

March 30, 2022

OPG Proprietary

File No: ██████████

The Honourable Jonathan Wilkinson, Minister of Natural Resources
Natural Resources Canada
radwastereview-examendechetsradioactifs@nrcan-rncan.gc.ca

OPG Response to NRCan Draft Policy on Radioactive Waste Management

Dear Minister Wilkinson,

Ontario Power Generation (OPG) reiterates our appreciation to Natural Resources Canada for the invitation to participate in your review of the federal Radioactive Waste Policy Framework.

This letter includes OPG's response to the Draft Policy on Radioactive Waste Management, as released by your department on February 1 for public comment by April 2, 2022.

OPG is Canada's largest generator of clean, low-carbon electricity from nuclear energy. We safely transport, process and store the by-products, meeting or exceeding all our licence conditions. While practising good stewardship of these materials, and embracing the environmental three Rs (reduce, reuse and recycle), we continue to support the development of lasting solutions for permanent disposal – the right thing to do for future generations. We welcome your initiative to modernize the federal policy framework in alignment with international best practices.

As stated in our earlier submission to the policy review, nuclear energy provides important social benefits; as a safe and reliable source of electricity; in the production of medical isotopes; and as clean, low-carbon energy and, therefore, a vital tool to reach Canada's climate goals. All of society will similarly benefit from a policy that supports sound solutions for the resulting by-products.

We look forward to the final version of the modernized policy, as well as a recommendation from the Nuclear Waste Management Organization (NWMO) on an integrated supporting strategy.

Yours sincerely,

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Encl: (1) Response to draft policy

OPG Response to NRCan Draft Policy on Radioactive Waste Management and Decommissioning

The following is prepared and provided by Ontario Power Generation (OPG) in response to NRCan's public review of Canada's Radioactive Waste Policy Framework.

Benefits of nuclear energy

OPG acknowledges that the draft policy includes, appropriately, the context that nuclear energy provides important benefits to Canadians.

- The draft policy recognizes that nuclear energy is playing an important role in meeting climate targets and achieving a net-zero emissions economy by 2050. As a non-emitting source of electricity generation, it has also contributed to human health by helping to reduce air pollution.
- The draft policy recognizes that Canadian nuclear technology has supplied the world with radioisotopes for life-saving cancer treatments and medical diagnoses.

Regulatory regime

OPG's view is that Canada has a strong regulatory regime, with the Canadian Nuclear Safety Commission (CNSC) regulating the industry under the Nuclear Safety and Control Act.

Canada's regulatory regime is aligned with international best practices, guided by the International Atomic Energy Agency (IAEA), a positive characteristic of Canada's system that is fittingly recognized in the policy.

We acknowledge that the policy states that "Protecting the health, safety and security of people and the environment is the federal government's top priority when it comes to nuclear energy and radioactive waste."

Nuclear waste is well regulated in Canada, by the CNSC, and managed safely by the owners, with an excellent safety record at OPG and across Canada. OPG operates in accordance with Canadian legislation and policies such as Nuclear Safety and Control Act, the Impact Assessment Act, and the Nuclear Waste Fuel Act, as well as related policies and tools.

Indigenous consultation and engagement

As stated in OPG's Indigenous Relations Policy, OPG is committed to working with Indigenous communities, proximate to its present and future operations, to foster positive and mutually beneficial relationships that will create social and economic benefits through partnership and collaboration. In 2021, OPG released its first-ever Reconciliation Action Plan (RAP) to support reconciliation with Indigenous Peoples. The RAP will serve as OPG's road map for how it intends to continue to engage and work with Indigenous communities, businesses and organizations.

The Truth and Reconciliation Commission outlined 94 Calls to Action urging all levels of government and non-governmental organizations to work together to repair the harm caused by residential schools and to advance reconciliation. Call to Action #92 specifically calls on corporate Canada to help create a better future. OPG accepts this responsibility.

OPG notes that the draft NRCan policy on radioactive waste references the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). OPG looks forward to learning more about how the Government of Canada will advance implementation of its own UNDRIP Act, as the government has stated it will do by developing an action plan by June 2023.

Waste Classifications

NRCan's draft policy identification and description of waste classifications should align with existing CNSC definitions and International definitions. In the draft, however, while the classifications headings do align with existing definitions, the text following those headings varies from existing definitions. References for those definitions:

- CNSC Reference: *CNSC REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste*. [REGDOC-2-11-1-volume-I-management-of-radioactive-waste.pdf](https://www.nuclearsafety.gc.ca/REGDOC-2-11-1-volume-I-management-of-radioactive-waste.pdf) ([nuclearsafety.gc.ca](https://www.nuclearsafety.gc.ca))
- IAEA Reference: *Classification of Radioactive Waste, General Safety Guide No. GSG-1*. [STI/PUB/1419](https://www.iaea.org/STI/PUB/1419) ([iaea.org](https://www.iaea.org))

In addition, certain classifications, while supported in the draft policy, are not yet supported in regulations, an omission that inhibits their use. OPG notes that the sub-categories of Very Low-Level Waste classification (Very Low-Level Radioactive Waste and Very Short-Lived Low-Level Radioactive Waste) have not been quantified in CNSC's regulatory documents. This needs to be addressed, for these classifications to become useful in the optimized handling of waste, particularly from future decommissioning activities. As OPG stated in its original 2021 submission to the policy review process, "The utilization of the Very Low Level Waste (VLLW) category may become useful for Canadian purposes as dismantling activities progress and disposal of large volumes of items such as concrete is required."

OPG also notes that, as a matter of regulation, the utilization of "clearance" or "free release" of materials following rigorous and approved regulatory processes is a key component of minimizing waste. Clearance or free release of clean concrete, for example, will greatly minimize waste volumes during the dismantling and decommissioning of nuclear sites.

Waste minimization

OPG notes that the draft policy supports waste minimization, "as far as practicable." OPG proposes that NRCan consider the language that is advanced in international guidance, regarding the "optimization" of waste minimization; or alternatively that the policy support waste minimization "as far as *reasonably* practicable." Either the "optimization" language or the "reasonable" modifier would help to clarify that minimization is not a practice taken to extremes regardless of cost, but seeks to maximize environmental benefits in light of other relevant considerations. As the IAEA states: "Implementation of a waste minimization strategy is always an optimization exercise that takes into consideration factors such as worker doses, the cost of recovering materials, the availability of disposal routes for specific types of waste, the quantities of waste generated in each category, and the duration and cost of interim storage of waste compared with the estimated ultimate disposal cost." IAEA Reference: *Considerations for Waste Minimization at the Design Stage of Nuclear Facilities, Technical Reports Series No. 460*. [STI/PUB/TRS460](https://www.iaea.org/STI/PUB/TRS460) ([iaea.org](https://www.iaea.org))

As context regarding minimization, good stewardship of the waste is the mission of OPG's Nuclear Sustainability Services (NSS). We embrace the three Rs – reduce, reuse, recycle – to minimize volumes in storage. We are continually researching, innovating and applying new technologies, to reduce volumes, as evidenced by a research partnership with McMaster University through OPG's commercial subsidiary, Laurentis Energy Partners, to explore innovations in waste-sorting, and in

NSS pilot projects to explore new ways to volume-reduce large metal objects. OPG has also established a Centre for Canadian Nuclear Sustainability to bring innovative solutions to bear on some of the greatest challenges in nuclear such as decommissioning, waste stewardship, and site repurposing.

Decommissioning – integrated *policy* versus integrated *strategy*

OPG acknowledges that the modernized policy would govern both radioactive waste management and decommissioning. However, OPG notes that the draft policy also refers to an “integrated strategy” for both waste management and decommissioning. In the November 13, 2020 tasking letter from NRCAN to NWMO, NRCAN requested the NWMO to lead the dialogue and develop Canada’s “Integrated Strategy of Radioactive Waste” (ISRW) – with no mention of an integrated strategy for decommissioning. Reference: [Microsoft Word - 188938 - Clean November 12 - Attachment 1 - Letter to Laurie Swami \(FINAL 2\).docx \(nwmo.ca\)](#)

OPG notes that the CNSC requires all licensed nuclear facilities to have a decommissioning plan, with regular updates to those plans. In compliance, OPG has such plans, and will continue to update them and work toward their implementation. We are unaware of any development toward, or stated need for, either a cross-Canada or cross-industry “integrated” approach to decommissioning, as each utility develops its own plans for its own facilities at end of life. OPG does have confidence in NWMO’s ability, an independent organization and a leader in used-nuclear fuel management and public engagement, to lead the development of an integrated strategy for waste management. During the engagement phase of the ISRW, NWMO has consulted with all stakeholders to take into account the values that matter most to Canadians. OPG looks forward to seeing the draft ISRW.

Decommissioning – role of future generations

Regarding the draft policy’s statement that waste owners should advance decommissioning in a “timely” manner to “*avoid shifting the responsibilities* for these activities to future generations” [emphasis added], OPG suggests alternative wording that would convey the same value and intent, without creating an unnecessary contradiction with fact given the timeline for repositories to become available. Internationally accepted language points to the preference for “*reducing the burden*” to future generations,” which OPG agrees is a laudable objective. (Reference: [STI/PUB/1449 \(iaea.org\)](#) and [55304640304.pdf \(iaea.org\)](#))

Planning and actively moving toward implantation of decommissioning is a responsibility that begins with today’s generation, but by necessity the responsibility continues through future generations (if a generation is understood to be about 20 years), due to the long timelines for these activities. Decommissioning typically requires first putting a nuclear-generation facility into safe storage for a period of time, while radioactivity in the reactor core falls naturally to lower levels – and this sound practice alone may entail the passage of more than one generation. In addition, international guidance identifies that decommissioning strategies have to align with the availability of waste storage facilities, and that disposal projects are subject to long period of time, as stated in the IAEA document on *Disposal of Radioactive Waste* (No.SSR-5): “A project for the disposal of radioactive waste, especially for the development of a facility for the disposal of high level and long lived radioactive waste, has to be given special consideration within this infrastructure because of the relatively long period of time necessary for the development of such facilities.” In Canada, for example, a repository for used fuel is assumed to be in service in 2043-45, or about two generations after the site-selection process was launched in 2010, while an equally long timeline for permanent

disposal of lower-level materials may emerge from the awaited ISRW. The draft policy states that key elements of disposal will be in place by 2050.

Therefore, while the current generation should take responsibility for beginning the planning and development of decommissioning, we must by necessity pass continuation of the work to future generations – at least for two or three generations. Whether or not that constitutes “shifting the responsibility,” or is only sharing it, we must certainly accept our responsibility to “reduce the burden” on future generations. We agree with that intent in the draft policy.

Import and export

The draft policy states that Canadian-generated radioactive waste must be disposed of in Canada, and waste generated in other countries is not to be disposed of in Canada, “recognizing that exceptions may be made to allow for the repatriation of disused radioactive sources to Canada.” This aligns with international guidance that countries should manage their own nuclear waste.

Among the exceptions which should be acknowledged, whether in the policy or in the supporting regulations, are those that would serve the goals of supporting advanced global health care, and advanced good practice to minimize waste for environmental benefits, as follows:

- *Health care:* Canada exports isotopes such as Cobalt-60 (other examples of medical isotopes include Molybdenum-99 and Lutetium-177), through medical suppliers and distribution companies for use in the worldwide medical sector, to sterilize medical equipment and food, and to diagnose and treat diseases. While uses abroad may repatriate the residual radioactive materials, instances may occur involving medical facilities that have closed, or other exceptions, where such materials are disposed of in accordance with local regulation. While OPG is a producer and not a distributor of medical isotopes and therefore at arm’s length from the intricacies of repatriation activities, OPG believes the NRCan modernized policy should not erect new barriers to prevent the effective use of Canadian-made medical isotopes to help save millions of lives around the world.
- *Waste minimization:* To minimize waste volumes – as the draft policy rightly states is desirable – OPG and other producers may transport radioactive materials to licensed U.S. commercial processing facilities for processing and volume reduction, either as part of regular Canadian nuclear operations or to research the potential for new volume-reduction practices or technologies. The residual radioactive materials are then transported back to Canada, to the original waste owner, for storage and eventual disposal. This cross-border transportation is licensed by the CNSC, and supports the objective of reducing volumes, thereby reducing the environmental footprint of storage, and should therefore continue under the new policy.