive and inclusive partnerships, based on mutual trust. We expressed satisfaction with the NWMO's approach to this critical area and noted that the organization has a number of excellent policies and plans in place that continue to guide its work, including the Ethical and Social Framework and the *Reconciliation Policy*. We have been assured the willing host concept will: be jointly defined, reflect mutual trust and working together, take into consideration multiple indicators, and be clearly communicated to communities and the public.

We cited social willingness as a continuing item of importance (Section 3.3.2). The Council stated that defining "social willingness" would be one of the most challenging and innovative activities in the next phase of the NWMO's work.

We suggested that as the number of potential siting areas is narrowed from two to one, it would be important for the NWMO to provide clarity and transparency on how it, in collaboration with communities, defines willingness. Then, beyond site selection, partnerships must be based on dynamic and resilient relationships to sustain willingness into the future.

We recommended that as the organization seeks to advance partnership discussions, it continues to engage with the Indigenous communities directly involved, as well as surrounding Indigenous communities and organizations as appropriate.

Throughout the years 2020, 2021 and 2022, the Council received regular updates on how the NWMO is advancing siting engagement, including Indigenous engagement through the lens of Reconciliation. It also received regular updates on the NWMO's partnership road map, which is focused on attaining social willingness, as well as developing mutually agreeable draft hosting agreements.

Discussions and comments 2020-22

The Council had discussions with the NWMO about hosting agreements and the different forms they might take for the potential host communities. We provided ongoing advice with respect to their development. The Council also provided advice about the importance of Indigenous laws, treaty agreements and consent mechanisms in discussions about willingness. The Council asked the NWMO about planning milestones and timelines for hosting agreements and secondary agreements. In 2022, discussions on potential partnership agreements were in the early stages.

2.2.7 Continuing item of importance: Transportation

The NWMO has responsibility for establishing safe, secure and socially acceptable plans for transporting used nuclear fuel from the current interim storage sites to the used fuel repository.

Addressing our recommendations and suggestions from the Triennial Report 2017-19 (Section 3.3.3)

In our Triennial Report 2017-19 (Section 3.3.3), the Council stressed that engagement with respect to transportation must remain a very high priority for the NWMO. We recommended the organization develop a deep and thorough understanding of what safe transportation means to communities along the transportation corridors, and demonstrate it is able to transport used nuclear fuel safely to the two remaining sites in a manner that addresses public concerns.

Discussions and comments 2020-22

In the years 2020-22, the Council was provided with updates on transportation engagement. We also received for review and comment the NWMO's transportation planning framework and *Preliminary Transportation Plan*. We heard that both documents are living documents to be updated regularly based on public feedback and as planning evolves.

The Council was pleased to see the progression of the transportation work. We discussed how Indigenous Knowledge was being drawn upon in the transportation plans and asked the NWMO to consider how to incorporate it in upcoming transportation work.

We understand the NWMO will continue to lead dialogue with municipalities, Indigenous communities, municipal associations, governments, first responders and Indigenous organizations, regarding transportation plans. This dialogue is intended to raise awareness and understanding of the technical basis for confidence in safety, and to invite discussion of social expectations and requirements. The NWMO has reported it will also continue to develop materials that are accessible to all interested parties and address the public's questions and concerns on this important topic.

2.2.8 *Other significant subjects of discussion*

In addition to discussing in depth the emerging strategic imperatives and continuing items of importance identified in our last report, over the three-year period, the Council also focused attention on other activities.

Building sustainable relationships

We kept close track of how the NWMO continues to build sustainable relationships with the potential host communities, paying particular attention to how the Ethical and Social Framework is being applied to this work. We noted how the NWMO is working collaboratively with municipal and Indigenous governments with respect to methods of assessing willingness and developing hosting agreements. We were updated regularly on the range of engagement activities used with communities in each siting area, as well as the NWMO's adaptive responses to feedback from communities with respect to that engagement.

In addition, the NWMO reported on its efforts to expand its relationships and raise the profile of the project across Canada, given increasing interest and scrutiny as the siting decision approaches. We were informed of a broad range of the NWMO's activities designed to gauge perceptions and raise awareness of the project among elected officials, NGOs, the nuclear industry and the general public in order to track progress and identify risks.

These activities included hearing from critical voices at public events, conducting focus groups and polls, interviewing members of Parliament and political staff, participating in industry groups, tracking media and social media landscapes, and monitoring recent progress with international nuclear waste management facility siting decisions (all of which are for deep geological repositories).

The Council also noted the NWMO's work monitoring and responding to critical political voices among elected officials in Great Lakes states. The Council asked for and received assurance that the NWMO is adequately resourcing the growing requirement for communications, engagement and relationship-building beyond the potential host communities.

Technical program

We were updated regularly on the NWMO's technical program, including developments on used fuel containers, copper-coating systems, closure welding, serial manufacturing, the transportation package system, bentonite clay buffer boxes, borehole drilling, and the safety cases that will be analyzed for the preferred site. We have consistently emphasized the critical importance of communicating the technical aspects of APM in plain language to all communities involved. We provided our input on how the NWMO is enhancing public discussions about the future on-site process of preparing fuel bundles for underground storage.

The Council received updates on corrosion aspects of the copper-coated containers in their emplaced environments and the extensive research that is being done to ensure adequate protection of the used fuel for the required millennia.

We were also apprised of work regarding the process of geosynthesis, which integrates all the information gathered regarding the geosphere (for example, geophysical surveys, surface mapping, deep core drilling, borehole testing), which is underway for both potential sites. The Council has asked to be kept informed on progress and results.

The NWMO shared with the Council that it published *Confidence in Safety* reports for both potential siting areas, reflecting years of research and field work by its science and engineering teams. We suggested these reports form the basis for lay-language materials to be released widely in the coming years.

The reports form the basis for the NWMO's confidence that a deep geological repository can be constructed at either potential site – from the characteristics of the geology to the sites' capabilities to support the safe construction, operation and closure of the repository.

After a site with willing and informed hosts is selected, further technical and social studies, along with more work on Reconciliation, will be undertaken at the selected site. These efforts will provide additional rigour to the already comprehensive repository design and formal safety case that will be submitted for regulatory review through the federal impact assessment process and licensing by the CNSC.

Financial surety and new cost estimate

The *Nuclear Fuel Waste Act* Section 16(2)(b) requires the NWMO to address the cost and funding of the long-term management of used nuclear fuel. The Council asked for and received appropriate briefings on the NWMO's budget forecast for the next five fiscal years to implement the strategic plan.

We also reviewed the new cost estimate the NWMO issued in 2021, updating its cost estimate from 2016. These estimates provide the basis for financial planning and trust fund deposits for future years, based on an expected volume of fuel bundles. The total lifecycle cost of the project covers many decades of activity – from the beginning of site selection in 2010 to the completion of the project about 175 years later.

Knowledge management and risk assessment

We were kept apprised of how the NWMO is managing knowledge. The NWMO also described how its *Reconciliation Policy* and associated processes provide mechanisms for identification and respectful use of Indigenous Knowledge held by Indigenous communities. We were pleased to be provided with the

NWMO's business risk assessments, including risk mitigation measures. This was especially important in a changing and evolving organizational environment.

New reactor technologies

A fast-developing issue that will no doubt have implications for APM in the near-to-medium term is the development and possible deployment of different reactor technologies, and consequently, different forms, volumes and radioactivity levels of used nuclear fuel. This includes small modular reactors. Whatever reactor types may be developed in Canada, there will be a need for used fuel to be managed by the NWMO through the APM project. The Council and the NWMO continue to monitor developments and discuss implications.

Low- and intermediate-level waste repository

Early in the three-year time frame of this report (in 2020), Ontario Power Generation (OPG) withdrew from the environmental assessment process for its deep geologic repository (DGR) project for low- and intermediate-level waste (L&ILW) to be located near Kincardine, Ont.

This decision was made after almost 20 years of work involving: extensive interactions with communities; detailed scientific and technical studies; referral of the project to a Joint Review Panel (JRP); preparation of an Environmental Impact Statement and Preliminary Safety Report; public hearings; submission of the JRP Report to the Minister of Environment and Climate Change; a request from the Minister for OPG to provide further information and/or additional studies on alternate locations for the repository; cumulative effects and mitigation commitments; and a vote by the members of SON to reject the proposed project.

Many of the issues raised during assessment of the OPG DGR project are the same or similar to the emerging and continuing strategic imperatives identified in this report. For example, many submissions to the DGR JRP emphasized that "social safety," as well as technical safety, must be demonstrated and argued that social safety had not been sufficiently demonstrated. There was a strong connection between social safety and the issue of evidence required to establish that communities were willing hosts for the DGR.

The DGR JRP received a substantial amount of information about how OPG's public engagement program could be improved in order to achieve, in the words of one participant, a greater level of trust and legitimacy. The JRP noted that while OPG went to considerable lengths to disseminate accessible information about the project, a more dialogue-based engagement model was recommended.

OPG withdrew the DGR project after the vote by SON. This decision reflected a publicly announced agreement between SON and OPG in 2013. The agreement stated that "OPG will work with the SON community to reach SON support for the underground storage facility before OPG proceeds with construction." The work committed to by both parties to the agreement failed to produce the support needed.

The NWMO's strong focus on establishing that host communities are, indeed, willing, as well as its commitment to taking the time to build sustainable relationships with Indigenous communities in accordance with its *Reconciliation Policy*, are consistent with the lessons learned from the DGR project. The Council provides further comments on these and other strategic imperatives in Section 3.

2.2.9 Conclusion

The Council notes that the NWMO has followed up on the recommendations we made in our last triennial report. We congratulate the NWMO for implementing an innovative, collaborative and comprehensive approach to advancing Canada's APM plan for used nuclear fuel. In Section 3, we have identified some continuing items for special attention as the organization prepares for a major shift during the upcoming planning period.

3 Implementing Adaptive Phased Management 2023-27

In this section of the report, we review the NWMO's draft five-year strategic plan, *Implementing Adaptive Phased Management 2023-27*, and provide comments and recommendations regarding upcoming work.

3.1 REFLECTIONS ON THE PLANNING PERIOD

While the NWMO's implementation plan appropriately outlines the organization's planning priorities over the next five years, its business-as-usual tone may belie the challenges ahead.

The Council notes the NWMO is entering a period that includes, in 2024, the planned selection of a single site for the deep geological repository. The announcement will draw greater attention and no doubt increased opposition to the work of the NWMO, as with any project connected to nuclear power.

Reaching this milestone after more than 20 years will fundamentally alter the organization's work, location and strategic focus. The NWMO's sight lines will shift to the next stated milestones: embarking on regulatory and political decision-making processes, which are by no means clearcut, and moving much of its workforce to the selected site.

All this is unfolding in a public environment of marked complexity and uncertainty.

Progress on the climate change agenda is proving difficult domestically and globally as issues like energy security, affordability and food security grow in salience. The global economic context is complex, with the return of high inflation, a possible recession and supply chain challenges. And the Russia-Ukraine war, which began in February 2022, is resulting in many geopolitical transformations and has raised questions about the safety of nuclear facilities in conflict zones. At the same time, there is growing awareness, as well as debate, about the potential contribution of nuclear power to meeting global net-zero commitments.

Here, in Section 3, we have identified seven strategic imperatives for careful attention as the NWMO implements its five-year plan.

3.2 STRATEGIC IMPERATIVES

3.2.1 *Deepening trust with host communities as the site selection process draws to a close and partnerships develop*

As the five-year planning period begins, there are two potential siting areas remaining in the site selection process. They are the Wabigoon Lake Ojibway Nation (WLO)-Ignace area in northwestern Ontario and the Saugeen Ojibway Nation (SON)-South Bruce area in southern Ontario. These two areas, having remained in the site selection process throughout, have been the subject of many years of social engagement and technical site evaluations as the NWMO has explored the potential to build supportive and resilient partnerships and assessed the safety of the repository in those locations.

In 2024, the NWMO plans to select one of these areas as the preferred site. It is imperative that this decision is based on a solid foundation of trust.

Gaining, strengthening and sustaining trust among the Indigenous and non-Indigenous communities that are involved, their neighbours, the media and the local public is no small feat. Current external forces could make it more challenging to foster trust. Controversies surrounding COVID-19 public health measures and vaccines have taught us that a percentage of the population lacks trust in scientific approaches to managing risks. The Russia-Ukraine war may negatively affect public perceptions of the risks associated with nuclear power. Such perceptions are important components of addressing safety from a social perspective. Adding to this, in Indigenous communities, trust is often entwined with legacy issues such as residential schools and the impact of previous industrial activities.

The Council believes selecting one site for the deep geological repository will require a continuation and intensification of social engagement with potential host communities to build trusted relationships. This is critical to the success of the whole enterprise and will be needed by host communities to withstand negative attention on the project that may arise.

We laud the NWMO for the respectful manner with which it has developed and maintained relationships.

We recommend that the organization continue to increase the depth and breadth of relationships with potential host communities in order to build trust and sharpen its understanding of the views of people in local municipalities, Indigenous communities and neighbouring communities.

3.2.2 *Engaging with interested parties beyond the potential host communities*

As the Adaptive Phased Management (APM) project gets closer to final site selection, interest in the project will grow rapidly beyond the potential host communities. Once a site is announced in 2024, there will be many new eyes on the project, both nationally and internationally. Multiple and diverse interested parties will emerge in the coming months, ranging from NGOs/civil society organizations in Canada and abroad, to provincial and municipal governments beyond the host communities, to international actors and the public. Many will be interested in learning more about the project. Others will be opposed or critical. Indeed, the emergence of new critical voices has already begun to take place with, for example, opposition to the project in the U.S. Great Lakes region.

Increasingly, the NWMO will need to engage, develop relationships, and communicate with new and diverse actors beyond the host communities. Success of the APM project in the upcoming planning period will hinge in large measure on proactively developing effective engagement and communications strategies. As noted in section 3.2.1 above, it will likely be challenging to build trust and support for the project in the current external landscape, where trust in scientific approaches to managing risk can be elusive and public perceptions of nuclear power may be negatively impacted by the Russia-Ukraine war. At the same time, there is growing recognition – and debate – about the potential role of nuclear energy in mitigating climate change.

Crucially, the logic and approaches for these interactions will often be different from the relationship-building activities the organization has undertaken to date with municipalities, Indigenous communities and local citizens in potential host communities. Some interactions may require the development of trusted relationships with, for example, provincial, municipal and Indigenous governments and organizations beyond the host communities. Others may require more traditional communications vehicles, as with communications to the public about the project. Interactions beyond Canada's borders may require a combination of communications, engagement and relationship-building, and may involve government-to-government diplomacy.

The Council observes with satisfaction that the NWMO is keeping abreast of the external landscape, and as noted in Section 3.2.1, the organization has been working effectively to raise the profile of the project across Canada and gauge opinion about it on an ongoing basis. It has likewise responded well to opposition to the project in the U.S.

Once the final project site is selected, the Council believes these monitoring and engagement activities will become increasingly important – for the NWMO, for the host communities and for the Government of Canada – in support of their commitment to APM in the face of opposition and critique.

In the upcoming planning period, we recommend that the organization continue to increase the depth and breadth of such monitoring, that it proactively engage with and communicate with interested parties in Canada and abroad using leading-edge practices, and that it adequately resource these crucial activities.

3.2.3 *Meeting regulatory requirements*

The Council stays informed of the NWMO's preparations for the regulatory decision-making process. Ultimately, the NWMO will have to demonstrate that the project meets or exceeds strict regulatory requirements to protect the health, safety and security of people and the environment, while also respecting Canada's international commitments.

There are two major regulatory processes governing the APM project. The Canadian Nuclear Safety Commission (CNSC) is responsible for licensing of the APM project under the [Nuclear Safety and Control Act](#), while the Impact Assessment Agency of Canada (IAAC) is responsible for conducting the impact assessment of the project under the [Impact Assessment Act](#). Policy and procedural coherence between and within these processes, currently absent, is fundamentally important in order for the NWMO to carry out its mandate.

Prior to passage of the *Impact Assessment Act* in 2019, the CNSC conducted environmental assessments for nuclear projects. Now that the IAAC is responsible for the impact assessment of the APM project, the specific role of the CNSC in the impact assessment process, and the timing of that role, is unclear.

The IAAC has recently published guidance regarding implementation of the *Impact Assessment Act*, but there remain several questions that require answers. They include: What are the expectations and intentions for Indigenous engagement? What are the plans and processes for collaboration and co-ordination between the IAAC and Indigenous jurisdictions, including the requirement for free, prior and informed consent under [United Nations Declaration on the Rights of Indigenous Peoples Act](#), which became law in Canada in June 2021? How will Indigenous-led impact assessment and Indigenous law align with federal impact assessment and legislative requirements for project approvals? How can proponents such as the NWMO contribute to the IAAC's improved understanding and management of cumulative effects on a regional scale?

Without timely guidance addressing these questions, we recommend the NWMO proactively develop its own rigorous and robust approaches to each of these questions while continuing to engage with the Government of Canada regarding obtaining the guidance needed.

3.2.4 *Enhancing resilience and strength of the NWMO itself and host communities*

As we noted in Section 2.2.4, the NWMO is about to undergo a transition in the nature and location of its work. The substance of its work will change from selecting a site to undertaking regulatory processes and implementing the APM project.

The location of the NWMO's offices will move from Toronto to either the WLON-Ignace area or the SON-South Bruce area. We recognize the organization's work to manage its human resources needs during and after this challenging transition, to maximize job opportunities in the siting area, including Indigenous communities, and to develop capacity in communities through investments in training and education.

With many senior staff nearing retirement age, an appropriate succession plan will need to be in place. The organization will need to recruit and retain personnel with the required skills and expertise, given the move from Toronto to a rural area.

In addition, enhancing the resilience and strength of the host communities, after the site selection process is completed, will be a continuous challenge, requiring sustained efforts from both the NWMO and the communities themselves. Initiatives will need to reflect the individual needs of the respective communities as they manage their way through the different phases of the project. The Centre of Expertise (described in the next section) can play an important role in this exercise. The strength of the communities will not only depend on the resources that they have to manage the project, but also on the communications and shared values that they continue to develop in future phases of the project.

One of the objectives of the process should be to ensure the communities' autonomous capacity to explain and defend the project and their decision to accept it in their region.

We recommend the NWMO develop an integrated strategy to address both the needs of the organization itself as it prepares to mobilize and the needs of the host region to manage the different phases of the project. The strategy should incorporate lessons learned from other organizations of a similar size and scale that have undertaken a major move to a rural location.

A note on the Centre of Expertise

As part of the APM plan, a Centre of Expertise is being planned on the surface at, or near, the repository site. The Council has been receiving briefings on the vision for the centre, which has been described by the NWMO as the future home to a technical and social research program and a technology demonstration program. It will represent a multi-million-dollar investment in the selected area.

The Council supports the NWMO's plan to use the Centre of Expertise to foster inter-community collaboration, as well as to build strong working relationships between the NWMO and its partners. Locating, naming and identifying the mission of the centre could all be processes explicitly designed to bring the area Indigenous and municipal communities together and to build trust and partnership among them. We recommend that the NWMO move forward as expeditiously as possible in developing an Indigenous/municipal joint visioning exercise to encourage that sort of integrated thinking.

An additional mandate: To develop Canada's Integrated Strategy for Radioactive Waste

The NWMO has been given an additional mandate by the Government of Canada: to develop Canada's Integrated Strategy for Radioactive Waste, which will include low- and intermediate-level waste; this is in addition to its mandate to manage Canada's plan for high-level waste. The new mandate is part of the government's [Radioactive Waste Policy Review](#), which recognizes the NWMO's 20 years of expertise in

the engagement of Canadians and Indigenous peoples on plans for the safe, long-term management of used nuclear fuel.

We acknowledge this is an important show of confidence in the NWMO by the government. Since the public does not necessarily distinguish between nuclear projects, particularly if they are implemented by a single organization, the additional mandate could present challenges to the NWMO in terms of the trust, integrity and transparency it is building around APM. Despite assurances from the NWMO that the additional mandate will not put the APM project at risk, we remain concerned it could have a negative impact.

We urge the Government of Canada, which plans to release its modernized radioactive waste policy in early 2023, to work with the NWMO to ensure that such impacts are minimized, especially in the run-up to final site selection planned for 2024.

3.2.5 *Defining safety from technical and social perspectives*

As we noted in Section 2.2.5, defining and addressing safety from both technical and social perspectives is a critical component of success for this project. History tells us that demonstrating the project is safe from a technical perspective is necessary, but not sufficient; it must be considered safe from a social perspective as well (i.e., in the eyes of citizens).

From a technical perspective, the NWMO will continue to develop the site-specific safety assessments required to demonstrate that the project meets or exceeds all regulatory requirements.

Lack of public trust in purely technical safety analyses led to the Seaborn Panel's call for inclusion of safety from a social perspective, as we discuss in section 3.2.1. Trust can be increased not only through the provision of technical information, but also through the continual building of the NWMO's understanding of what safety means to people.

Translating technical analyses (such as how baseline environmental data were formed, how scenarios that were used in modelling of repository performance were selected and how cumulative effects can be defined) into plain language is necessary to achieve a high level of social input and participation. This is fundamental to developing the long-term partnerships and trust that are needed to implement the project. So is listening to the safety concerns of people.

It is essential that the NWMO continue to work closely with all communities involved to identify and address issues that comprise safety from a social perspective. The Council observes with satisfaction that the NWMO is committed to documenting and tracking the progress of that work. We note the organization is developing an overarching framework using established principles underpinning safety from a social perspective. Issues may include such concerns as cultural protection and economic protection, confidence that all accident and malfunction scenarios of social concern have been addressed, and protection of water and cherished landscapes, among many others.

We note that defining safety from a social perspective may be distinctly different in Indigenous communities from non-Indigenous communities and also different from community to community.

We recommend the NWMO complete development of the overarching framework for understanding safety from a social perspective as soon as possible and use the framework to bring together all activities in this realm.

3.2.6 *Achieving willingness*

The NWMO has always maintained a fundamental commitment that the APM project will only proceed in an area with informed and willing hosts, where the municipalities, Indigenous communities and others in the area are working together to implement it.

As site selection approaches, the mutual confidence of the NWMO and partnership communities in the depth and resilience of willingness will be put to the test. We recognize that the NWMO is taking an adaptive and collaborative approach to defining willingness, working with the involved communities. A key part of this work will be to accommodate disparate approaches and schedules.

3.2.7 *Working towards Indigenous consent*

The Council notes the NWMO continues to demonstrate leadership in its effort to seek Indigenous engagement and understand, honour and act on Indigenous perspectives.

As we noted in Section 2.2.2, the NWMO developed a [Reconciliation Policy](#) in 2019 to apply to all its activities. In its detail, discipline and approach, this is an NWMO innovation. In the policy, the NWMO commits to meaningful engagement, including consultation as required, building respectful relationships, and seeking the free, prior and informed consent of impacted Indigenous peoples before proceeding with development of a deep geological repository. Further, the NWMO commits to building relationships with Indigenous communities and municipalities, groups and peoples on a foundation of respect for languages and customs, cultural protocols, and political, social, economic and cultural institutions.

The Council commends the NWMO for its continuing development and implementation of the *Reconciliation Policy*.

We share with the NWMO the understanding that relationships and partnerships must be based on mutual benefits and respect. This takes time. Agreements will need to be living documents, flexible and adaptable over time.

The Council also discusses factors that contribute to the larger context in which Indigenous consent is being sought.

One of the key pieces of federal government legislation that attempts to define Indigenous consent is the [United Nations Declaration on the Rights of Indigenous Peoples Act](#), which became law in Canada in June 2021. This is another example of federal government legislation that requires further clarity. The federal government announced that it is working in partnership with Indigenous peoples on measures to ensure that the laws of Canada are consistent with the act, and on an action plan to achieve its objectives. It has further committed to present an action plan based on the priorities identified by Indigenous peoples and a whole-of-government collaboration by June 2023.

The Council is looking forward to the action plan to clarify what the process will look like to implement the *United Nations Declaration on the Rights of Indigenous Peoples Act* and how it will affect the NWMO's future implementation of site selection and regulatory processes. We are particularly interested in understanding how federal regulatory law and Indigenous regulatory law will work together. Co-ordination in this area is of tremendous importance to ensure clear and consistent expectations of all involved parties.

The NWMO is well positioned to achieve a high level of trust with Indigenous communities and to take an enabling, facilitating and supportive role in seeking free, prior and informed consent. In parallel, where there is a high level of trust, it has been noted by the Council that Indigenous communities can play a role as champions of the project, to deal with issues that arise. The NWMO can likewise support collaboration among Indigenous communities.

While recognizing the NWMO's leadership in Indigenous engagement, the Council recommends the organization critically assess whether engagement is deep enough for the organization to fully understand opinions and perspectives in Indigenous communities.

3.2.8 *Planning for transportation*

As the site selection process draws to a close, the NWMO will need to demonstrate that it is able to transport used nuclear fuel safely to the selected site in a manner that addresses public concerns. As noted in Section 2.2.7, public concerns about transportation will include both technical and social issues.

We note the NWMO is continuing to lead dialogue with municipalities, municipal associations, Indigenous communities and Indigenous organizations regarding transportation plans. The Council anticipates some of those conversations could be marked by strong opposition.

In December 2021, the NWMO released its revised transportation planning framework and the *Preliminary Transportation Plan*. The framework is a socially driven document describing the public's priorities for transportation planning. The NWMO considers 2023 a "pivot" year for transportation as it is preparing for how conversations about transportation will evolve after a site is selected and the project moves into the regulatory decision-making process. The NWMO's work in this area has been well executed and comprehensive.

3.3 BUDGET FORECAST

The Council receives regular briefings on revisions to the NWMO's budget. In 2022, the NWMO presented to the Council the assumptions it used to prepare its budget forecast to implement the five-year strategic plan. We were satisfied with the discussions and reviews, and concluded the budget was appropriate.

4 Reflections on planning for long-term nuclear waste management in Canada

This report has provided an overview of our mandate, our approach and the framework we have used for evaluating the NWMO's work; a summary of our activities over the past three years; comments on the work of the NWMO from 2020 to 2022; and a review of the NWMO's five-year implementation plan.

In this section, we provide our reflections at this critical time in the project.

History leading to the selection of Adaptive Phased Management

Used nuclear fuel has been accumulating in Canada for nearly 60 years, and the amount continues to grow by about 90,000 spent fuel bundles per year. Currently, the country's used nuclear fuel is stored at interim above-ground facilities.

This is not a permanent solution. The work to identify a method of safely managing Canada's used nuclear fuel over the long term spans many decades. Over the last 45 years, a number of studies and reviews have consistently concluded that the management of Canada's fuel wastes should be addressed through the construction of a deep geological repository, a conclusion that aligns squarely with international practice.

Examples of Canadian studies that concluded construction of a deep geological repository is, from an engineering and technical perspective, the appropriate way to manage used nuclear fuel in the very long term include:

- In 1977, *The management of Canada's nuclear wastes* (F.K. Hare, Chairman, A.M. Aitken, J.M. Harrison) – a study prepared under contract for the Minister of Energy, Mines and Resources Canada – (Report EP776. 1977); and
- In 1998, the Seaborn Panel's report, which concluded that from a technical perspective, safety of Atomic Energy of Canada Limited's concept for deep geological disposal was, on balance, adequately demonstrated for a conceptual stage of development. It qualified its findings significantly, however, by stating that safety from a social perspective had not been demonstrated. (*Report of the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel*, Seaborn Panel.)

APM: Selected by government, developed through public engagement

In 2002, the Government of Canada created the *Nuclear Fuel Waste Act* and established the NWMO. As required under the act, a number of alternatives for the management of used fuel waste were studied.

The organization's work over the ensuing five years, involving engagement with communities and individuals across Canada, culminated in 2007 in the Government of Canada selecting Adaptive Phased Management (APM) as the preferred and responsible approach for the management of used nuclear fuel in the long term. APM is both a technical method (what will be built) and a management approach (how it will get it done). The NWMO is mandated to implement APM.

The technical method involves building a deep geological repository in a suitable rock formation to safely contain and isolate used nuclear fuel. It is consistent with the approach to the long-term management of

used nuclear fuel adopted by other countries with nuclear power programs such as Finland, France, Sweden, Switzerland and the United Kingdom.

The management approach involves phased and adaptive decision-making. We emphasize the importance of the A in APM: adaptive. APM is designed to incorporate adaptability in the pace and manner of implementation.

Do not leave the problem for future generations

Used nuclear fuel continues to accumulate in Canada. Canadians and Indigenous peoples told the NWMO during the multi-year engagement process leading up to 2007 that it is important to take action on the long-term management of the country's used nuclear fuel and not to leave the problem to be dealt with by future generations. At this juncture, the NWMO is close to announcing a single site, which will result in increased visibility of the project, and likely vocal opposition. Failure to proceed with APM would in all likelihood lead to the passing of many years before the issue is taken up again. When it is, the same policy option will present itself to the country as the most sensible, if the universal experience of other countries addressing this matter is any guide.

A sound process

The Council continues to hold the view that APM, having been developed in collaboration with Canadians and Indigenous peoples, and in operation since 2007, is a sound process to manage the fuel that has been used and will be produced in the future. It is an adaptable process. It was developed in collaboration with Canadians and Indigenous peoples and is mandated by the Government of Canada. The full costs of its implementation are borne by the waste owners. And APM plays a pivotal role in the sustainability of current and possible future nuclear energy projects, including small modular reactors.

Critical juncture: Selecting one site

As the Council writes this report, the NWMO is on the cusp of selecting a single site for the deep geological repository. This moment represents the apex of a long (approximately 15 years) site selection process that has reduced the number of potentially interested and appropriate communities from 22 to two, a process that has been conducted with exemplary engagement, fairness and transparency.

Taking the final step – selecting a single site – will be a hinge moment in the life of the organization. It will be the culmination of years of consultation and examination, and it will result in a major shift for the NWMO into a qualitatively different phase of its operations – implementation.

To succeed in this transition, the partnership agreements the NWMO develops with the selected site communities – Indigenous and non-Indigenous – must be robust, reflecting a deep commitment and a resilience that are the product of strong mutual trust. A critical underpinning of this trust will be the demonstration by the NWMO that the plan it has developed for dealing with used nuclear fuel is safe from all technical and social perspectives, and is recognized as such by participating communities.

What is needed: Clarity and coherence of policy and regulatory expectations by the Government of Canada

In our last report, the Council stressed that the success of APM relies on the continuing and steadfast commitment of the Government of Canada to this technical and management approach. We note that the government reaffirmed its 2007 commitment to APM on June 23, 2022, in its [response](#) to the NWMO's 2021 Annual Report. We continue to regard this continuing commitment as essential to success.

The government has stated that nuclear power will play a significant role in helping Canada meet its commitment of net-zero emissions by 2050. APM is integral to not only managing the nuclear fuel that has already been used, but also to conversations about Canada's green energy future.

As the NWMO moves into the next phase of its work and selects a single site for the repository, the Council feels compelled to strongly advise the Government of Canada to provide increased clarity and coherence of government policy and regulatory expectations, as outlined in Sections 3.2.3 and 3.2.7, as well as its continuing, visible support for APM.

Both will be crucial to achieve the safe and responsible, long-term management of Canada's nuclear waste.