

June 30, 2025

Dr. Susan O'Donnell

Re: *Right to Information and Protection of Privacy Act* – NB Power File: RTI2025-006

Dear Dr. O'Donnell:

This letter is further to your *Right to Information and Protection of Privacy Act* request received by New Brunswick Power Corporation (NB Power) on May 5, 2025, with respect to access to:

Any and all written outgoing and incoming communications – external and internal emails, memos, letters (including attachments, if any) – to or from the following offices: President and CEO, Chief Customer Officer, Chief Financial Officer & Senior Vice President Corporate Services, Vice President Nuclear & Chief Nuclear Officer, Executive Director New Brunswick Energy Marketing, or the Communications office related to nuclear energy in which any of the following topics are mentioned: recycling or reprocessing used (irradiated/spent) nuclear fuel, pyroprocessing, plutonium or plutonium extraction, nuclear weapons, nuclear proliferation, enriched uranium or HALEU (high-assay low-enriched uranium).

Timeline: July 20, 2023 to April 30, 2025

Attached please find the records responsive to your request. Some documents were not disclosed or information was removed as the information was not relevant [16(1.1)], for privacy reasons [21(1)], they contain advice, opinions, proposals, or recommendations prepared for or by a public body or a Minister of the Crown [26(1)(a)], a pending policy or budgetary decision [26(1)(e)], confidential, commercial and financial information belonging to third parties [22(1)(b)] and [22(1)(c)] and/or could reasonably be expected to harm the financial interests or negotiating position of a public body or the Province of New Brunswick [30(1)(b)(c)].

We trust this sufficiently responds to your request; however, if you require anything further pursuant to this request, please contact us at RighttoInformation@nbpower.com.

If you are not satisfied with this response, you may file a complaint with the Ombud as per section 67(1)(a)(i) of the Act within 40 business days of receiving this response or refer the matter to a judge of the Court of King's Bench as per section 65(1)(a) of the Act within 40 business days of receiving this response. Information regarding the review process can be found at: <https://ombudnb-aip-aivp.ca/right-to-information-and-protection-of-privacy/information-for-the-public/>

Respectfully,

NEW BRUNSWICK POWER CORPORATION



Janice McNeil

Executive Director Governance and Public Accountability

From: [Clark, Lori](#)
To: [Paul D'Astous](#); ["MacFarlane, Tom \(ERD/DER\)"](#)
Subject: FW: High Assay Low Enriched Uranium (HALEU)
Date: September 01, 2023 02:49:04 PM
Attachments: [High Assay Low Enriched Uranium \(HALEU\).pdf](#)

Attached is a briefing for our meeting on Monday. This will provide some additional background.

Lori



Lori Clark (she/her)

President & CEO

Présidente-directrice générale

T: 506.458-4279

C: [REDACTED]

nbpower.com | energienb.com

From: McNeil, Janice [REDACTED] >
Date: Friday, Sep 01, 2023 at 2:24 PM
To: Clark, Lori [REDACTED]
Subject: High Assay Low Enriched Uranium (HALEU)

Subject: High Assay Low Enriched Uranium (HALEU)

Date: September 1, 2023

BACKGROUND

- ◆ Generation IV advanced reactors such as ARC, Xe-100 and the micro modular reactor (MMR) require High Assay Low Enriched Uranium (HALEU).
- ◆ With the invasion of Ukraine by Russia and the associated economic sanctions, HALEU from Russian company Tenex is no longer a viable option.
- ◆ High Assay Low Enriched Uranium (HALEU) is not currently commercially produced in the western world countries.

CURRENT STATUS

- ◆ Enrichers need to invest several hundreds of millions of dollars in additional centrifuge cascades and encounter more restrictive licensing requirements for the construction of a HALEU production facility
 - these companies (Urenco, Centrus and Global Laser Enrichment) are reluctant to take the financial risk without having a high confidence of a market
 - utilities are reluctant to invest in generation IV plants needing HALEU if HALEU availability is uncertain
- ◆ This will lead to a delay in first-mover small modular reactor (SMR) projects, which in turn impairs small modular reactor fleet build-out and New Brunswick's ability to achieve greenhouse gas reduction, energy security and economic development goals.

■ [REDACTED]

■ [REDACTED] [26(1)(a)]

■ [REDACTED]

■ [REDACTED]



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Quarterly Nuclear Energy Session

NRCan Update – September 14th, 2023

Canada

Agenda

1

New Deputy
Minister &
Associate
Deputy
Minister

2

Canada-UK
Nuclear
Dialogue

3

Enabling
Small
Modular
Reactor
Program

4

Nuclear
Energy
Leadership
Table

5

Team
Canada Fuel
Supply
Working
Group

6

Saskatchewan
SMR
Announcement



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New Deputy Minister and Associate Deputy Minister



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New DM and DMA



Deputy Minister
Michael Vandergrift

Former Deputy Secretary to the Cabinet (Plans and Consultations), became Deputy Minister of Natural Resources in July 2023.



Associate Deputy Minister
Jeffrey Labonté

Former Assistant Deputy Minister, Lands and Minerals Sector, Natural Resources Canada, became Associate Deputy Minister of Natural Resources in July 2023



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Canada-U.K. Nuclear Dialogue



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Canada-U.K. Nuclear Dialogue

- In June 2023 NRCAN hosted a delegation from the UK's Department of Energy Security and Net Zero (DESNZ) for the 2023 Canada-UK Nuclear Dialogue.
- NRCAN, DESNZ and both country's regulators have new deliverables coming from the Dialogue which will inform work over the next year.
- The U.K. will host the next dialogue in 2024.

Workstreams

WS1: Nuclear Decommissioning, Radioactive Waste Management, and Waste Minimisation Techniques

WS2: Nuclear Fuel Supply Chain

WS3: Advanced Manufacturing and Technologies

WS4: Regulatory Collaboration

WS5: Nuclear Financing and Business Models

WS6: Advancing the Role of Nuclear Energy in Combatting Climate Change

WS7: Increasing Nuclear Sector Capacity and Diversity

WS8: Nuclear Fusion



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Enabling SMR Program



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The Enabling Small Modular Reactors Program

- The Enabling Small Modular Reactors Program (the “Program”) seeks to support applicants in their efforts to:
 - Address waste generated from SMRs
 - Develop supply chains for SMR manufacturing and SMR fuel supply
- NRCAN’s Enabling SMRs program launched in February 2023 with the objective of supporting the conditions and enabling frameworks for SMR deployment in Canada
- Call for applications is closed and the Program is currently reviewing proposals.
- Results expected to be publicly released in Winter 2024.



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Nuclear Energy Leadership Table



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Nuclear Energy Leadership Table

- The Leadership Table is composed of multidisciplinary representatives from the federal government, interested provincial and territorial governments, industry and utilities, and Indigenous organizations.
- On May 9, 2023, NRCan co-chaired the third meeting of the Leadership Table in Gatineau, alongside the Indigenous Advisory Council. Key themes included:
 - Regulatory Efficiency and Effectiveness,
 - Path Forward for Nuclear Energy in Canada
 - Collaboration
 - Building a Nuclear Workforce.



Progress Update

NRCan will be issuing a second edition of the Progress Update in Fall 2023 to reflect the strides made in the development and deployment of nuclear energy in Canada.

The second edition will provide an update from NRCan, capture the voice of the Leadership Table, and highlight discussions and action items from the meetings.



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Team Canada Fuel Supply Working Group



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Team Canada Fuel Supply WG

- Representatives of the federal government and industry met on May 8, 2023 to advance discussions with respect to fuel supply for advanced reactor technologies. Security of supply, enrichment, reprocessing, waste, and international collaboration were all discussed.
- The federal government continues to priorities working with like-minded countries to leverage existing capacity where constraints are envisioned (e.g. conversion and enrichment).
- There are currently no plans to deploy enrichment technology in Canada, however there is a consensus within the global nuclear energy and technology community that additional capacity will be required by the mid 2030's, should moderate reactor buildout scenarios be realized.
- There was further acknowledgement of the significant impact Russian sanctions may have on the availability of materials globally in both the short and medium term.
- Federal work on developing a framework in which to advise on how, and under what conditions, spent fuel reprocessing and closing the fuel cycle should be considered, is under development.



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Saskatchewan SMR Announcement



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Saskatchewan SMR Announcement

- In August 2023 the federal government approved 74 million of federal funding for SMR development in Saskatchewan, led by SaskPower.
- This funding will support pre-engineering work and technical studies, environmental assessments, regulatory studies and community and Indigenous engagement to help advance this important project.
- SaskPower has selected the GE-Hitachi BWRX-300 for potential deployment in Saskatchewan in the mid-2030s, subject to a decision to build that is expected in 2029.

“With today’s announcement, we are investing in the future of nuclear technology, building on Canada’s decades-long legacy as a responsible global leader in nuclear power, and leveraging Saskatchewan’s world-leading production of uranium to position the province to thrive in a rapidly decarbonizing global economy.”

*The Honourable Jonathan Wilkinson
Minister of Energy and Natural Resources*



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Next QNES

We are seeking suggestions on the following for future QNES meetings:

- Themes
- Topics
- Presentations
- Speakers
- Attendees



Questions?

Justin Hannah
Senior Director, Nuclear Energy Division
Natural Resources Canada

Justin.Hannah@nrcan-rncan.gc.ca



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Fall Events



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Upcoming

- International Atomic Energy Agency (IAEA) General Conference | Sept 25-29
- GIF SCWR Meeting in Canada | Sep 25-29
- FNST Fall Workshop (Shaw Centre) | Sept 27-28, Oct 4-6
- Nuclear Energy Agency (NEA) Roadmaps to New Nuclear | Sept 28-29

September 2023



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Upcoming

- IAEA Climate Conference | October 8-13
- Women in Nuclear Canada Conference (WiN) | Oct 15-18
- GIF VHTR Materials PMB Meeting in Canada | Oct 24-25
- NEA Steering Committee | Oct 25-26

October 2023



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Upcoming

- World Nuclear Exhibition | Nov 28-30
- COP 28 | Nov 30- Dec 12

November / December 2023



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From: [Velshi, Rumina](#)
To: [Clark, Lori](#)
Subject: EXT - Fwd: Open Letter to Prime Minister Trudeau and senior cabinet officials concerning government-funded proposals to allowing plutonium separation in Canada
Date: September 22, 2023 09:20:13 AM
Attachments: [Fourth Letter to Prime Minister Justin Trudeau re proposals for plutonium separation in Canada \(22Sept2023, final\).docx](#)

*** Attention: External Message / Message externe ***

Fyi

Begin forwarded message:

From: "Frank N. von Hippel"
Date: September 22, 2023 at 7:48:41 AM EDT
To: justin.trudeau@parl.gc.ca, jonathan.wilkinson@parl.gc.ca, "Velshi, Rumina", melanie.joly@parl.gc.ca, chrystia.freeland@fin.gc.ca, Steven.Guilbeault@parl.gc.ca, info@pco-bcp.gc.ca
Cc: Peter Bradford , Thomas Countryman , Steve Fetter , Robert Gallucci , Richard L Garwin , VICTOR GILINSKY , "Kuperman, Alan J" , Edwin Lyman , "Macfarlane, Allison" , Henry Sokolski , ssquassoni@email.gwu.edu, "Frank N. von Hippel"
Subject: Open Letter to Prime Minister Trudeau and senior cabinet officials concerning government-funded proposals to allowing plutonium separation in Canada

EXTERNAL EMAIL – USE CAUTION / COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE

Dear Prime Minister Trudeau,
Minister of Natural Resources Jonathan Wilkinson,
[President of the Nuclear Safety Commission Rumina Velshi](#),
Minister of Foreign Affairs Mélanie Joly
Deputy Prime Minister and Minister of Finance Chrystia Freeland
Minister of Environment and Climate Change, Steven Guilbeault
Clerk of the Privy Council and Secretary to the Cabinet John Hannaford
Please find attached a letter from 12 US nonproliferation experts (including one teaching at the University of British Columbia) concerning the on-going consideration by the Canada's government of proposals to separate plutonium in Canada.
If, in response to this letter, you are interested in further information from members of our group, please feel free to communicate to us via my e-mail

address below.

Sincerely yours,

Frank N. von Hippel

Professor of Public and International Affairs emeritus

Program on Science and Global Security

Princeton University

fvhippel@princeton.edu

OPEN LETTER TO PRIME MINISTER JUSTIN TRUDEAU

22 September 2023

To: Prime Minister Justin Trudeau
justin.trudeau@parl.gc.ca

Jonathan Wilkinson, Minister of Natural Resources jonathan.wilkinson@parl.gc.ca
Rumina Velshi, President, Nuclear Safety Commission, rumina.velshi@cnscccsn.gc.ca
Mélanie Joly, Minister of Foreign Affairs, melanie.joly@parl.gc.ca
Chrystia Freeland, Deputy Prime Minister and Minister of Finance, chrystia.freeland@fin.gc.ca
Steven Guilbeault, Minister of Environment and Climate Change, Steven.Guilbeault@parl.gc.ca
John Hannaford, Clerk of the Privy Council and Secretary to the Cabinet, info@pco-bcp.gc.ca

Re: Our Request for a nuclear weapons proliferation risk assessment of the Canadian-government-funded proposal to separate plutonium from CANDU spent fuel

Dear Prime Minister Trudeau and other concerned senior officials of the Government of Canada,

In 2021, a number of us sent three letters to you regarding our nuclear weapons proliferation concerns about your government's funding of a proposal by a nuclear startup, Moltex, to reprocess CANDU spent fuel. Moltex proposes to use the recovered plutonium to fuel a molten-salt reactor to be built on the site of the 40-year-old Point Lepreau Nuclear Generating Station in New Brunswick. We were even more concerned about Moltex's proposal to use Canada as an export hub for those technologies.¹

The Prime Minister's office informed us on 23 June 2021 that the matter had been referred to the Minister of Foreign Affairs and the Minister of Natural Resources. We have received no response from either.

Recently, however, we learned, through an Access to Information Act request by a Canadian academic, that, despite the strong opposition of Moltex,² the Ministry of Natural Resources launched a policy-making process on reprocessing in collaboration with the international CANDU Owners Group and in consultation with the Ministry of Foreign Affairs and the Nuclear Safety Commission.³

We are gratified to learn of this development. We also were gratified to see you join with the other leaders of the G7 countries in Hiroshima on 19 May 2023 in stating that, "We also commit to prioritizing efforts to reduce the production and accumulation of weapons-usable nuclear material for civil purposes around the world."⁴

Moltex has claimed that it does not intend to separate out pure plutonium and hence its product will be "proliferation resistant," i.e. not usable to make nuclear weapons. This was argued in the US two decades ago for a very similar process, pyroprocessing, but a 2009 review by experts from six US national nuclear laboratories concluded,⁵

"the additional proliferation resistance of these alternative processes...over PUREX [the technology used by the US and other weapon states to separate pure plutonium for weapons] in particular is small. The reason is the ease, given the resources available to a state, with which the various

plutonium-bearing materials or the reprocessing process itself could be converted to produce separated plutonium.”

A recent review by a US National Academy of Sciences committee, on which two of us served, reached the same conclusion after hearing a presentation from Moltex’s CEO:⁶

“While these technologies may provide some benefit in delaying direct use of the materials, there was consensus among the committee members that none provided significant proliferation resistance at this time.”

We doubt Moltex’s reprocessing project will be commercially successful. Commercial reprocessing has failed economically over and over again. In the US, a small commercial reprocessing plant, subsidized by the federal government and the State of New York, operated from 1966 and 1972. It was shut down for safety improvements in 1972, but rather than spend the funds for upgrading the plant, the owner abandoned the project, and the site became a multi-billion-dollar federally-funded radioactive cleanup project that continues today.⁷ In the UK, government-owned British Nuclear Fuels Limited built and operated larger plants into bankruptcy, resulting in a hundred billion pound government-funded radioactive cleanup project.⁸

The processing technology used in these earlier plants was developed in the US nuclear-weapons program and is quite simple. The technology proposed by Moltex appears to be based on the more complex pyroprocessing technology developed by the Idaho National Laboratory, which has spent hundreds of millions of dollars over two decades thus far in its attempts to use it to reprocess a mere two tons of spent fuel.⁹

There is likewise every reason to be skeptical of Moltex’s reactor technology.¹⁰

How the funds of Canada’s taxpayers are spent is not our affair, however. Our concern is that that Canada’s government, while pledging to “efforts to reduce the production and accumulation of weapons-usable nuclear material for civil purposes around the world,” is actually funding a project to *increase* the production and accumulation of weapons-usable plutonium for civil purposes around the world.

We have been equally critical of U.S. programs to promote reprocessing. The Biden Administration has failed to rein in a Trump Administration-launched program to promote reprocessing in the Department of Energy.¹¹

It is especially distressing that Canada and the United States should have forgotten the painful lessons from their partnership in facilitating India’s program to separate plutonium ostensibly for nuclear power. Some of the plutonium India produced and separated with that assistance was used in the plutonium-fueled prototype bomb India tested in 1974, precipitating the South Asian nuclear arms race.¹²

An undated internal briefing memo for the Deputy Minister of Natural Resources, included in that Ministry’s Access to Information Act release, claimed,

“reprocessing is currently being carried out internationally by several nations using processes similar to the Moltex WATSS process, but which more completely separate plutonium from the other materials and contaminants in the fuel, and do so successfully while following international safeguards protocols, and under the purview of the IAEA.”

This is false. Only Japan has plans to carry out reprocessing under international safeguards. The other states that conduct commercial-scale reprocessing (China, France, India, Russia) are nuclear-armed states that are not obligated to accept IAEA safeguards. But as the examples of India and North Korea show, states can claim peaceful purposes but then use the plutonium for nuclear weapons.

As the G7 statement recognized, reprocessing is not necessary for nuclear energy and nonproliferation policy should focus on “efforts to reduce the production and accumulation of weapons-usable nuclear material for civil purposes around the world,” not increase it.

If invited, some of us would be happy to provide a detailed briefing on these issues as input to your government’s policymaking process.

Given the gravity of the issues involved, this is a public letter as were our previous letters to you.

Sincerely,

Peter Bradford, former chair of New York and Maine utility regulatory commissions and former U.S. Nuclear Regulatory Commissioner (1977-82)

Thomas M. Countryman, Chairman, Arms Control Association, Assistant Secretary of State for International Security and Nonproliferation (2011-2017)

Steve Fetter, Professor of Public Policy, University of Maryland,* former principal assistant director, Office of Science and Technology Policy, the White House (2009-12, 2015-17)

Robert Gallucci, Professor, Georgetown University,* former Ambassador at Large and Assistant Secretary of State for Political-Military Affairs

Richard L. Garwin, IBM Fellow Emeritus, IBM Thomas J. Watson Research Center,* member U.S. President's Science Advisory Committee (1962–65, 1969–72)

Victor Gilinsky, Nonproliferation Policy Education Center; Nuclear Regulatory Commissioner (1975-79)

Alan J. Kuperman, Associate Professor, and Coordinator of the Nuclear Proliferation Prevention Project, University of Texas at Austin

Edwin Lyman, Director of Nuclear Power Safety, Union of Concerned Scientists

Allison M Macfarlane, Director, School of Public Policy and Global Affairs, University of British Columbia*; Chair, US Nuclear Regulatory Commission (2012-13) |

Henry Sokolski, Executive Director, Nonproliferation Policy Education Center; Deputy for Nonproliferation Policy, Office of the Secretary of Defense (1989-93)

Sharon Squassoni, Research Professor of the Practice of International Affairs, George Washington University, former State Department and Arms Control and Disarmament Agency official.

Frank N. von Hippel, Professor of Public and International Affairs, emeritus Program on Science and Global Security, Princeton University* and contact for communications, fvhippel@princeton.edu

* For identification only.

¹ Our previous letters were sent on 25 May, 27 July and 24 November 2021.

² “Moltex would likely not have come to Canada if a reprocessing policy had been mandated at the time,” Rory O’Sullivan, CEO, Moltex Energy, Comment “Re: Natural Resources Canada’s Draft Policy on Radioactive Waste Management and Decommissioning,” 24 March 2022, Access to Information Act release, Natural Resources Canada, 8 August 2023.

³ *Policy Development on Reprocessing* (Ministry of Natural Resources Canada, 2021), Access to Information Act release, Natural Resources Canada, 8 August 2023.

⁴ https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/documents/2023-05-19-g7_leaders_vision-g7_vision_dirigeants.aspx?lang=eng.

⁵ *Proliferation Risk Reduction Study of Alternative Spent Fuel Processing* (Brookhaven National Laboratory, 2009), <https://www.bnl.gov/isd/documents/70289.pdf>.

⁶ *Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors* (National Academy Press, 2023) p. 211, <https://www.nationalacademies.org/our-work/merits-and-viability-of-different-nuclear-fuel-cycles-and-technology-options-and-the-waste-aspects-of-advanced-nuclear-reactors>.

⁷ https://en.wikipedia.org/wiki/West_Valley_Demonstration_Project, <https://www.chbvw.com>, <https://www.energy.gov/em/articles/doe-issues-draft-request-proposal-west-valley-demonstration-project-phase-1b-contract>.

⁸ <https://www.nao.org.uk/reports/the-nuclear-decommissioning-authority-progress-with-reducing-risk-at-sellafield/>.

⁹ <https://blog.ucsusa.org/edwin-lyman/the-pyroprocessing-files/>.

¹⁰ <https://thebulletin.org/2022/06/molten-salt-reactors-were-trouble-in-the-1960s-and-they-remain-trouble-today/>.

¹¹ Letter to the Biden Administration, “13 US Nonproliferation Experts Request a Review of the Department of Energy’s Promotion of Civilian Plutonium Separation,” 20 June 2021, see also Jungmin Kang, Masafumi Takubo, Frank von Hippel, “Some fuels never learn. US Energy Department returns to costly and risky plutonium separation technologies,” *Bulletin of the Atomic Scientists*, 14 Sept. 2023, <https://thebulletin.org/2022/09/some-fuels-never-learn-us-energy-department-returns-to-costly-and-risky-plutonium-separation-technologies/>.

¹² George Perkovich, *India’s Nuclear Bomb: The Impact on Global Proliferation* (University of California Press, 1999).

From: [Clark, Lori](#)
To: [Plummer, Brett](#); [Hayward, Andy](#); [Robinson, Rose M](#)
Subject: FW: EXT - Fwd: Open Letter to Prime Minister Trudeau and senior cabinet officials concerning government-funded proposals to allowing plutonium separation in Canada
Date: September 24, 2023 09:49:00 PM
Attachments: [Fourth Letter to Prime Minister Justin Trudeau re proposals for plutonium separation in Canada \(22Sept2023, final\).docx](#)
[image001.png](#)

FYI
Lori



Lori Clark (she/her)
President & CEO
Présidente-directrice générale
T: 506.458-4279
C: [REDACTED]
nbpower.com | energienb.com

From: Velshi, Rumina
Sent: September 22, 2023 9:19 AM
To: Clark, Lori
Subject: EXT - Fwd: Open Letter to Prime Minister Trudeau and senior cabinet officials concerning government-funded proposals to allowing plutonium separation in Canada

*** Attention: External Message / Message externe ***

Fyi

Begin forwarded message:

From: "Frank N. von Hippel" [REDACTED] >
Date: September 22, 2023 at 7:48:41 AM EDT
To: justin.trudeau@parl.gc.ca, jonathan.wilkinson@parl.gc.ca, "Velshi, Rumina" <rumina.velshi@cnsccsn.gc.ca>, melanie.joly@parl.gc.ca, chrystia.freeland@fin.gc.ca, Steven.Guilbeault@parl.gc.ca, info@pco-bcp.gc.ca
Cc: Peter Bradford [REDACTED], Thomas Countryman [REDACTED] >, Steve Fetter [REDACTED] >, Robert Gallucci [REDACTED] >, Richard L Garwin [REDACTED] >, VICTOR GILINSKY [REDACTED] >, "Kuperman, Alan J" [REDACTED] >, Edwin Lyman [REDACTED] >, "Macfarlane, Allison" [REDACTED] >, Henry Sokolski [REDACTED] >, "Frank N. von Hippel" [REDACTED] >
Subject: Open Letter to Prime Minister Trudeau and senior cabinet officials concerning government-funded proposals to allowing plutonium separation in Canada

EXTERNAL EMAIL – USE CAUTION / COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE

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Minister of Foreign Affairs Mélanie Joly

Deputy Prime Minister and Minister of Finance Chrystia Freeland
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If, in response to this letter, you are interested in further information from members of our group, please feel free to communicate to us via my e-mail address below.
Sincerely yours,
Frank N. von Hippel
Professor of Public and International Affairs emeritus
Program on Science and Global Security
Princeton University
fvhippel@princeton.edu

22 September 2023

To: Prime Minister Justin Trudeau
justin.trudeau@parl.gc.ca

Jonathan Wilkinson, Minister of Natural Resources jonathan.wilkinson@parl.gc.ca
Rumina Velshi, President, Nuclear Safety Commission, rumina.velshi@cnscccsn.gc.ca
Mélanie Joly, Minister of Foreign Affairs, melanie.joly@parl.gc.ca
Chrystia Freeland, Deputy Prime Minister and Minister of Finance, chrystia.freeland@fin.gc.ca
Steven Guilbeault, Minister of Environment and Climate Change, Steven.Guilbeault@parl.gc.ca
John Hannaford, Clerk of the Privy Council and Secretary to the Cabinet, info@pco-bcp.gc.ca

**e: Our e quest for a nuclear weapons proliferation risk assessment of the
Canadian-government-funded proposal to separate plutonium from CANDU
spent fuel**

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The Prime Minister's office informed us on 23 June 2021 that the matter had been referred to the Minister of Foreign Affairs and the Minister of Natural Resources. We have received no response from either.

Recently, however, we learned, through an Access to Information Act request by a Canadian academic, that, despite the strong opposition of Moltex,² the Ministry of Natural Resources launched a policy-making process on reprocessing in collaboration with the international CANDU Owners Group and in consultation with the Ministry of Foreign Affairs and the Nuclear Safety Commission.³

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The processing technology used in these earlier plants was developed in the US nuclear-weapons program and is quite simple. The technology proposed by Moltex appears to be based on the more complex pyroprocessing technology developed by the Idaho National Laboratory, which has spent hundreds of millions of dollars over two decades thus far in its attempts to use it to reprocess a mere two tons of spent fuel.⁹

There is likewise every reason to be skeptical of Moltex’s reactor technology.¹⁰

How the funds of Canada’s taxpayers are spent is not our affair, however. Our concern is that that Canada’s government, while pledging to “efforts to reduce the production and accumulation of weapons-usable nuclear material for civil purposes around the world,” is actually funding a project to *increase* the production and accumulation of weapons-usable plutonium for civil purposes around the world.

We have been equally critical of U.S. programs to promote reprocessing. The Biden Administration has failed to rein in a Trump Administration-launched program to promote reprocessing in the Department of Energy.¹¹

It is especially distressing that Canada and the United States should have forgotten the painful lessons from their partnership in facilitating India’s program to separate plutonium ostensibly for nuclear power. Some of the plutonium India produced and separated with that assistance was used in the plutonium-fueled prototype bomb India tested in 1974, precipitating the South Asian nuclear arms race.¹²

An undated internal briefing memo for the Deputy Minister of Natural Resources, included in that Ministry’s Access to Information Act release, claimed,

“reprocessing is currently being carried out internationally by several nations using processes similar to the Moltex WATSS process, but which more completely separate plutonium from the other materials and contaminants in the fuel, and do so successfully while following international safeguards protocols, and under the purview of the IAEA.”

This is false. Only Japan has plans to carry out reprocessing under international safeguards. The other states that conduct commercial-scale reprocessing (China, France, India, Russia) are nuclear-armed states that are not obligated to accept IAEA safeguards. But as the examples of India and North Korea show, states can claim peaceful purposes but then use the plutonium for nuclear weapons.

As the G7 statement recognized, reprocessing is not necessary for nuclear energy and nonproliferation policy should focus on “efforts to reduce the production and accumulation of weapons-usable nuclear material for civil purposes around the world,” not increase it.

If invited, some of us would be happy to provide a detailed briefing on these issues as input to your government’s policymaking process.

Given the gravity of the issues involved, this is a public letter as were our previous letters to you.

Sincerely,

Peter Bradford, former chair of New York and Maine utility regulatory commissions and former U.S. Nuclear Regulatory Commissioner (1977-82)

Thomas M. Countryman, Chairman, Arms Control Association, Assistant Secretary of State for International Security and Nonproliferation (2011-2017)

Steve Fetter, Professor of Public Policy, University of Maryland,* former principal assistant director, Office of Science and Technology Policy, the White House (2009-12, 2015-17)

Robert Gallucci, Professor, Georgetown University,* former Ambassador at Large and Assistant Secretary of State for Political-Military Affairs

Richard L. Garwin, IBM Fellow Emeritus, IBM Thomas J. Watson Research Center,* member U.S. President's Science Advisory Committee (1962–65, 1969–72)

Victor Gilinsky, Nonproliferation Policy Education Center; Nuclear Regulatory Commissioner (1975-79)

Alan J. Kuperman, Associate Professor, and Coordinator of the Nuclear Proliferation Prevention Project, University of Texas at Austin

Edwin Lyman, Director of Nuclear Power Safety, Union of Concerned Scientists

Allison M Macfarlane, Director, School of Public Policy and Global Affairs, University of British Columbia*; Chair, US Nuclear Regulatory Commission (2012-13) |

Henry Sokolski, Executive Director, Nonproliferation Policy Education Center; Deputy for Nonproliferation Policy, Office of the Secretary of Defense (1989-93)

Sharon Squassoni, Research Professor of the Practice of International Affairs, George Washington University, former State Department and Arms Control and Disarmament Agency official.

Frank N. von Hippel, Professor of Public and International Affairs, emeritus Program on Science and Global Security, Princeton University* and contact for communications, fvhippel@princeton.edu

* For identification only.

¹ Our previous letters were sent on 25 May, 27 July and 24 November 2021.

² “Moltex would likely not have come to Canada if a reprocessing policy had been mandated at the time,” Rory O’Sullivan, CEO, Moltex Energy, Comment “Re: Natural Resources Canada’s Draft Policy on Radioactive Waste Management and Decommissioning,” 24 March 2022, Access to Information Act release, Natural Resources Canada, 8 August 2023.

³ *Policy Development on Reprocessing* (Ministry of Natural Resources Canada, 2021), Access to Information Act release, Natural Resources Canada, 8 August 2023.

⁴ https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/documents/2023-05-19-g7_leaders_vision-g7_vision_dirigeants.aspx?lang=eng.

⁵ *Proliferation Risk Reduction Study of Alternative Spent Fuel Processing* (Brookhaven National Laboratory, 2009), <https://www.bnl.gov/isd/documents/70289.pdf>.

⁶ *Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors* (National Academy Press, 2023) p. 211, <https://www.nationalacademies.org/our-work/merits-and-viability-of-different-nuclear-fuel-cycles-and-technology-options-and-the-waste-aspects-of-advanced-nuclear-reactors>.

⁷ https://en.wikipedia.org/wiki/West_Valley_Demonstration_Project, <https://www.chbwv.com>, <https://www.energy.gov/em/articles/doe-issues-draft-request-proposal-west-valley-demonstration-project-phase-1b-contract>.

⁸ <https://www.nao.org.uk/reports/the-nuclear-decommissioning-authority-progress-with-reducing-risk-at-sellafield/>.

⁹ <https://blog.ucsusa.org/edwin-lyman/the-pyroprocessing-files/>.

¹⁰ <https://thebulletin.org/2022/06/molten-salt-reactors-were-trouble-in-the-1960s-and-they-remain-trouble-today/>.

¹¹ Letter to the Biden Administration, “13 US Nonproliferation Experts Request a Review of the Department of Energy’s Promotion of Civilian Plutonium Separation,” 20 June 2021, see also Jungmin Kang, Masafumi Takubo, Frank von Hippel, “Some fuels never learn. US Energy Department returns to costly and risky plutonium separation technologies,” *Bulletin of the Atomic Scientists*, 14 Sept. 2023, <https://thebulletin.org/2022/09/some-fuels-never-learn-us-energy-department-returns-to-costly-and-risky-plutonium-separation-technologies/>.

¹² George Perkovich, *India’s Nuclear Bomb: The Impact on Global Proliferation* (University of California Press, 1999).

From: [Couture, Dominique](#)
To: [Clark, Lori](#)
Cc: [Kocijancic, Brigitte](#); [Scheme, Erica \(Deveau\)](#)
Subject: CNA Remarks for Fireside Chat
Date: February 20, 2024 10:51:41 AM
Attachments: [CNA 2024.Remarks.v4.docx](#)
[CNA2024.TechnicalSMRkms.docx](#)
[image001.png](#)

Hi Lori,

Please see attached draft remarks for the fireside chat at CNA. I'm also including some technical background key messages on the SMR project. This has been created in alignment with the ARC team.

Please let me know if this requires any edits, thank you!



Dominique Couture (She/Her)

Corporate Communications | Communications institutionnelles

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[nbpower.com](#) | [energienb.com](#)

Intro from Heather:

- Nuclear is having a triumphant moment, with countries around the world/cross-partisan leaders embracing it as crucial in the pathway to net zero, and financing is following in step.

Questions:

Heather to everyone (current focus): give us a quick overview of key developments in 2023 and your current priorities.

- Developed and launched our new strategic plan, Energizing our Future
- SMR: Submitted licence to prepare site application (first grid sized GenIV SMR in Canada) and began comprehensive environmental impact assessment in June 2023
- SMR: Working with ARC and Moltex to provide technical support in order to have a unit on grid by the early 2030s.

Heather to everyone (future direction): What are your big ambitions for the coming year, and how do they fit into the broader dynamic of the need to dramatically expand the grid in Canada? Are your supply chains and technology up to the task at hand?

- Nuclear is a key component of our strategic plan, Energizing the future.
- We want to continue progressing the ARC100 Commercial demonstration SMR project
 - funding
 - licensing and EIA requirements
- PLNGS: exploring strategic partnership with OPG to improve Station performance
- Developing and implementing the approach to address the need for additional nuclear capacity at Point Lepreau as identified in the recently issued NB Energy Strategy

Heather to Rupen (others can jump in afterwards): People power -- Where are the next jobs? And where will you get all the people you need to fulfill those ambitions?

- Working with post-secondary educational institutions on developing the knowledge and skills required to thrive in the nuclear industry in New Brunswick, including what the future of work will look like
- Diversification of the workforce is important. We are looking for greater opportunities for indigenous people, women, other nationalities. We are also looking for those in oil and gas who may be looking to switch career path.

Heather to Lori (and then others): Expanding the grid with nuclear may be a political priority, but does the public policy match? (let's talk about permitting, licenses, approvals, and political will to streamline the system).

- Received great support from our provincial government:
 - updated Electricity Act to support first-in-kind unit
 - Provincial energy strategy targeting 600MW of power generated by SMRs by (date)
- Need to streamline the Federal Impact Assessment process
 - The need to apply a fleet approach to regulatory approvals to allow for a more rapid build out

-Alignment between Canada and the US regarding security clearances to resolve the challenges around 10CFR-810 and the Canadian Charter of rights and freedom.

Heather to Mike (and others): Over the last couple of years, **energy security** has been as urgent a need around the world as action on climate change. Countries, and their populations, are quite desperate to ensure they will have enough power at all times, and at affordable prices. At times, this agenda seems at odds with the climate agenda. How is the nuclear industry steering a path through those two agendas – energy security and climate protection?

-One of our strategic plan transformers is transition to a cost-effective, clean and secure energy supply, which cannot be achieved without nuclear.

-Nuclear is a key component of being net-zero by 2035.

- Generation IV SMRs could also provide superheated steam to industry and for the generation of hydrogen and hydrogen-based products. This is an important contribution to GHG reduction, and fuel economic development.

Heather to Ken (and others): Utilities have had longstanding relationships with Indigenous communities as a matter of respect and a matter of doing business. The nature of **economic reconciliation** seems to be changing, with Indigenous investors hoping to be full partners, with equity and a voice at the board room table. Can you fill us in on your experience? What's the potential for growth in this direction, and what are the ingredients of success?

-First Nations inclusion is not only a step towards sustainable energy but also a demonstration of the importance of First Nations participation in shaping our collective future

-Instead of having a reconciliation plan, our plan is titled Pathway to Healing through Indigenous Knowledge and Inclusion. The change in title is significant since we acknowledge that we can never achieve reconciliation, however our framework will focus on recognizing the past, our present and focusing on what we can do together for our future.

Heather to all: **Technological innovation** is a must in your sector, especially now as governments and consumers look to you for their future energy needs. Where's the most promising area right now? (Here's your chance to talk about nuclear waste, SMRs, competing approaches, and blue-sky a bit).

-Looking at different "developed in New Brunswick" technologies to enable our strategic plan

-SMR itself is a big component of our transformer *Modernizing the grid*

-Again refer to the industrial application (hydrogen)

-Opportunity to generate additional and different medical isotopes from fast reactors

February 9, 2024

Key Messages

Background:

- NB Power must establish a path to achieve net-zero climate goals, while ensuring energy security and addressing its debt challenges. We want to ensure we're making the right strategic decisions to meet the needs of New Brunswickers today and into the future.
- As part of the recently launched strategic plan, *Energizing our Future*, NB Power is exploring new, cleaner ways of delivering energy to our customers and seeking new partnerships to improve our service delivery and our financial position. This includes a stronger, smarter grid and small modular reactors.
- *Energizing our Future* also highlights the need to phase out coal by 2030 and achieve net-zero supply by 2035, while maintaining energy security and meeting the growing electricity needs of New Brunswickers. Small modular reactors (SMRs) are part of the solution to reach these goals.
- Since 2018, NB Power has been working with the Province of New Brunswick, ARC Clean Technology (ARC), and Moltex Energy (Moltex) to progress the development of advanced SMRs for potential commercial deployment on the Point Lepreau site.
- While NB Power is working with both ARC and Moltex to progress their SMR designs, both reactors use different technologies and will be progressed through various project phases separately with different timelines as a result; the projects are not interdependent.
- The ARC-100 is a sodium-cooled fast reactor with an electrical net output of 100 to 150 MW.
- The Moltex SSR-W is a molten salt fast reactor with an electrical net output of 300 MW. The reactor will be fueled by used nuclear fuel, and therefore, Moltex is also developing a used fuel conversion facility (WATSS).

Current Status – ARC:

- On June 30, 2023, NB Power submitted an Environmental Impact Assessment registration document to the Department of Environment and Local Government (DELG), and a Licence to Prepare Site Application to the Canadian Nuclear Safety Commission (CNSC) for an ARC-100 commercial demonstration unit on the Point Lepreau site. This marked the beginning of the licensing process.
- The project will be subject to an Environmental Impact Assessment (EIA) pursuant to the New Brunswick Environmental Impact Assessment Regulation, under the Clean Environment Act. In addition to the provincial EIA process, the project is also subject to nuclear licensing requirements under the Federal Nuclear Safety and Control Act (NSCA).
- NB Power is undertaking this project to meet the growing electricity needs of New Brunswickers. In recognizing the complexity and scale of the project, we expect to develop strategic partnerships to support the construction and operation. These partnerships will be designed to foster accountability, transparency, and long-term sustainability, while facilitating the realization of the project's potential benefits.

Current Status – ARC EIA:

- On August 3, 2023, the Minister of Environment and Climate Change (the Minister) determined that the completion of a Comprehensive EIA was required to assess the nature and significance of the proposal's potential impacts. The Comprehensive EIA is a multi-step review process that allows members of First Nations and the public to provide their input at various stages of the review.
- On November 27, 2023, DELG issued the Study Guidelines. NB Power will describe how the guidelines will be met in a Terms of Reference (ToR) document and will be engaging with First Nations and the public on its content.
- As identified in the Environmental Impact Assessment (EIA) Registration Document and Licence to Prepare Site (LTPS) application, ARC will prioritize optimizing the core to generate a power output ranging from 100 to 150 MWe as the design advances.

- Recognizing the challenges with obtaining high assay low-enriched uranium (HALEU) fuel due to the current geo-political landscape and capacity amongst western countries, design efforts are being made to optimize enrichment levels to minimize supply risks while achieving the most cost-efficient outcome.
- NB Power is assessing if and how these design efforts will impact the information to be included in the draft Terms of Reference for the EIA and the timing of submission.

Current Status – Moltex:

- The Moltex SSR-W and WATSS are currently in the conceptual design and research and development phase.
- The Moltex unit is a separate project that will require a federal Impact Assessment as this potential project includes fuel recycling. It is anticipated that an Impact Assessment could be initiated when the research and development is sufficiently underway.

Planning for the Provincial Energy Strategy:

- In December 2023, the Province of New Brunswick issued its energy strategy, *Powering our Economy and the World with Clean Energy: Our Path Forward to 2035*, calling for 600 MW of small modular reactors at Point Lepreau by 2035.
- NB Power is in the early phases of the regulatory process for the ARC-100 commercial demonstration unit project at Point Lepreau. The project is sustaining progress and NB Power remains committed to its success.
- However, as the decision to proceed into the construction phase has yet to be made, and given the protracted timeline associated with the Impact Assessment process, NB Power is currently assessing other options to meet the need for additional nuclear capacity as identified in the energy strategy.
- This includes exploring technologies in addition to the ARC-100 and Moltex SSR-W already considered.
- Further to assessing these options, NB Power will begin initial planning for

regulatory applications to construct additional SMR units by 2035.

From: [Couture, Dominique](#)
To: [Enova, Edward](#); [Perley, Jesse](#); [Clark, Lori](#); [Duquay, Kathleen](#)
Cc: [Kocijancic, Brigitte](#)
Subject: FW: Key Messages - Slight revisions to points on provincial energy strategy
Date: February 23, 2024 06:03:46 PM
Attachments: [Key Messages February 2024 NB Power and ARC.docx](#)
[image003.png](#)

Hi!

Sharing these ahead of CNA.

Dominique

From: Woodworth, Alexandra

Sent: Friday, February 23, 2024 4:37 PM

To: Robinson, Rose M ; Power, Mark ; McKnight, Heather ; Gauthier, Rick ; Hayward, Andy ; Thompson, Paul ; Higgins, Will ; Smith, Brent ; Woodworth, Wayne ; Harris, Claire ; Sheehan, Kelly ; colleen.dentremont [REDACTED] Couture, Dominique ; Sandra Donnelly ; Jill Doucett ; Bill Labbe ; Laura Kyle ; McGathey, Andrea

Subject: Key Messages - Slight revisions to points on provincial energy strategy

Hi all,

Please find attached revised key messages incorporating some comments from ARC with respect to the provincial energy strategy.

I did want to note a point brought forward by Andrea should we find ourselves in more detailed conversations about the IA vs. EIA – while our key point is that the additional capacity identified in the provincial energy strategy will require a federal IA (with an extended timeline), the requirement for a provincial EIA still remains as well. They may be harmonized or can be satisfied concurrently, but nonetheless, a good reminder.

Please do not hesitate to reach out should you have any questions.

Thanks and have a great weekend!



Alex Woodworth (She/Her)

Advanced Reactor Development | Développement de Petits Réacteurs Modulaires
506.349.8571
nbpower.com | energienb.com

February 23, 2024

Key Messages

Background:

- NB Power must establish a path to achieve net-zero climate goals, while ensuring energy security and addressing its debt challenges. We want to ensure we're making the right strategic decisions to meet the needs of New Brunswickers today and into the future.
- As part of the recently launched strategic plan, *Energizing our Future*, NB Power is exploring new, cleaner ways of delivering energy to our customers and seeking new partnerships to improve our service delivery and our financial position. This includes a stronger, smarter grid and small modular reactors.
- *Energizing our Future* also highlights the need to phase out coal by 2030 and achieve net-zero supply by 2035, while maintaining energy security and meeting the growing electricity needs of New Brunswickers. Small modular reactors (SMRs) are part of the solution to reach these goals.
- Since 2018, NB Power has been working with the Province of New Brunswick, ARC Clean Technology (ARC), and Moltex Energy (Moltex) to progress the development of advanced SMRs for potential commercial deployment on the Point Lepreau site.
- While NB Power is working with both ARC and Moltex to progress their SMR designs, both reactors use different technologies and will be progressed through various project phases separately with different timelines as a result; the projects are not interdependent.
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- NB Power is undertaking this project to meet the growing electricity needs of New Brunswickers. In recognizing the complexity and scale of the project, we expect to develop strategic partnerships to support the construction and operation. These partnerships will be designed to foster accountability, transparency, and long-term sustainability, while facilitating the realization of the project's potential benefits.

Current Status – ARC EIA:

- On August 3, 2023, the Minister of Environment and Climate Change (the Minister) determined that the completion of a provincial Comprehensive EIA was required to assess the nature and significance of the proposal's potential impacts. The Comprehensive EIA is a multi-step review process that allows members of First Nations and the public to provide their input at various stages of the review.
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- As identified in the Environmental Impact Assessment (EIA) Registration Document and Licence to Prepare Site (LTPS) application, ARC will prioritize optimizing the core to generate a power output ranging from 100 to 150 MWe as the design advances.

- Recognizing the challenges with obtaining high assay low-enriched uranium (HALEU) fuel due to the current geo-political landscape and capacity amongst western countries, design efforts for the ARC-100 are being made to optimize enrichment levels to minimize supply risks while achieving the most cost-efficient outcome.
- NB Power is assessing if and how these design efforts will impact the information to be included in the draft Terms of Reference for the EIA and the timing of submission.

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- The Moltex SSR-W and WATSS are currently in the conceptual design and research and development phase.
- The Moltex unit is a separate project that will require a federal Impact Assessment as this potential project includes fuel recycling. It is anticipated that an Impact Assessment could be initiated when the research and development is sufficiently underway.

Planning for the Provincial Energy Strategy:

- In December 2023, the Province of New Brunswick issued its energy strategy, *Powering our Economy and the World with Clean Energy: Our Path Forward to 2035*, calling for 600 MW of small modular reactors at Point Lepreau by 2035.
- NB Power is in the early phases of the regulatory process for the commercial demonstration unit of the ARC-100 small modular reactor at Point Lepreau. The ARC-100 will generate a power output ranging from 100 to 150 MWe as the design advances. The project is sustaining progress and NB Power remains committed to its success.
- The additional 450 MWe of small modular reactors will be subject to the federal Impact Assessment process and requires NB Power to assess multiple options to meet the need for additional nuclear capacity as identified in the provincial energy strategy.

- This assessment will include exploring technologies in addition to the ARC-100 and Moltex SSR-W already considered.
- Further to assessing these options, NB Power will begin initial planning for regulatory applications to construct additional SMR units by 2035.

From: [Couture, Dominique](#)
To: [Clark, Lori](#)
Cc: [Scheme, Erica \(Deveau\)](#); [Purcell, Kathy](#); [Robinson, Rose M](#)
Subject: RE: Media Request - ARC response on SMR timeline
Date: September 20, 2024 11:36:29 AM
Attachments: [image001.png](#)
[image002.png](#)

Thank you! Will confirm with ARC.
Dom

From: Clark, Lori [REDACTED]
Sent: Friday, September 20, 2024 11:36 AM
To: Couture, Dominique [REDACTED]
Cc: Scheme, Erica (Deveau) [REDACTED] >; Purcell, Kathy [REDACTED]
Robinson, Rose M [REDACTED] >
Subject: RE: Media Request - ARC response on SMR timeline

This is fine.

Lori



Lori Clark (she/her)
President & CEO
Présidente-directrice générale
T: 506.458-4279
C: [REDACTED]
nbpower.com | energienb.com

From: Couture, Dominique [REDACTED]
Sent: Friday, September 20, 2024 10:09 AM
To: Clark, Lori [REDACTED]
Cc: Scheme, Erica (Deveau) [REDACTED]; Purcell, Kathy [REDACTED];
Robinson, Rose M [REDACTED] >
Subject: Media Request - ARC response on SMR timeline

Hi Lori,

ARC received a media request from the Telegraph Journal on SMR timelines. Could you take a look at their proposed answer below and let me know if you have any concerns or suggested edits? Kathy has reviewed and signed off. This is for noon if possible. Thank you!

REQUEST

Would ARC like to offer comments about when they foresee meeting the timeline for Made-in-NB SMR's given both the current NB Premier's and NB Power senior exec admissions that 2030 commercialization timeline is no longer attainable?

You deserve a chance to comment on current state, as Norm Sawyer, former President and CEO of ARC Nuclear Canada Incorporated, says ARC's delay with VDR process before the CNSC really sets ARC back as late-stage now in 2024, and he also suggests that the private investors may not have come through as your MOU's with them had originally planned for. Sawyer says private investors were supposed to invest also. As for ARC laying off staff, Sawyer said: "If you're laying off people, that kind of tells you (the private) investors might not have played their role in the thing."

Sawyer also said the hurdle to Made-in-NB aSMRs, especially with ARC's-aSMR design as Liquid-Sodium reactor and its being dependant on High-assay low-enriched uranium (HALEU) as a fuel source is really a supply chain issue. Citing the Russia-Ukraine War, he says because ARC-100 design is dependent on HALEU that the geopolitical events caused by that war and subsequent Western-based embargos and sanctions against Russia has cut off ARC Clean Technology's ability to access enriched uranium required in their design technology. He questions whether being so late in the design phase – where (ARC's) design was supposed to pass and get approval from Canadian Nuclear Safety Commission (CNSC) back in January – whether ARC can catchup.

At the very least, can ARC confirm if you've NOT received design approval from CNSC?

DRAFT RESPONSE: The [CNSC Vendor Design Review](#) is an optional pre-licensing review that enables CNSC staff to provide feedback to technology vendors early in the design process. ARC Clean Technology has submitted all required documentation for Phase 2 of the Vendor Design Review and is awaiting the Phase 2 report from the CNSC.

The CNSC licensing process for nuclear technology does not require a vendor design review, but requires approval for a Licence to Prepare Site, followed by an approved Licence to Construct, and then an approved Licence to Operate. In June 2023, NB Power submitted to the CNSC a Licence to Prepare Site application for a commercial demonstration of the ARC technology at the Point Lepreau site marking the beginning of the licensing process for the ARC reactor. This application [is one of only three license to prepare site applications](#) submitted to the CNSC for SMR technology in Canada, and the only application for a grid-scale Generation IV technology in the group.

ARC is continuously working with NB Power on the schedule so we can deliver clean energy to New Brunswick from our aSMRs in the needed timeline. We are aligned with NB Power's public statements and are targeting early 2030s for startup of the commercial demonstration unit.



Dominique Couture (She/Her)

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nbpower.com | energienb.com

From: [WARNKE, Kevin](#)
To: [WARNKE, Kevin](#)
Cc: [BERRI, AN, Carol](#); [george](#); [leer](#); [ghajary](#)
Subject: EXT - Report from the 4th Canada- U.S. Nuclear Energy Forum
Date: October 21, 2024 03:27:06 PM
Attachments: [4th Canada- U.S. Nuclear Energy Forum Report.pdf](#)

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*** Attention: External Message / Message externe ***

Hello,

Please see the below message from CNA President and CEO John Gorman and NEI President and CEO Maria Korsnick, as well as the attached report from the 4th Canada-U.S. Nuclear Energy Forum.

Best,

Kevin Warnke
Director, International Government Affairs
Nuclear Energy Institute

On behalf of the Canadian Nuclear Association and the Nuclear Energy Institute, thank you for participating in the 4th Canada-U.S. Nuclear Energy Forum, which was held in partnership with the Canada-U.S. Energy Transformation Task Force. Your time and engagement in the dialogue made the event a great success.

These annual forums continue to reinforce the value and importance of the Canada-U.S. relationship in the nuclear sector, as well as the level of interconnection. Furthermore, this year's forum reinforced the growing opportunities to extend and strengthen this relationship. The collaboration between the private and public sectors is increasingly important as we work to provide solutions to energy security, national security, and climate goals. Working across our shared border will strengthen our ability to succeed in addressing all three challenges.

CNA and NEI staff have produced summaries of the roundtables, including recommendations for industry and government stakeholders. We value your contribution to this important conversation and look forward to continuing to work with you.

We look forward to building on this success next year at the 5th Canada-U.S. Nuclear Energy Forum in late spring/early summer of 2025 in Toronto!

Best,

John Gorman

Maria Korsnick



Kevin Arnke Director International Government Affairs

Nuclear Energy Institute

1201 F Street NW, Suite 1286 Washington, DC 20004

M: 202.439.2552 nei.org

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4th Canada–U.S. Nuclear Energy Forum



October 21, 2024

Dear Member,

On behalf of the Canadian Nuclear Association and the Nuclear Energy Institute, thank you for participating in the 4th Canada-U.S. Nuclear Energy Forum, which was held in partnership with the Canada-U.S. Energy Transformation Task Force. Your time and engagement in the dialogue made the event a great success.

These annual forums continue to reinforce the value and importance of the Canada- U.S. relationship in the nuclear sector, as well as the level of interconnection. Furthermore, this year's forum reinforced the growing opportunities to extend and strengthen this relationship. The collaboration between the private and public sectors is increasingly important as we work to provide solutions to energy security, national security, and climate goals. Working across our shared border will strengthen our ability to succeed in addressing all three challenges.

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We look forward to building on this success next year at the 5th Canada-U.S. Nuclear Energy Forum in late spring/early summer of 2025 in Toronto!

Best,



John Gorman



Maria Korsnick

Attachment

Fuel Supply

Summary

Participants emphasized the critical need for a robust and reliable nuclear fuel supply chain to support future energy growth, promote global energy security, and reduce reliance on fossil fuels. Both the U.S. and Canadian governments have made significant commitments to supporting the development of an integrated approach to building a North American nuclear fuel cycle. As government and the private sector advance this important work, bilateral coordination and collaboration remain vital in addressing shared challenges and leveraging mutual strengths.

Discussions covered the operation, licensing, and safety regulation related to nuclear reactors, highlighting the challenges and opportunities in filling the gap left by the ban on Russian uranium imports. Policymakers were encouraged to address unintended challenges and ensure a smooth path toward achieving 2030 goals. Participants recognized that there is an elusive equilibrium in fuel supply with a focus on the durability of fuel demand driven by geopolitics and energy policy. Collaboration is essential for a competitive western fuel supply, and product innovation is necessary to meet evolving customer needs.

Some participants noted that sanctions on Russia have had unintended consequences, particularly on the shipping of Low Enriched Uranium (LEU) and Cobalt-60. This impact has highlighted the need for regulatory clarity and timely issuance of licenses for the continued shipment of essential materials.

Participants suggested a new policy model was needed to de-risk investments and provide clear market access rules. Industry stakeholders need to take a coordinated approach to broadening demand for different nuclear technologies, such as liquid metal cooled nuclear reactors, small modular reactors, and micro modular reactors. Finally, to move capital off the sidelines, stakeholders need to recalibrate investor risk perception, with demand driving fuel cycle capital investment.

The HALEU availability program aims to reduce uncertainty in the fuel supply chain. It is imperative that governments work to fully implement this program and set a precedent for growing fuel supply production. Governments must take swift and decisive action to leverage North America's competitive edge and ensure seamless and streamlined fuel supply processes between the US and Canada.

Industry can accelerate the fuel supply process by pledging funds to expand the front end, promoting innovative supply, and supporting risk. Increased investments in uranium enrichment and conversion are vital, and long-term contracts with utilities will create important demand signals. The forum concluded with a call for a well-organized plan, emphasizing the necessity of immediate and coordinated actions.

Discussed Recommendations for Industry Included:

- Pledge funds into the front end of fuel supply projects.
- Promote innovation to further develop supply.
- Secure long-term contracts with utilities to signal demand and enable miners to properly plan to develop the needed supply.

Discussed Recommendations for Government Included:

- Work with industry to develop a plan for investment, foster demand, and define international market rules, recognizing the importance of immediate and coordinated actions.
- Work to facilitate licenses for sole shippers of essential materials (e.g., Low Enriched Uranium and Cobalt-60) well in advance of required shipping dates. Both governments must act quickly to resolve technical issues currently stalling shipments.
- Take swift action to identify and resolve regulatory hurdles that could restrict material movement across the U.S.-Canadian border in advance of large-scale shipping demands.
- Get the market rules right, including providing certainty to suppliers about the risk of prohibited fuel from being permitted to re-enter the North American market.
- Ensure future sanctions do not adversely affect transport of nuclear materials domestically or across the U.S.-Canadian border.



Supply Chain and Related Trade Issues

Summary

While U.S. and Canadian companies can reliably source goods and services through a mature supply chain for existing nuclear plants, the rise of newer nuclear technologies and increased demand for new nuclear projects pose various challenges to the supply chain. Participants highlighted how a limited number of suppliers, capacity constraints, and rising costs are among the key issues facing the nuclear supply chain, along with a need to strengthen the nuclear safety and quality culture within newer entrants to the sector.

Participants emphasized the importance of developing and maintaining a robust North American supply chain to support accelerated deployment of new reactors. Export controls, tariffs, and a lack of nuclear cooperative agreements could hinder cross-border trade of materials and services essential to the expansion of nuclear generation and the global competitiveness of U.S. and Canadian firms. In addition to working to resolve these issues, the U.S. and Canadian governments can strengthen the supply chain by supporting new nuclear projects and fostering predictable demand that encourages suppliers to enter the market and develop the needed workforce.

As Canadian and U.S. companies work to grow their supply chains, industry participants will need to adopt and maintain nuclear-grade quality and safety standards to ensure the successful deployment of new nuclear projects. Achieving the right balance will require strategic investments that leverage existing North American nuclear projects and partnerships with both long-standing and newer suppliers. Broader adoption of technological advancements, such as automation, has significant potential to improve construction processes and drive efficiencies. To the extent that the existing supply chain continues to face gaps and limitations in meeting the growing and diversified needs of the new nuclear supply chain, innovators and investors will have the opportunity to identify and address new market needs.

Discussed Recommendations for Industry Included:

- Educate financial institutions on the segmental nature of nuclear projects to promote targeted investments.
- Encourage utility investments through fleet-wide reactor support and develop long-term agreements for easier manufacturer investment.
- Pre-planning and principle alignment before construction.
- Leverage learnings from completed and ongoing projects and implement lessons learned.

Discussed Recommendations for Government Included:

- Implement and enhance financial incentives and support such as tax credits, grants, and export financing for the nuclear industry.
- Foster cooperation between Canadian and US export credit agencies and develop strategies for nuclear cooperation and digital exchanges.
- Adopt policies that incentivize first-of-a-kind projects.
- Support nuclear education and workforce development through government policies, invest in workforce training, and promote nuclear energy as a competitive career choice.
- Develop policies for optimizing local and overseas resourcing and foster local partnerships to upscale the workforce and resources.

Regulatory Cooperation

Summary

Participants discussed the significant challenges and opportunities that exist for regulatory cooperation between the United States and Canada, and other countries, such as the UK. With new nuclear technologies and designs coming to market, regulatory cooperation is needed to enable efficient licensing of new reactors being deployed in multiple countries.

Participants agreed that the regulatory bodies should continue to ensure safety and public trust, but must find more efficient approaches, especially for advanced reactors. Regulators recognize that their long-standing organizational cultures must adapt to meet the growing global demand for nuclear power. With new nuclear technologies and heightened attention to design standardization, international cooperation is critical to support the efficient and timely deployment of nuclear reactors. Conflicting and unaligned requirements from various regulatory bodies are expected to pose a particular challenge given the high volume of operating licenses anticipated in the coming years.

Regulators noted that next steps in their collaborative efforts include demonstrating a model for collaboration, preparing for new vendors and so expanding the number of regulators, lifecycle collaboration, and, establishing joint regulatory positions that may serve as a foundation for regulatory approval worldwide.

Regulators and industry participants see value in joint reviews and international cooperation, such as through the IAEA Nuclear Harmonization and Standards Initiative, in advancing shared goals, research, training and licensing. Governments need to build on existing bilateral and multilateral efforts to strengthen international regulatory efficiency to meet global demand.

Participants also raised a concern that Canadian regulatory bodies have not yet prepared for the volumes of material that may need to cross the border once enriched fuel reactors are deployed in Canada. Current volumes are very limited and are used to fuel Canadian research reactors and labs.

Discussed Recommendations for Industry Included:

- Standardize designs to enable licensing efficiencies in Nth-of-a-kind reviews.
- Dedicate resources to provide regulators with timely and complete applications to allow for the most efficient review possible.
- Export designs with regulatory acceptance criteria to enable more rapid approval by regulators in export markets.

Discussed Recommendations for Government Included:

- Work to minimize duplication of reviews of the same design, recognizing reviews by other regulators when possible.
- Share insights with international counterparts on regulatory modernization to promote greater alignment of requirements between countries and enable foreign regulatory bodies to learn how to adopt efficiencies in their processes.
- Seek to accept international codes and standards that are accepted by other regulators.

Building the Order Book

Summary

Participants discussed the significant market opportunities that exist for new nuclear in the United States, Canada, and third markets, where there is demand and a role for both large and small reactors.

Nuclear projects are major undertakings, and the industry has learned a lot from recent projects, but without a sustained order book, there may be a missed opportunity to capitalize on the availability of a skilled workforce and experienced supply chains.

Many potential buyers have expressed interest in new nuclear technologies, such as small modular reactors, but want to see a reference plant in operation before they commit to a particular technology. They are also wary of the perceived heightened risk of cost overruns for first-of-a-kind nuclear technologies.

Some U.S. utilities may be concerned that significant cost overruns for new nuclear projects could challenge their debt profile and potentially trigger a downgrade in credit ratings. For utilities that rely on the routine issuance of debt to build and maintain infrastructure, a credit rating downgrade would have far-reaching impacts across their entire book of business. For this reason, utilities and their regulators are looking for assistance in mitigating these risks.

Canada has seen success with its updated Green Bond Framework, as it works to drive investment in clean energy investments, including for new nuclear reactors, refurbishment of existing nuclear facilities, and the nuclear supply chain.

The sharp increase in projected demand for electricity, resulting from anticipated growth in the use of artificial intelligence and the need for more data centers, has created a major opportunity for clean, firm energy. Nuclear is well situated to meet this demand both domestically and internationally. Policymakers need to appreciate that, in addition to the climate and energy security objectives, domestic investments in the nuclear sector support numerous jobs in North America and enable increased global competitiveness.

Discussed Recommendations for Industry Included:

- Continue working with customers who are demanding highly reliable, clean energy to support financial models that appeal to investors and mitigate risks to stakeholders.
- Educate utility commissions on the value proposition of nuclear and work with subnational governments on mitigating risks for new nuclear projects.

Discussed Recommendations for Government Included:

- Consider the establishment of a federal program to ensure project completion and rate payer protection for the first “few of a kind” deployments, to drive down risk for prospective buyers. Program support can be prorated as the 2nd and 3rd of a kind are likely to be less risky.
- Increase certainty so that customers can better understand the process and have a line of sight to completion, including increasing the efficiency of regulatory pathways.
- Coordinate governmental efforts to provide buyers with a full wrap of services to support nuclear deployment that is competitive with what is on offer from foreign governments.

Enabling Finance and Investment

Summary

Participants discussed how the sources of capital for research and development and equity compare to those for infrastructure and project finance. This discussion included risk mitigation and management approaches like special purpose vehicles, developer models, and orderbook development through pooled demand and capitalization.

The broad discussion honed in on capital access and risk as key drivers for enabling new builds. Lenders and investors that provide infrastructure capital typically do not bear first-of-a-kind risks, particularly when it comes to new technologies or unproven designs. This creates an investment gap for project finance for early mover nuclear projects.

Given the limited appetite investors have today for first-of-a-kind and early mover projects, further policy measures may be needed to mitigate risks to attract sufficient investment interest to advance new nuclear projects. Participants generally agreed that the government has a role to play in mitigating some first-of-a-kind costs and early mover risks. Some participants specifically voiced support for a government-backed insurance program to de-risk first-of-a-kind and early mover projects.

Discussed Recommendations for Industry Included:

- Continue refining cost estimates and complete project designs as much as possible prior to commencing construction.
- Utilize long-term contracts to de-risk the demand side of project economics.
- Pool demand to better form an order book of projects to lessen the impact of single first-of-a-kind projects.
- Work with investors to identify capital willing to take on the unique nature of nuclear projects.
- Educate multilateral development banks (such as the World Bank) on the inclusion of nuclear energy in their funding portfolios, alongside other carbon-free energy technologies.

Discussed Recommendations for Government Included:

- Identify solutions to absorb some first-of-a-kind risks from early mover nuclear projects to get through the pre-commercialization “valley of death.”
- Address critical supply chain gaps and extend support to supply chains to further de-risk this sector to attract investors.

Workforce

Summary

Participants discussed the challenge facing the nuclear energy industry to attract and retain enough highly skilled and diverse workers to both sustain the existing fleet of nuclear reactors and support the potential deployment of a new generation of advanced reactors.

Participants emphasized the need for a demand signal from industry and investment from government to enable workforce institutions to expand their infrastructure to meet the rapid growth in the need of available skilled workers.

Competition will be fierce for workers among other infrastructure projects and within the nuclear energy industry. Many workers express frustration with current nuclear job realities such as shift work, weekly overtime, and required travel. Nuclear energy will compete with other industries that need STEM and skilled trade workers that may offer a better work-life balance and fewer barriers to entry as compared to working in nuclear sector.

Participants discussed the uncertainty surrounding which new reactors will be built, when they will be built, and what workforce training is needed. Industry must embrace opportunities to streamline and reduce redundancies in education and training programs to accelerate work readiness.

In both the U.S. and Canada, there are many active initiatives to strengthen and grow the nuclear workforce to meet demand. Utilities and companies are investing in engagement campaigns such as co-op programs, facility tours, and conference sponsorships that build awareness of nuclear careers among students and job seekers. The countries should continue to share resources and collaborate on initiatives to promote nuclear energy career awareness.

Discussed Recommendations for Industry Included:

- Partner with training and academic institutions to develop competency frameworks and micro-credentials that will accelerate the education and upskilling process for technical jobs in nuclear. Particular focus should be given to technical training advancement and streamlining of certification programs.
- Collaborate on a dynamic model to project the workforce need required for output scenarios into the future. The projection should ultimately culminate in policy recommendations to industry and government.
- Collaborate with organizations representing women, indigenous communities and underrepresented populations to advance a roadmap for the industry to support diversity and inclusion.
- Support workforce planning studies, including development of long-term strategies that will identify policies and programs to enable sustainable growth of labor to meet the anticipated growing demand.

Discussed Recommendations for Government Included:

- Facilitate ease of workforce movement across the U.S. / Canada border.
- Continue to support and expand funding to support development of human resources throughout regulation and policy, especially in relation to SMRs.

From: [Rory O'Sullivan](#)
To: [Clark, Lori](#); [Libby, Cade \(DNRED/MRNDE - DIA/MAA\)](#); [Simmons, Traci \(ONB\)](#)
Cc: [Robinson, Rose M](#); [Hoyt, Jeff \(DNRED/MRNDE\)](#)
Subject: EXT - WATSS results and announcement
Date: February 27, 2025 02:50:14 PM
Attachments: [image001.png](#)
[Moltex WATSS Brochure Mar 03 2025.pdf](#)
[Moltex WATSS Web release v1.docx](#)

*** Attention: External Message / Message externe ***

Dear Lori, Cade and Traci,

I wanted to let you know that we have continued to get successful results from CNL with the most recent ones even more compelling. There is no process like this and this is the final technical obstacle to demonstrating at proof-of-concept stage that we can fully close the fuel cycle without ever needing any enrichment. This is a remarkable achievement that we could not have done without your support.

Please find attached a press release and brochure on WATSS that will go out Monday.

Kind regards,

Rory Sullivan

Chief Executive Officer

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roryosullivan@moltexenergy.com



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MARCH 3, 2025

Unlocking the Future of Nuclear Fuel Recycling

The Waste to Stable Salt Solution



The Waste to Stable Salt Solution

The WASTE To Stable Salt (WATSS) process is a groundbreaking nuclear waste recycling technology designed with versatility and efficiency in mind. Developed by Moltex Energy, a leader in advanced nuclear technology, the WATSS process reduces waste liabilities while unlocking unmatched value from existing fuel resources.



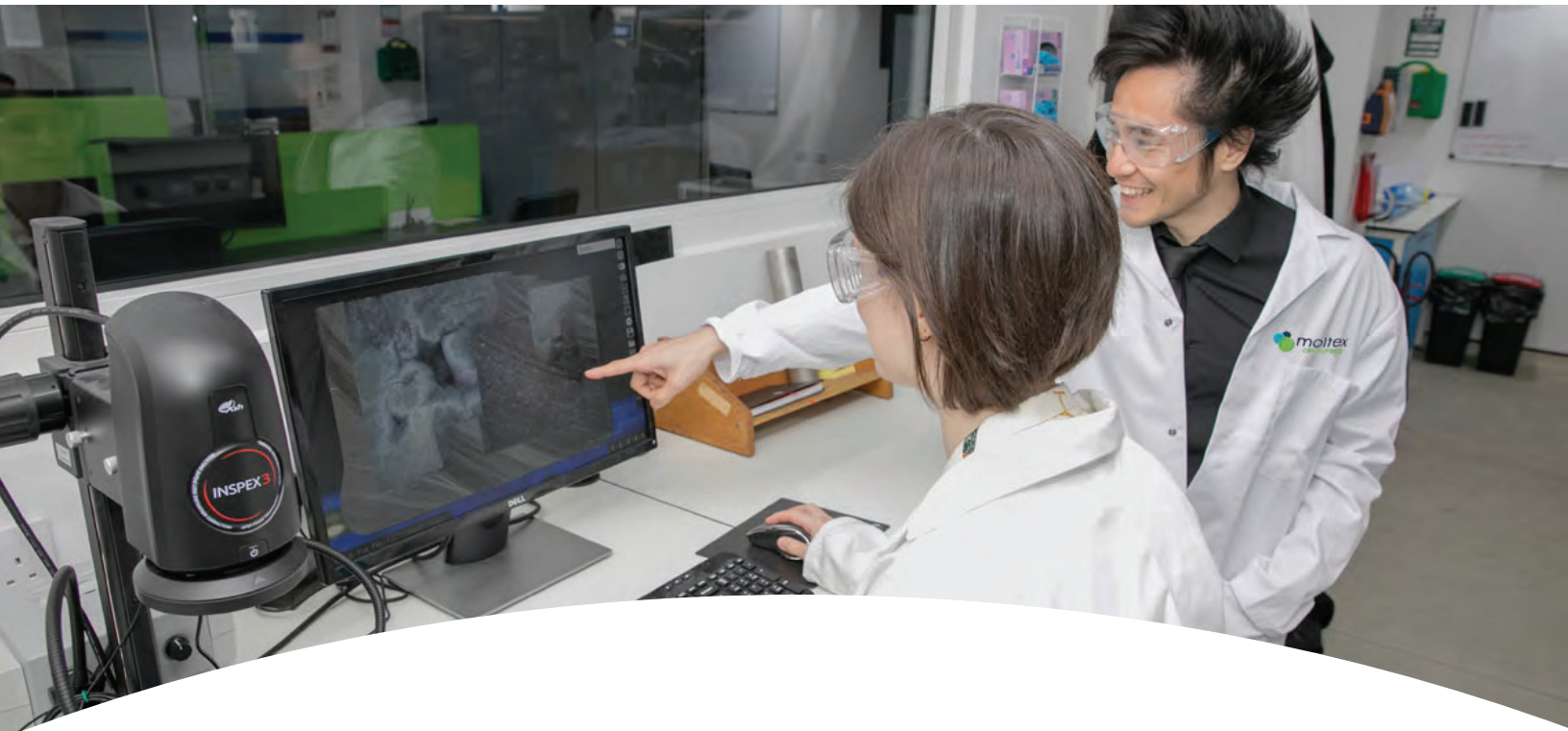
The WASTE To Stable Salt process recycles used nuclear waste into fuel.

The WATSS advantage

- Simple, reliable, and widely compatible used fuel recycling process
- Commercially and economically viable alternative to conventional recycling and disposal strategies
- Delivers greater energy security and fuel independence
- Reduces waste volumes

Alone, WATSS delivers major reductions in nuclear waste volume. When paired with Moltex's Stable Salt Reactor – Wasteburner (SSR-W), the recycled fuel can be converted into clean energy, while permanently destroying long-lived transuranic elements, including plutonium—the ultimate closed fuel cycle.





Message from the Chairman and CEO

The world today stands at a pivotal juncture, requiring both clean and affordable energy as we grapple with the pressing challenges of climate change. This complex equation demands innovative solutions capable of combining both environmental sustainability and economic viability. With WATSS, we have solved that equation by creating a simple and cost-efficient technology that transforms used nuclear fuel into a valuable energy asset.

WATSS transforms nuclear waste into an asset, providing a cost-effective, adaptable, and safe pathway for waste owners to reduce long-term liabilities while enhancing energy security. For industry leaders seeking practical solutions to long-lived waste challenges, WATSS delivers immediate impact and a future-proof strategy for nuclear fuel management.

Building on seven years of rigorous testing and development, Moltex has successfully validated WATSS using real used nuclear fuel pellets, marking a step change in the viability of closing the nuclear fuel cycle with a practical and scalable solution.

Turning your nuclear waste into an asset is possible with WATSS. Step into the future of nuclear waste management with Moltex.



Rory O'Sullivan
Chief Executive Officer



José Emeterio Gutiérrez
Chair, former CEO, Westinghouse

The Science Behind WATSS

Unlike traditional methods, WATSS extracts valuable materials and radioactive byproducts in a single, streamlined 24-hour chemical process, significantly reducing waste volumes and creating a valuable energy asset.

Made up of one pre-treatment phase followed by three main treatment stages, the WATSS process extracts transuranic elements directly into molten salt, significantly streamlining the fuel cycle. Designed for universal compatibility, it is capable of processing all commercial reactor fuels—as well as historical research and advanced reactor fuels.

Pre-treatment

After arriving at the WATSS facility, which is preferably co-located with existing nuclear power plants to minimize transportation requirement and associated risk, used fuel is stripped of its cladding. During pre-treatment, the irradiated oxide fuel is subjected to a sequence of controlled oxidation and reduction steps. This process reduces the particle size of the oxide matrix and adjusts its oxidation state to the level required for subsequent processing, all according to the Oxidation-Reduction of Oxides (OREOX) process.

Stage one

In stage one, transuranic elements are separated from uranium through direct extraction into a molten salt. The controlled addition of a reducing metal converts the transuranic elements into a salt-soluble species—either trichlorides or oxychlorides—while uranium remains as an insoluble dioxide phase.

From this stage, different processing pathways can be applied to produce various fuel types.

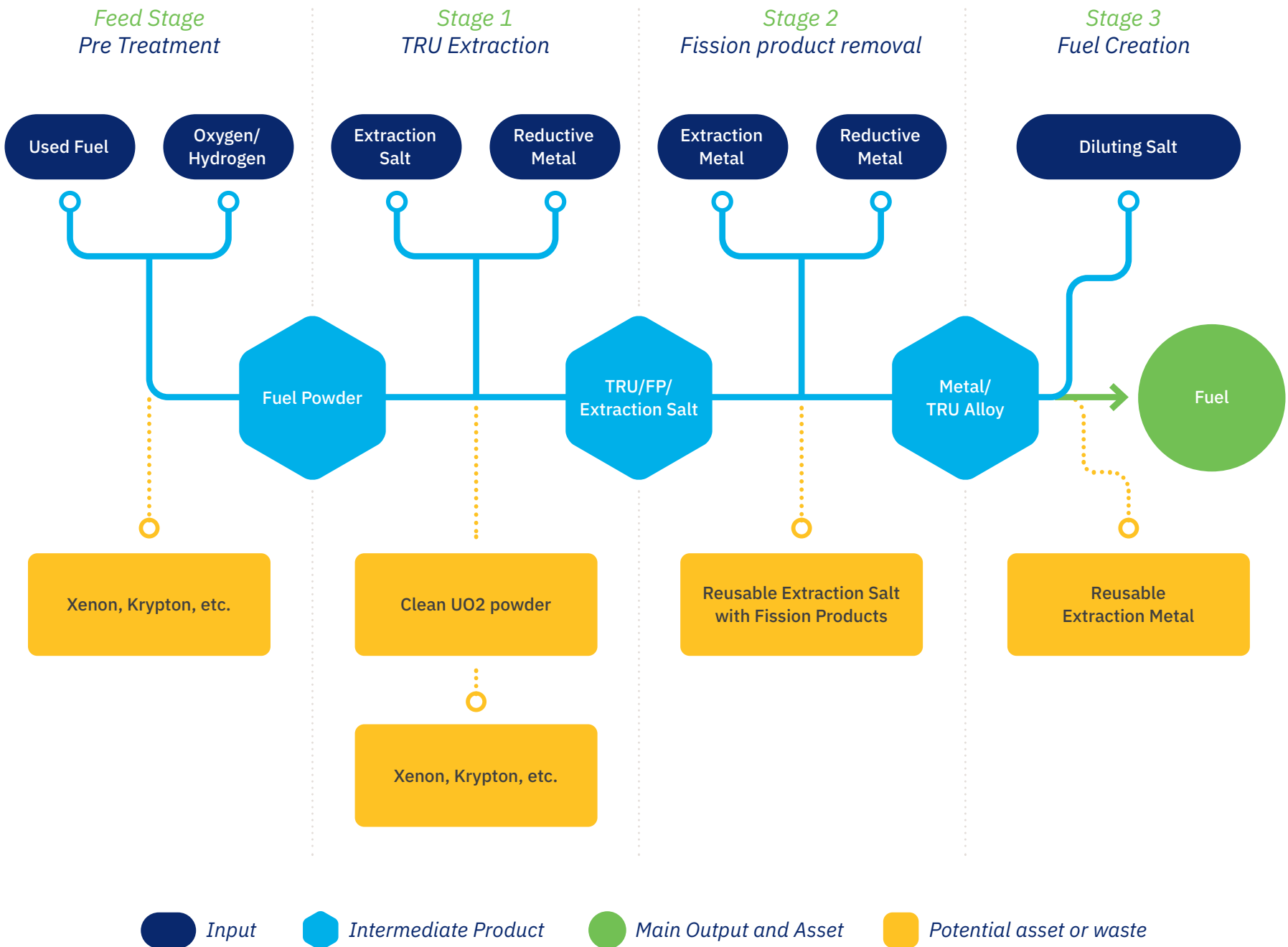
Stages two and three

In stages two and three of the WATSS process, the extracted transuranic elements are concentrated to produce molten salt fuel, while separating out the fission products. The actinides are first reduced in liquid bismuth, followed by chlorination with bismuth chloride in the presence of magnesium chloride. This yields a magnesium chloride-based salt infused with actinide trichlorides, serving as a precursor for reactor fuel salt.

For use in molten salt reactors, precursor salts with precisely characterized elemental and isotopic compositions are stored and blended to achieve the desired actinide ratio. Conventional salts are then added to reach the eutectic point, tailored to the specific reactor's requirements and producing either chloride- or fluoride-based fuel salts.

A demonstration of flowing molten salt.







What used fuels can WATSS recycle?

The WATSS process is designed to treat used nuclear fuels in oxide form, including CANDU, Light Water Reactor (LWR), and certain fast reactor fuels, such as mixed oxide (MOX) fuels. The Moltex fuel pretreatment process is highly versatile and can accommodate exotic, experimental, or advanced reactor fuels, including metallic, nitride, carbide, and silicide fuels.

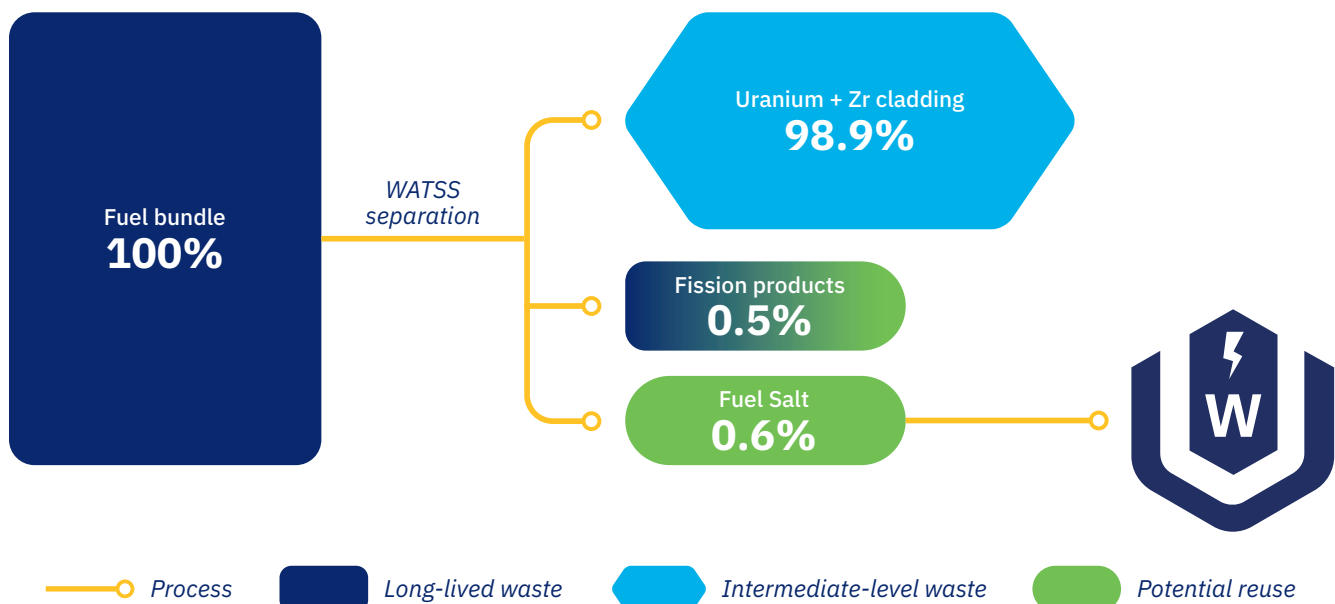
Together, the WATSS process and the SSR-W create a closed fuel cycle. WATSS and the SSR-W can infinitely recycle used MOX fuel, continuously extracting transuranic elements for reuse and preventing their accumulation in waste streams.



What fuels does the WATSS process create?

WATSS, as currently designed, produces fuel for molten salt reactors in either chloride or fluoride form. Stages two and three of the process developed by Moltex converts separated actinides into a new salt fuel, initially in the form of solid pellets for ease of handling and transportation.

This process is adaptable and can be optimized to meet the specific fuel requirements of different molten salt reactor configurations. For instance, with further development, WATSS-derived fuel could serve as a practical alternative to high-assay low-enriched uranium (HALEU), offering customized solutions for reactor developers seeking reliable, high-quality fuel sources.

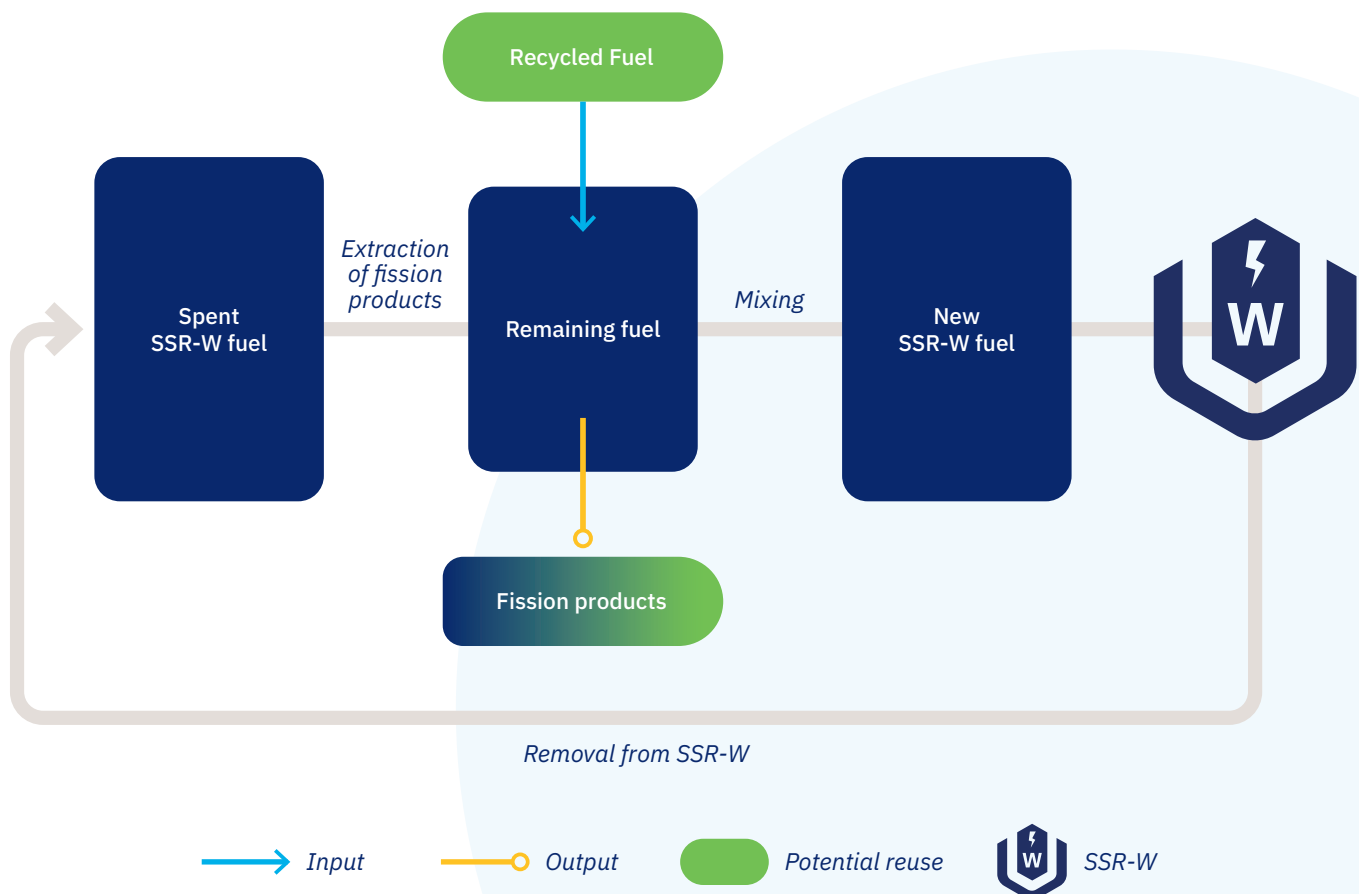


Long-term energy potential combined with immediate waste reduction

Potentially endless energy potential

Combined with Moltex's SSR-W reactor, which is specifically designed to destroy all man-made long lived radioactive elements, the WATSS process enables continuous recycling and energy generation.

In practical terms, the used fuel from the current fleet of nuclear reactors in the United States could power at least 25,000 MW of SSR-Ws for 60 years. At the end of their lifecycle, the only remaining transuranic waste would be the used fuel sitting in the core of these reactors, which could be used to start new reactors, enabling continuous recycling. Looking to the future, instead of presenting a disposal challenge, additional nuclear waste from potential new nuclear power plants, would be an opportunity to generate even more clean energy.



Enhancing supply security and environmental sustainability

Recycling existing used fuel through WATSS provides a stable and predictable supply of fissile material, insulating reactor operators from uranium market fluctuations. As the nuclear renaissance progresses, the volume of available used fuel is expected to grow, further enhancing supply security.

Beyond economic and supply considerations, multiple studies have highlighted the environmental impact of mining lower-grade uranium ores and the emissions associated with fuel enrichment.¹ By eliminating the need for fresh uranium mining and enrichment, WATSS removes these environmental impacts entirely, making nuclear energy even more sustainable.

Minimizing nuclear waste

The WATSS process has the potential to halve the footprint of a required repository, while supporting fast reactors that generate 50% more energy without additional fuel needs or repository expansion. Over its 60-year lifetime, a 500 MW electricity generating SSR-W can destroy approximately 25 metric tons of actinides.²

By removing most heat-generating isotopes and utilizing interim storage, the majority of used fuel recycled through the WATSS process qualifies as Intermediate Level Waste. This classification enables more efficient canister filling, optimizing storage capacity. As a result, the final repository footprint for this type of waste stream is approximately three times less than that required for direct disposal of used fuel.

¹E. Schneider, B. W. Carlsen & E. Tavriles, "Measures of the Environmental Footprint of the Front End of the Nuclear Fuel Cycle," INL/EXT-10-20652, 2010
T. Norgate, N. Haque, P. Koltun, "The impact of uranium ore grade on the greenhouse gas footprint of nuclear power," Journal of Cleaner Production, 2014, 84, 360-367

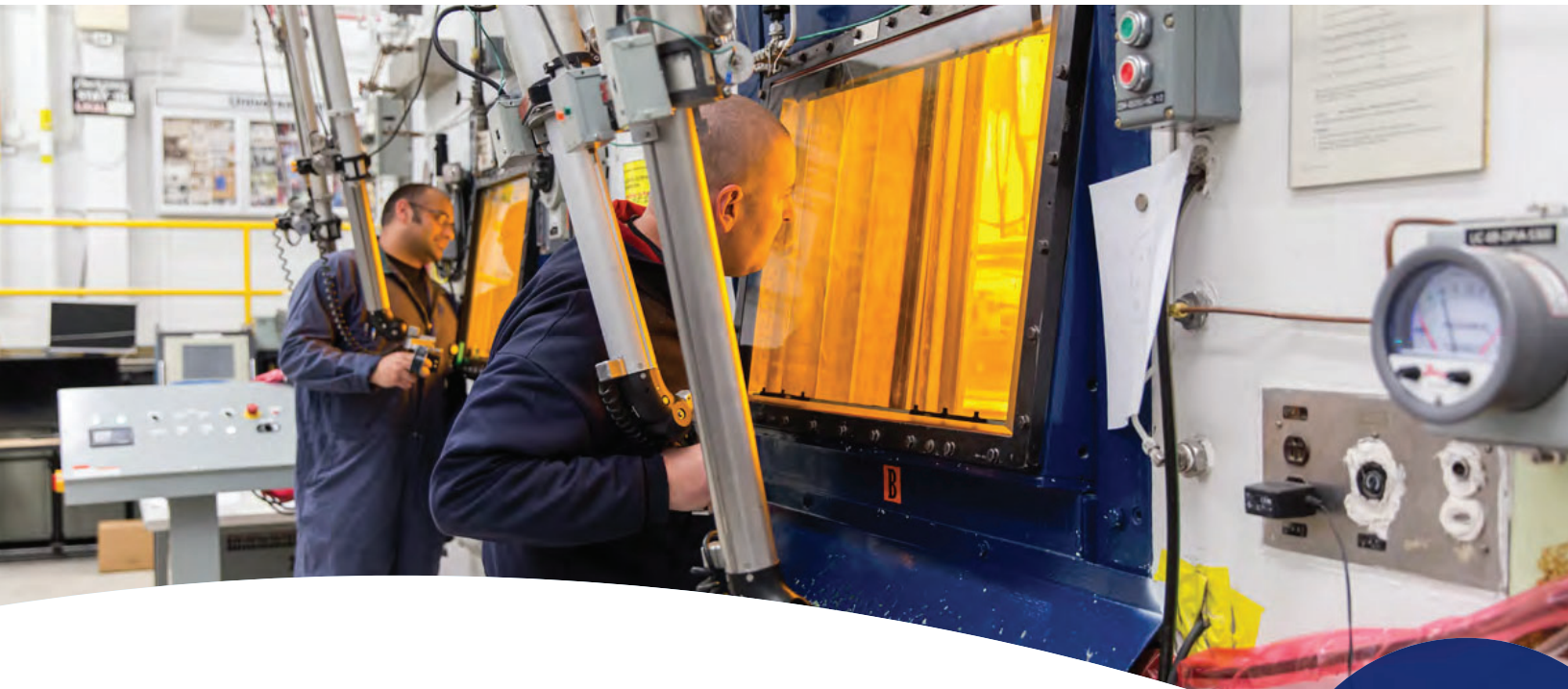
²T. Taylor, O. Gregoire, P. Haigh, S. Boddington & R. O'Sullivan, "Waste Burning Performance of the Moltex SSR-W," 5th Generation IV and Small Reactors (G4SR) Conference, 2024.

Recovered transuranic elements can serve as fuel in advanced reactors, generating substantial energy while simultaneously eliminating long-lived radioactive isotopes. Other elements and isotopes present in the spent fuel can also be valuable and be extracted for industrial and medical applications, transforming waste liabilities into usable assets.

The remaining high-level waste represents roughly 3% of the initial used fuel mass and about 5% of its volume. After stabilization, this material can be safely disposed of in a Deep Geological Repository, yielding a smaller overall repository footprint than an open fuel cycle without recycling.

In countries lacking a centralized national repository, or as a complementary solution, the relatively low volume of high-level waste makes Deep Borehole Disposal (DBD) a viable option, even for non-stabilized waste. DBD offers exceptional long-term isolation, ensuring superior safeguards against both deliberate and accidental access.





Inherently proliferation resistant

Historically, concerns around used fuel recycling and reprocessing have centered on the separation of plutonium, which can potentially be diverted for military use.

Molten salt reactors do not require this separation, and the WATSS process fundamentally prevents it, as all transuranic elements are managed collectively without the ability to isolate plutonium.

More importantly, WATSS not only enables continuous recycling but also the destruction of plutonium and other transuranic elements through the waste-burning reactor. This ensures that weapons-usable material is permanently eliminated, neutralizing proliferation concerns, regardless of future technological advancements.

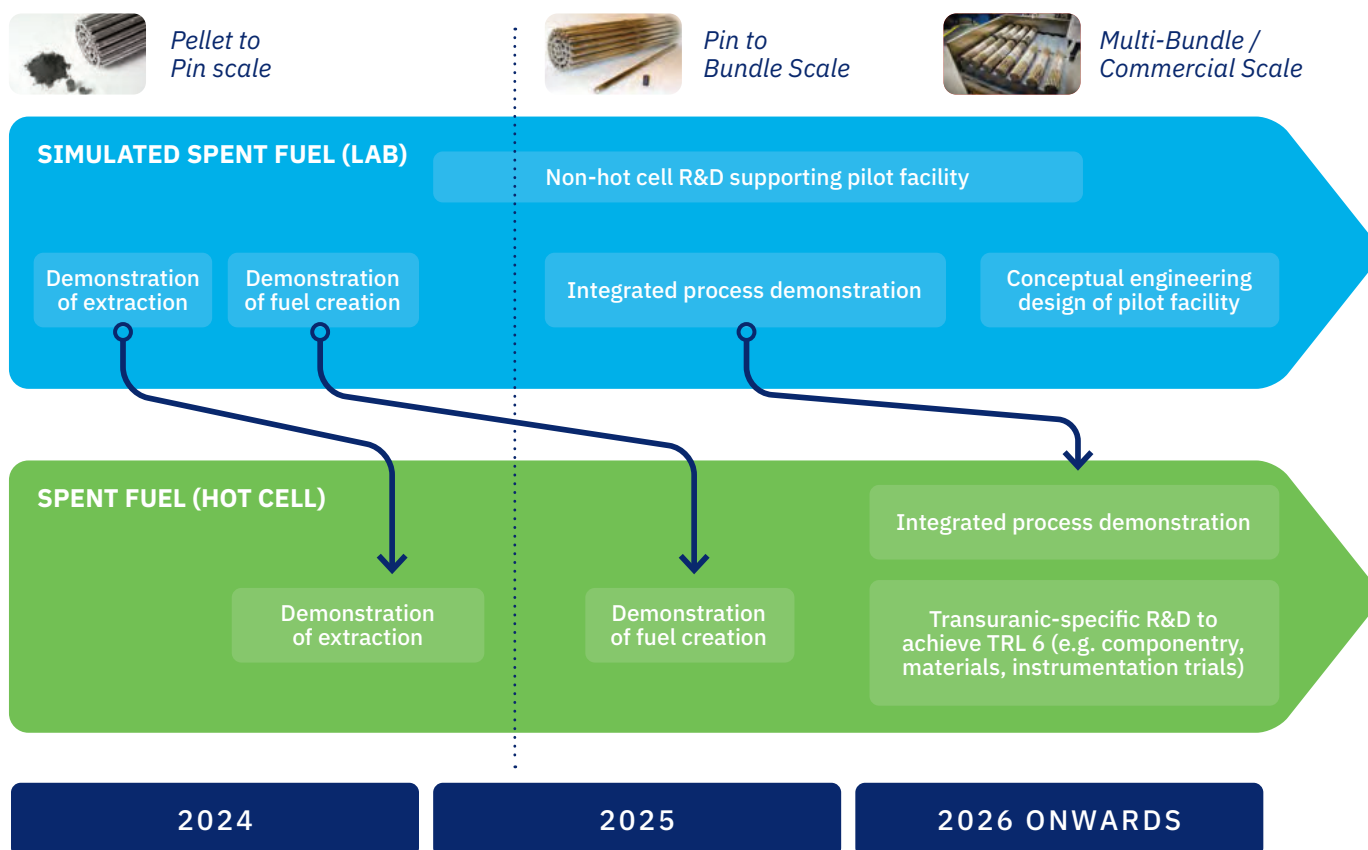


A proven breakthrough

Driven by a bold vision to revolutionize used nuclear fuel management, Moltex has been at the forefront of developing a groundbreaking recycling process for seven years. Through rigorous testing and development, we pursued a solution that could go beyond conventional recycling methods and redefine nuclear waste recycling. WATSS stands apart as the first entirely new technology developed in over three decades and the first ever created by a private enterprise.

In early 2025, through work executed by the Canadian Nuclear Laboratories (CNL)—the only institution in Canada equipped to handle used nuclear fuel—Moltex achieved a pivotal milestone: the successful demonstration of the WATSS process at pellet scale with real used nuclear fuel. This groundbreaking achievement validated WATSS’s ability to extract the majority of valuable transuranic material from used nuclear fuel with unparalleled efficiency.

Before reaching this milestone, Moltex dedicated four years to exploring and trialling reprocessing technologies widely regarded in the industry as the most promising solutions, including pyroprocessing and electrorefining. None could deliver in the same way that the WATSS process does on efficiency, proliferation resistance, or cost-effectiveness.





Backed by leading authorities

Independent assessments by experts Robert Holmes, former Chief Scientist, Canadian Nuclear Laboratories and British Nuclear Fuels and Adrian Simper, former Chief Scientist of the UK Nuclear Decommissioning Authority and Chief Nuclear Advisor to the UK government, have been influential in assessing the technology's viability and readiness.

“The WATSS process [...] is based on demonstrated science and reflects established custom and practice for radiochemical plants [...] The science both of individual process steps and the way they are combined, appears sound.”

— Adrian Simper and Robert Holmes

Engineering partners, IDOM, and Candu Energy Inc., an AtkinsRéalis company, have provided critical expertise in advancing this groundbreaking process from concept to demonstration.

The development of WATSS has been made possible by CNL's Canadian Nuclear Research Initiative, and through the generous financial support of Canada's Strategic Innovation Fund, Atlantic Canada Opportunities Agency, the Province of New Brunswick, Ontario Power Generation, and Canadian Nuclear Laboratories as well as investors, IDOM, Candu Energy Inc, North Shore Mi'kmaq Tribal Council, and many other private individuals.

IDOM

Candu
An AtkinsRéalis company



Canadian Nuclear
Laboratories

Laboratoires Nucléaires
Canadiens

NORTH SHORE
Mi'kmaq Tribal Council

Pathway to full-scale operations

Over the next two years, Moltex intends to continue to expand its simulated used fuel operations, while refining and optimizing the integrated WATSS process, demonstrating its scalability to a variety of different contexts and ensuring a seamless transition to commercial deployment. This will include the development of a large-scale simulated fuel version of the entire WATSS process as well as larger integrated rig that uses real used fuel. The latter will be housed in a shielded hot cell facility that has yet to be selected.

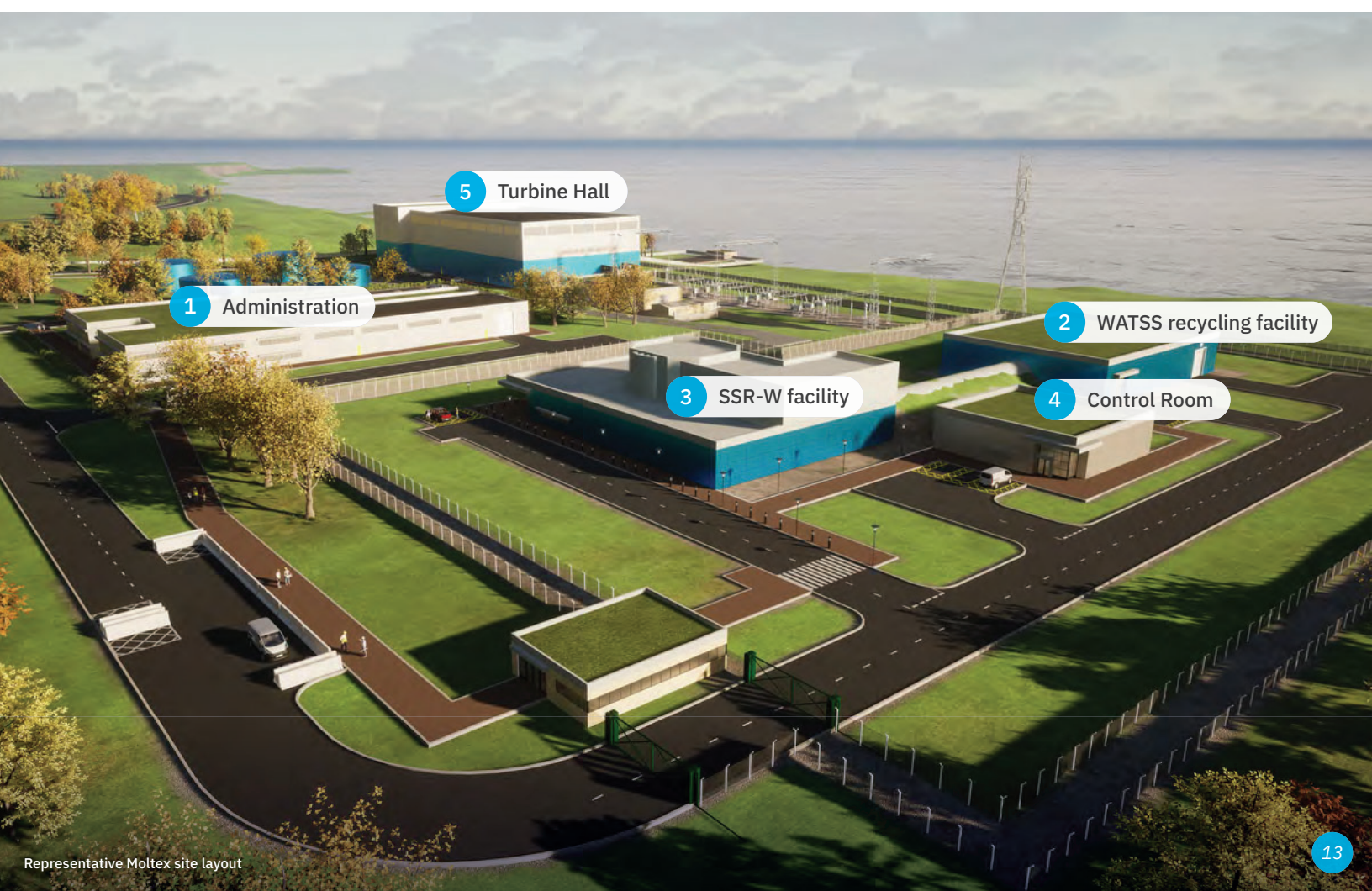
In partnership with New Brunswick Power, Moltex plans to build a commercial-scale demonstration facility at the Point Lepreau Nuclear Generating station site. The facility will recycle an anticipated 260,000 used fuel bundles from the existing CANDU reactor and create recycled fuel for the entire 60-year lifespan of one 300MW demonstration Stable Salt Reactor-Wasteburner.

Future WATSS facilities will be designed with flexibility in mind, optimized to meet the unique requirement of different jurisdictions and customers, while also balancing cost-efficiency resulting from scaling up the technology's deployment. Funding for these activities is anticipated to come from a combination of private financing, government funding, and customer financing through a consortium of end-users.

This collaborative and iterative approach provides an unprecedented opportunity for customer and end-users to shape the development of the technology, ensuring it aligns with their specific needs. From facility design to process optimization, your input will be invaluable in guiding WATSS toward solutions tailored to your operations.

Experience the future of nuclear recycling with Moltex's groundbreaking WATSS technology. Join us in pioneering a revolutionary approach to nuclear waste management, tailored to your vision.







This brochure is published by Moltex Energy Canada Inc., an intellectual property developer and nuclear technology leader. Headquartered in Canada with development activities across Canada, the UK, and the USA, Moltex has a portfolio of patents on both nuclear waste recycling and molten salt reactor technologies. Moltex is a proud partner of NB Power, working alongside the utility to advance reactor technology in New Brunswick Canada, with the goal of deploying first-of-a-kind nuclear recycling and energy conversion technologies.

FOR FURTHER INFORMATION

Visit moltexenergy.com

Contact info@moltexenergy.com

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The technologies and processes described herein may be subject to regulatory approvals and may not be available in all jurisdictions. Stakeholders are responsible for ensuring compliance with all relevant regulations.

Moltex WATSS – Website Version

Embargoed until 0630 ET, Monday 3 March 2025

Moltex Energy Achieves Breakthrough in Nuclear Fuel Recycling with WATSS Technology

Saint John, B. March – Moltex Energy Canada Inc. (Moltex) is shaking up nuclear waste management with its revolutionary Waste to Stable Salt (WATSS) process. This innovative technology is set to transform nuclear waste management by providing economically viable solutions, addressing one of the biggest challenges facing the nuclear sector as it responds to increased global demand.

Moltex has successfully validated WATSS on used fuel bundles from a commercial reactor in Canada through state-of-the-art hot cell experiments executed by Canadian Nuclear Laboratories marking a pivotal moment in closing the nuclear fuel cycle and advancing next-generation nuclear sustainability.

WATSS: A Game-Changer for Nuclear Energy

The WATSS process marks a significant leap forward by converting used nuclear fuel into an asset through an efficient 24-hour chemical process. Moltex has demonstrated that it can extract 90% of the transuranic material in 24-hours, with greater efficiency over longer periods of time.

This advancement not only vastly reduces nuclear waste volumes but also unlocks fresh economic opportunities for waste owners and utilities —options previously deemed unfeasible because of financial constraints and the availability of waste management capabilities following nuclear's increased role in the global energy mix. With 66 reactors currently under construction and more than 80 SMR designs being progressed across the world, WATSS offers a financially attractive pathway to managing higher waste volumes more sustainably.

Rory Sullivan, Chief Executive Officer, Moltex said:

"It is crucial that increased demand for nuclear energy is matched by increased acceleration of the nuclear fuel cycle. WATSS is a transformative solution that not only reduces liabilities but also adds value, turning waste into a valuable energy asset."

Global Solutions to Nuclear's Waste Challenge

WATSS provides a robust, commercially viable alternative to conventional direct disposal methods. By coupling WATSS with Moltex's Stable Salt Reactor – Wasteburner (SSR-W), the technology not only reduces waste volumes dramatically but also transforms nuclear waste into clean, dispatchable energy, permanently eliminating long-lived transuranic elements like plutonium. WATSS can produce fuel for other reactor types also.

Unlocking Investment

The development of WATSS, supported by entities such as the Government of Canada, Province of New Brunswick, NB Power, and Ontario Power Generation, underscores the confidence in its potential to revolutionize the industry. Moltex's collaboration with



engineering partners like IDOM and CANDU Energy Inc., an AtkinsRéalis company, showcases the extensive expertise backing the technology.

Indigenous communities in New Brunswick are also supportive of the technology having invested in its development.

Chief and General Manager of the North Shore Mi'kmaq Tribal Council said:

Our investment in Moltex was driven by the potential to make nuclear more sustainable and reduce nuclear waste liability. Moltex has been engaged with us at the earliest stage of the project. We are pleased to see this important milestone being met and look forward to more to come.

Enhancing Value through Consultancy Services

In addition to its technological breakthroughs, Moltex is offering consultancy services that present nuclear waste owners with essential solutions to assess and mitigate their liability risks effectively. This service is crucial for waste owners seeking expert guidance to navigate and explore whether their used fuel liabilities can be turned into an asset.

To explore how WATSS can transform nuclear waste management, download our full report: [\[give link\]](#)

Media Contact:

Betty Draper
Moltex
bettydraper@moltexenergy.com

-ENDS-

About Moltex

Moltex is an IP company and nuclear technology leader at the forefront of developing breakthrough technologies for nuclear energy. These include the Stable Salt Reactor – Wasteburner (SSR-W) which uses recycled nuclear waste as fuel; a Waste To Stable Salt (WATSS) process for recycling nuclear waste to produce new fuel; and GridReserve thermal energy storage tanks, which enable the SSR-W to act as a peaking plant. In addition to these technologies, Moltex's UK based sister company, MoltexFLEX, has advanced the FLEX reactor – a modular molten salt reactor designed for low-cost, flexible operation across electricity generation, hydrogen production and industrial heat.

Moltex was selected by NB Power to progress the development of its reactor technology in New Brunswick, Canada, with the goal of deploying first-of-a-kind SSR-W, WATSS and GridReserve units at the Point Lepreau site.

From: [Walsh, D'Arcy Lesley](#)
To: [Duguay, Kathleen](#); [Couture, Dominique](#)
Cc: [Fraser, Elizabeth](#); [Nouwens, Jason](#)
Subject: Re: MEDIA RE: see below -all information below is public.
Date: March 14, 2025 03:29:10 PM

Apologies fixed a typo. Let me know if there are any concerns. Thanks!

No, New Brunswick Power could not fulfill this request.

NB Power is committed to the safe and peaceful use of nuclear material, while meeting all federal and international safety obligations. Our commitment is ensured under the Canadian Nuclear Safety Commission and the International Atomic Energy Agency.

As a Canadian utility, NB Power also abides by the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT), an international treaty that is committed to non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

From: Walsh, D'Arcy Lesley
Sent: Friday, March 14, 2025 3:22 PM
To: Duguay, Kathleen; Couture, Dominique
Cc: Fraser, Elizabeth; Nouwens, Jason
Subject: Re: MEDIA RE: see below -all information below is public.

Thank you so much, Kathleen!

We simplified it a bit and will use the rest to support any follow-up questions. Could you confirm that the following is accurate:

No, New Brunswick Power could not fulfil this request.

NB Power is committed to the safe and peaceful use of nuclear material, while meeting all federal and international safety obligations. Our commitment is ensured under the Canadian Nuclear Safety Commission and the International Atomic Energy Agency.

As a Canadian utility, NB Power also abides by the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT), an international treaty that is committed to non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

From: Duguay, Kathleen
Sent: Friday, March 14, 2025 1:48 PM
To: Couture, Dominique
Cc: Walsh, D'Arcy Lesley; Fraser, Elizabeth; Nouwens, Jason
Subject: RE: MEDIA RE: see below -all information below is public.

Please let me know if you have any questions.

Kathleen

Question : Si la **Défense nationale demandait à Point Lepreau de lui fournir de l'uranium de qualité "militaire", pour fabriquer des armes, est-ce la centrale en question pourrait répondre à cette demande?**

No, New Brunswick Power could not fulfil this request.

NB Power meets all federal and international obligations for Safeguards and is committed to the safe and peaceful use of nuclear material.

This is further ensured through the Canadian Nuclear Safety Commission and the International Atomic Energy Agency in which the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT) is the cornerstone of the global nuclear non-proliferation regime. States that are party to the NPT have commitments and obligations in the areas of non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

To fulfil the commitments made under the NPT, Canada has concluded binding safeguards agreements with the International Atomic Energy Agency (IAEA), which provide for the application of International Atomic Energy Agency safeguards in Canada. Under the safeguards agreements, Canada has an obligation to report to the IAEA on all nuclear material and on certain types of nuclear research and manufacturing in Canada, and to accept IAEA inspections of those areas.

Under the [Nuclear Safety and Control Act](#) (NSCA), the Canadian Nuclear Safety Commission (CNSC) has the mandate to achieve Canadian conformity with these agreements. To do so, the CNSC imposes obligations on its licensees for reporting required by the IAEA and for the access necessary for IAEA verification of this reporting.

Question : Si la **Défense nationale demandait à Point Lepreau de lui fournir de l'uranium de qualité "militaire", pour fabriquer des armes, est-ce la centrale en question pourrait répondre à cette demande?**

La réponse courte est non, Énergie Nouveau-Brunswick ne pourrait pas répondre à cette demande. Énergie NB respecte toutes les obligations fédérales et internationales en matière de garanties et s'engage à utiliser les matériaux nucléaires de manière sûre et pacifique.

Cela est d'autant plus garanti par la Commission canadienne de sûreté nucléaire et l'Agence internationale de l'énergie atomique, dans le cadre du Traité sur la non-prolifération des armes nucléaires qui constitue la pierre angulaire du régime mondial de non-prolifération nucléaire. Les États parties au Traité sur la non-prolifération des armes nucléaires ont des engagements et des obligations en matière de non-prolifération, de désarmement et d'utilisation pacifique des matériaux et technologies nucléaires.

Pour respecter les engagements pris dans le cadre du Traité sur la non-prolifération des armes nucléaires le Canada a conclu des accords de garanties contraignants avec l'Agence internationale de l'énergie atomique qui prévoient l'application des garanties de l'Agence internationale de l'énergie atomique au Canada. En vertu de ces accords, le Canada a l'obligation de rendre compte à l'Agence internationale de l'énergie atomique de tous les matériaux nucléaires et de certains types de recherches et de fabrications nucléaires au Canada, et d'accepter les inspections de l'Agence internationale de l'énergie atomique dans ces domaines.

En vertu de la Loi sur la sûreté et la réglementation nucléaires, la Commission canadienne de sûreté nucléaire a le mandat d'assurer la conformité du Canada à ces accords. Pour ce faire, la Commission canadienne de sûreté nucléaire impose des obligations à ses titulaires de licences concernant les rapports requis par l'Agence internationale de l'énergie atomique et l'accès nécessaire à la vérification de ces rapports par l'Agence internationale de l'énergie atomique.

From: Couture, Dominique

Sent: March 13, 2025 1:28 PM

To: Duguay, Kathleen

Cc: Walsh, D'Arcy Lesley ; Fraser, Elizabeth

Subject: MEDIA RE: see below -all information below is public.

Importance: High

Hi Kathleen,

We received a follow up on this : Si la Défense nationale demandait à Point Lepreau de lui fournir de l'uranium de qualité "militaire", pour fabriquer des armes, est-ce la centrale en question pourrait répondre à cette demande? Would you be able to provide information? CC'ing D'Arcy since I am out starting EOD – I would like to answer him today if possible.

Thank you,

Dom

From: Couture, Dominique

Sent: Monday, March 10, 2025 3:30 PM

To: Duguay, Kathleen [REDACTED]

Cc: Purcell, Kathy [REDACTED]; Bagshaw, Steven [REDACTED]; Nouwens, Jason [REDACTED]; Fraser, Elizabeth [REDACTED]

Subject: RE: see below -all information below is public.

Thank you Kathleen, this is great. I will send to the reporter.

Dom

From: Duguay, Kathleen [REDACTED]

Sent: Monday, March 10, 2025 3:26 PM

To: Couture, Dominique [REDACTED]

Cc: Purcell, Kathy [REDACTED]; Bagshaw, Steven [REDACTED]; Nouwens, Jason [REDACTED]

Subject: RE: see below -all information below is public.

Hi Dominique

See below proposed answers – all this information is also available publicly. I added a section as per Steve feedback – that the fuel bundles are safely stored on our site with no impact to our workers, public and environment.

I gave all the links for reference so that they can educate themselves on it as well.

Let me know if you need anything else.

K

Bonjour

Merci beaucoup pour vos questions. Énergie NB respecte toutes les obligations fédérales et internationales en matière de mesures de protection et s'engage à utiliser en toute sécurité les matières nucléaires. Le combustible est stocké en toute sécurité sur le site de la centrale de Point Lepreau, sans impact pour les travailleurs, le public et l'environnement.

En plus de vous fournir ces réponses, j'ai également inclus du matériel de référence que vous pourriez être intéressé à consulter.

Q : Les résidus du réacteur CANDU-6 de Point Lepreau pourraient-ils permettre au Canada de se doter de la bombe nucléaire, si jamais le pays voulait se doter d'une telle arme?

Il est physiquement impossible pour un réacteur nucléaire d'exploser comme une bombe nucléaire. Le combustible du réacteur ne contient pas suffisamment d'uranium-235 pour être explosif, et tous les réacteurs nucléaires sont construits avec plusieurs couches de dispositifs de sécurité et de caractéristiques auto-limitantes.

Conformément aux règlements canadiens et internationaux, le combustible utilisé n'est pas classé comme un matériau inflammable, explosif ou fissile. Le combustible nucléaire CANDU utilisé n'est ni un liquide ni un gaz — c'est un solide stable.

Le Canada a été le premier pays avec une capacité nucléaire substantielle à rejeter les armes nucléaires, et il continue à participer activement à la promotion internationale de l'utilisation pacifique de l'énergie nucléaire.

En tant que membre d'une communauté internationale composée d'organismes de réglementation nucléaire, la CCSN travaille en collaboration avec de nombreux partenaires bilatéraux et multilatéraux du monde entier afin de renforcer la sûreté nucléaire et la non-prolifération à l'échelle nationale et internationale.

La politique du Canada en matière de non-prolifération et de désarmement nucléaire repose

principalement sur le Traité sur la non-prolifération des armes nucléaires, et s'appuie également sur d'autres instruments et initiatives par l'intermédiaire desquels le Canada travaille avec ses partenaires en vue de prévenir la prolifération des armes nucléaires ainsi que des matières et de la technologie connexes. La politique précise les conditions de la coopération nucléaire du Canada avec des pays partenaires déterminés. Le Traité sur la non-prolifération est au cœur des efforts mondiaux visant à prévenir la prolifération des armes nucléaires, à promouvoir la coopération aux fins de l'utilisation pacifique de l'énergie nucléaire, à faire progresser l'objectif du désarmement nucléaire et du désarmement général et complet.

La politique exige que les grandes exportations nucléaires soient assujetties à une entente de coopération nucléaire entre le Canada et le pays importateur. Ces ententes établissent des obligations réciproques qui ont pour but de minimiser le risque de prolifération associé au transfert international d'articles nucléaires importants, ainsi que d'obtenir le consentement éclairé des pays importateurs et exportateurs.

Le combustible nucléaire irradié canadien ne se présente pas sous forme liquide ou gazeuse. C'est un solide stable — un type de céramique — qui est scellé dans des contenants de conception spéciale qui sont soudés les uns aux autres pour former une « grappe ».

REFERENCE

French: [https://www.nwmo.ca/fr/Site-Search-Results-Page?](https://www.nwmo.ca/fr/Site-Search-Results-Page?q=Nuclear%20Fuel%20Waste%20Projections%20in%20%20Canada%20%E2%80%93%202024%20Update)

English: [https://www.nwmo.ca/en/Site-Search-Results-Page?](https://www.nwmo.ca/en/Site-Search-Results-Page?q=Nuclear%20Fuel%20Waste%20Projections%20in%20%20Canada%20%E2%80%93%202024%20Update)

French: <https://www.cnsccsn.gc.ca/fra/resources/non-proliferation/>

English: <https://www.cnsccsn.gc.ca/eng/resources/non-proliferation/#sec-1>

French: <https://www.cnsccsn.gc.ca/fra/resources/non-proliferation/>

English: <https://www.cnsccsn.gc.ca/eng/resources/non-proliferation/#sec-1>

Q : Si vous pouviez aussi obtenir quelle est la quantité de matière ou déchets nucléaires qui est produite par la centrale de Point Lepreau, et ce qui en advient, ce serait de l'information utile pour mon article.

Toutes les grappes de combustible usé sont entreposées le site des Installations de gestion des déchets radioactifs solides de la centrale nucléaire de Point Lepreau pour le total jusqu'à la fin de juin 2024 est 175, 422.

Si toutes ces grappes de combustible usé à étaient empilées comme des cordes de bois, toutes les grappes de combustible utilisées à la centrale nucléaire de Point Lepreau depuis 1983 pourraient tenir dans le tiers d'une patinoire de hockey de la LNH, de la surface de la glace jusqu'au sommet des bandes.

[https://www.nwmo.ca/-/media/Reports-MASTER/Technical-reports/NWMO-TR-2024-09-](https://www.nwmo.ca/-/media/Reports-MASTER/Technical-reports/NWMO-TR-2024-09-Nuclear-Fuel-Waste-Projections-in-Canada---2024-Update.ashx?sc_lang=en)

[Nuclear-Fuel-Waste-Projections-in-Canada---2024-Update.ashx?sc_lang=en](https://www.nwmo.ca/-/media/Reports-MASTER/Technical-reports/NWMO-TR-2024-09-Nuclear-Fuel-Waste-Projections-in-Canada---2024-Update.ashx?sc_lang=en)

From: [Duguay, Kathleen](#)
To: [Walsh, D"Arcy Lesley](#)
Subject: French version of the one you sent to Lori for final approval
Date: March 14, 2025 06:39:39 PM
Attachments: [Document4.docx](#)

Proposed Response:

NB Power could not fulfill this request and we do not use weapons grade uranium at the Point Lepreau Nuclear Generating Station.

Point Lepreau is a CANDU reactor that uses natural Uranium which has a U-235 content of which is far below the threshold for weapons grade uranium.

NB Power is committed to the safe and peaceful use of nuclear material, while meeting all federal and international safety and security obligations. Our commitment is ensured under the Canadian Nuclear Safety Commission and the International Atomic Energy Agency.

As a Canadian utility, NB Power also abides by the Treaty on the Non-Proliferation of Nuclear Weapons , an international treaty that is committed to non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

Énergie Nouveau-Brunswick ne pourrait pas répondre à cette demande. Nous n'utilisons pas d'uranium de qualité militaire à la centrale nucléaire de Point Lepreau.

La centrale de Point Lepreau est un réacteur CANDU qui utilise de l'uranium naturel, dont la teneur en U-235 est bien inférieure au seuil de l'uranium de qualité militaire.

Énergie NB s'engage à utiliser les matériaux nucléaires de manière sûre et pacifique, tout en respectant toutes les obligations fédérales et internationales en matière de sécurité et de sûreté. Notre engagement est garanti par la Commission canadienne de sûreté nucléaire et l'Agence internationale de l'énergie atomique.

En tant que service public canadien, Énergie NB respecte également le Traité sur la non-prolifération des armes nucléaires , un traité international engagé en faveur de la non-prolifération, du désarmement et de l'utilisation pacifique des matériaux et technologies nucléaires.

From: [Purcell, Kathy](#)
To: [Papazian, ickie](#)
Subject: FW: Media inquiry for approval - Weapons grade uranium
Date: May 06, 2025 09:43:17 AM
Attachments: [image001.png](#)
[image002.png](#)

For the Teams RTI link that Joanne sent this morning.

From: Clark, Lori [REDACTED]
Sent: March 14, 2025 7:30 PM
To: Walsh, D'Arcy Lesley [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Scheme, Erica (Deveau) [REDACTED]; Duguay, Kathleen [REDACTED] >
Subject: RE: Media inquiry for approval - Weapons grade uranium

Same to all of you!

Lori



Lori Clark (she/her)
President & CEO
Présidente-directrice générale

T: 506.458-4279
C: [REDACTED]
nbpower.com | energienb.com

From: Walsh, D'Arcy Lesley [REDACTED]
Sent: March 14, 2025 7:21 PM
To: Clark, Lori [REDACTED]
Cc: Purcell, Kathy [REDACTED] >; Scheme, Erica (Deveau) [REDACTED]; Duguay, Kathleen [REDACTED]
Subject: Re: Media inquiry for approval - Weapons grade uranium

Thank you! Have a great weekend.

Get [Outlook for iOS](#)

From: Clark, Lori [REDACTED]
Sent: Friday, March 14, 2025 7:20:21 PM
To: Walsh, D'Arcy Lesley [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Scheme, Erica (Deveau) [REDACTED] >; Duguay, Kathleen [REDACTED]
Subject: RE: Media inquiry for approval - Weapons grade uranium

Perfect! Great work everyone.

Lori



Lori Clark (she/her)

President & CEO

Présidente-directrice générale

T: 506.458-4279

C: [REDACTED]

nbpower.com | energienb.com

From: Walsh, D'Arcy Lesley [REDACTED]
Sent: March 14, 2025 6:04 PM
To: Clark, Lori [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Scheme, Erica (Deveau) [REDACTED]; Duguay, Kathleen [REDACTED]
Subject: Re: Media inquiry for approval - Weapons grade uranium

Hi Lori,

Here is an updated response, approved by Kathleen, for your review and approval. Thank you!

Proposed Response:

No, NB Power could not fulfill this request and we do not use weapons grade uranium at the Point Lepreau Nuclear Generating Station. Point Lepreau is a CANDU reactor that uses natural Uranium which has a U-235 content of which is far below the threshold for weapons grade uranium.

NB Power is committed to the safe and peaceful use of nuclear material, while meeting all federal and international safety and security obligations. Our commitment is ensured under the Canadian Nuclear Safety Commission and the International Atomic Energy Agency.

As a Canadian utility, NB Power also abides by the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), an international treaty that is committed to non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

From: Clark, Lori [REDACTED]
Sent: Friday, March 14, 2025 5:18 PM
To: Walsh, D'Arcy Lesley [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Scheme, Erica (Deveau) [REDACTED]
Subject: Re: Media inquiry for approval - Weapons grade uranium

Isn't the answer that we do not use weapons grade uranium at PLNGS. And the uranium on site is processed within a fuel bundle that couldn't be used for weapons.

I believe that to be the case and if so we should add it after the first sentence.

left as is- it sounds like legislation and our desire for peaceful relationships prevent it.

Lori

From: Walsh, D'Arcy Lesley [REDACTED]
Sent: Friday, March 14, 2025 4:52:51 PM
To: Clark, Lori [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Scheme, Erica (Deveau) [REDACTED]
Subject: Media inquiry for approval - Weapons grade uranium

Hi Lori,

Please see the media inquiry below for your approval. Kathleen has reviewed/approved.

Thanks!

Media Inquiry - Bernard Hache (Acadie Nouvelle)

(Translated)

If National Defence asked Point Lepreau to supply it with weapons-grade uranium, would the plant be able to meet this request?

Proposed Answer:

No, New Brunswick Power could not fulfill this request.

NB Power is committed to the safe and peaceful use of nuclear material, while meeting all federal and international safety obligations. Our commitment is ensured under the Canadian Nuclear Safety Commission and the International Atomic Energy Agency.

As a Canadian utility, NB Power also abides by the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT), an international treaty that is committed to non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

D'Arcy Walsh (she/her)

Corporate Communications Communications institutionnelles



Énergie NB Power

the power of possibility
débordant d'énergie

506.238.5757

nbpower.com | energienb.com

From: [Purcell, Kathy](#)
To: [Papazian, ickie](#)
Subject: FW: MEDIA REQ EST 3
Date: May 06, 2025 09:44:13 AM

From: Walsh, D'Arcy Lesley [REDACTED]
Sent: March 14, 2025 2:48 PM
To: Purcell, Kathy [REDACTED]
Subject: Fw: MEDIA REQUEST

Hi Kathy,

There was an outstanding request on nuclear that Kathleen provided this afternoon. I find the answer a bit too complex for the question. I'm leaning towards cutting it back quite a bit, but I know it will need to go back to Kathleen and Jason confirm. Do you think that's reasonable?
Thanks!

Media Inquiry - Bernard Hache (Acadie Nouvelle)

(Translated)

If National Defence asked Point Lepreau to supply it with weapons-grade uranium, would the plant be able to meet this request?

Proposed Answer

No, New Brunswick Power could not fulfil this request.

NB Power meets all federal and international obligations for Safeguards and is committed to the safe and peaceful use of nuclear material. This is further ensured through the Canadian Nuclear Safety Commission, the International Atomic Energy Agency and the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT). As a participant and ratifier of the NPT, Canada has commitments and obligations in the areas of non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

From: Duguay, Kathleen
Sent: Friday, March 14, 2025 1:48 PM
To: Couture, Dominique
Cc: Walsh, D'Arcy Lesley; Fraser, Elizabeth; Nouwens, Jason
Subject: RE: MEDIA RE: see below -all information below is public.

Please let me know if you have any questions.

Kathleen

Question : Si la **Défense nationale demandait à Point Lepreau de lui fournir de l'uranium de qualité "militaire", pour fabriquer des armes, est-ce la centrale en question pourrait répondre à cette demande?**

No, New Brunswick Power could not fulfil this request.

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This is further ensured through the Canadian Nuclear Safety Commission and the International Atomic Energy Agency in which the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT) is the cornerstone of the global nuclear non-proliferation regime. States that are party to the NPT have commitments and obligations in the areas of non-proliferation, disarmament, and the peaceful use of nuclear material and technology.

To fulfil the commitments made under the NPT, Canada has concluded binding safeguards agreements with the International Atomic Energy Agency (IAEA), which provide for the application of International Atomic Energy Agency safeguards in Canada. Under the safeguards agreements, Canada has an

obligation to report to the IAEA on all nuclear material and on certain types of nuclear research and manufacturing in Canada, and to accept IAEA inspections of those areas.

Under the [*Nuclear Safety and Control Act*](#) (NSCA), the Canadian Nuclear Safety Commission (CNSC) has the mandate to achieve Canadian conformity with these agreements. To do so, the CNSC imposes obligations on its licensees for reporting required by the IAEA and for the access necessary for IAEA verification of this reporting.

Question : Si la **Défense nationale demandait à Point Lepreau de lui fournir de l'uranium de qualité "militaire", pour fabriquer des armes, est-ce la centrale en question pourrait répondre à cette demande?**

La réponse courte est non, Énergie Nouveau-Brunswick ne pourrait pas répondre à cette demande.

Énergie NB respecte toutes les obligations fédérales et internationales en matière de garanties et s'engage à utiliser les matériaux nucléaires de manière sûre et pacifique.

Cela est d'autant plus garanti par la Commission canadienne de sûreté nucléaire et l'Agence internationale de l'énergie atomique, dans le cadre du Traité sur la non-prolifération des armes nucléaires qui constitue la pierre angulaire du régime mondial de non-prolifération nucléaire. Les États parties au Traité sur la non-prolifération des armes nucléaires ont des engagements et des obligations en matière de non-prolifération, de désarmement et

d'utilisation pacifique des matériaux et technologies nucléaires.

Pour respecter les engagements pris dans le cadre du Traité sur la non-prolifération des armes nucléaires le Canada a conclu des accords de garanties contraignants avec l'Agence internationale de l'énergie atomique qui prévoient l'application des garanties de l'Agence internationale de l'énergie atomique au Canada. En vertu de ces accords, le Canada a l'obligation de rendre compte à l'Agence internationale de l'énergie atomique de tous les matériaux nucléaires et de certains types de recherches et de fabrications nucléaires au Canada, et d'accepter les inspections de l'Agence internationale de l'énergie atomique dans ces domaines.

En vertu de la Loi sur la sûreté et la réglementation nucléaires, la Commission canadienne de sûreté nucléaire a le mandat d'assurer la conformité du Canada à ces accords. Pour ce faire, la Commission canadienne de sûreté nucléaire impose des obligations à ses titulaires de licences concernant les rapports requis par l'Agence internationale de l'énergie atomique et l'accès nécessaire à la vérification de ces rapports par l'Agence internationale de l'énergie atomique.

From: Couture, Dominique [REDACTED]
Sent: March 13, 2025 1:28 PM
To: Duguay, Kathleen [REDACTED]
Cc: Walsh, D'Arcy Lesley [REDACTED] >; Fraser, Elizabeth [REDACTED] >
Subject: MEDIA RE: see below -all information below is public.
Importance: High

Hi Kathleen,

We received a follow up on this : Si la Défense nationale demandait Point Lepreau de lui fournir de l'uranium de qualité militaire , pour fabriquer des armes, est-ce la centrale en question pourrait répondre cette demande?

Would you be able to provide information? CC'ing D'Arcy since I am out starting EOD – I would like to answer him today if possible.

Thank you,

Dom

From: Couture, Dominique
Sent: Monday, March 10, 2025 3:30 PM
To: Duguay, Kathleen [REDACTED]
Cc: Purcell, Kathy [REDACTED]; Bagshaw, Steven [REDACTED]
Nouwens, Jason [REDACTED] >; Fraser, Elizabeth [REDACTED]
Subject: RE: see below -all information below is public.

Thank you Kathleen, this is great. I will send to the reporter.

Dom

From: Duguay, Kathleen [REDACTED]
Sent: Monday, March 10, 2025 3:26 PM
To: Couture, Dominique [REDACTED] >

Cc: Purcell, Kathy [REDACTED]>; Bagshaw, Steven [REDACTED]>;
Nouwens, Jason [REDACTED]>
Subject: RE: see below -all information below is public.

HI Dominique

See below proposed answers – all this information is also available publicly. I added a section as per Steve feedback – that the fuel bundles are safely stored on our site with no impact to our workers, public and environment.

I gave all the links for reference so that they can educate themselves on it as well.

Let me know if you need anything else.

K

Bonjour

Merci beaucoup pour vos questions. Énergie NB respecte toutes les obligations fédérales et internationales en matière de mesures de protection et s'engage à utiliser en toute sécurité les matières nucléaires. Le combustible est stocké en toute sécurité sur le site de la centrale de Point Lepreau, sans impact pour les travailleurs, le public et l'environnement.

En plus de vous fournir ces réponses, j'ai également inclus du matériel de référence que vous pourriez être intéressé à consulter.

Q : Les résidus du réacteur CANDU-6 de Point Lepreau pourraient-ils permettre au Canada de se doter de la bombe nucléaire, si jamais le pays voulait se doter d'une telle arme?

Il est physiquement impossible pour un réacteur nucléaire d'exploser comme une bombe nucléaire. Le combustible du réacteur ne contient pas suffisamment d'uranium-235 pour être explosif, et tous les réacteurs nucléaires sont construits avec plusieurs couches de dispositifs de sécurité et de caractéristiques auto-limitantes.

Conformément aux règlements canadiens et internationaux, le combustible utilisé n'est pas classé comme un matériau inflammable, explosif ou fissile. Le combustible nucléaire CANDU utilisé n'est ni un liquide ni un gaz — c'est un solide stable.

Le Canada a été le premier pays avec une capacité nucléaire substantielle à rejeter les armes nucléaires, et il continue à participer activement à la promotion internationale de l'utilisation pacifique de l'énergie nucléaire.

En tant que membre d'une communauté internationale composée d'organismes de réglementation nucléaire, la CCSN travaille en collaboration avec de nombreux partenaires bilatéraux et multilatéraux du monde entier afin de renforcer la sûreté nucléaire et la non-prolifération à l'échelle nationale et internationale.

La politique du Canada en matière de non-prolifération et de désarmement nucléaire repose principalement sur le Traité sur la non-prolifération des armes nucléaires, et s'appuie également sur d'autres instruments et initiatives par l'intermédiaire desquels le Canada travaille avec ses partenaires en vue de prévenir la prolifération des

armes nucléaires ainsi que des matières et de la technologie connexes. La politique précise les conditions de la coopération nucléaire du Canada avec des pays partenaires déterminés. Le Traité sur la non-prolifération est au cœur des efforts mondiaux visant à prévenir la prolifération des armes nucléaires, à promouvoir la coopération aux fins de l'utilisation pacifique de l'énergie nucléaire, à faire progresser l'objectif du désarmement nucléaire et du désarmement général et complet .

La politique exige que les grandes exportations nucléaires soient assujetties à une entente de coopération nucléaire entre le Canada et le pays importateur. Ces ententes établissent des obligations réciproques qui ont pour but de minimiser le risque de prolifération associé au transfert international d'articles nucléaires importants, ainsi que d'obtenir le consentement éclairé des pays importateurs et exportateurs.

Le combustible nucléaire irradié canadien ne se présente pas sous forme liquide ou gazeuse. C'est un solide stable — un type de céramique — qui est scellé dans des contenants de conception spéciale qui sont soudés les uns aux autres pour former une « grappe ».

REFERENCE

French: <https://www.nwmo.ca/fr/Site-Search-Results-Page?q=Nuclear%20Fuel%20Waste%20Projections%20in%20%20Canada%20%E2%80%93%202024%20Update>

English <https://www.nwmo.ca/en/Site-Search-Results-Page?q=Nuclear%20Fuel%20Waste%20Projections%20in%20%20Canada%20%E2%80%93%202024%20Update>

French: <https://www.cnsccsn.gc.ca/fra/resources/non-prolifération/>

English: <https://www.cnscccsn.gc.ca/eng/resources/non-proliferation/#sec-1>

Q : Si vous pouviez aussi obtenir quelle est la quantité de matière ou déchets nucléaires qui est produite par la centrale de Point Lepreau, et ce qui en advient, ce serait de l'information utile pour mon article.

Toutes les grappes de combustible usé sont entreposées le site des Installations de gestion des déchets radioactifs solides de la centrale nucléaire de Point Lepreau pour le total jusqu'à la fin de juin 2024 est 175, 422.

Si toutes ces grappes de combustible usé at étaient empilées comme des cordes de bois, toutes les grappes de combustible utilisées à la centrale nucléaire de Point Lepreau depuis 1983 pourraient tenir dans le tiers d'une patinoire de hockey de la LNH, de la surface de la glace jusqu'au sommet des bandes.

https://www.nwmo.ca/-/media/Reports-MASTER/Technical-reports/NWMO-TR-2024-09-Nuclear-Fuel-Waste-Projections-in-Canada--2024-Update.ashx?sc_lang=en