SUPPLEMENTARY SHOW STOPPERS 23 – 29

A Formal Submission to the Impact Assessment Agency of Canada

Registry #89430 — Energy Alberta Peace River Nuclear Power Project

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Peace River Region, Alberta — Treaty 8 Territory | *March 2026*

SHOW STOPPER 23

Technology Indeterminacy: The Project Description Does Not Identify the Designated Project

IAA s. 10 and Physical Activities Regulations r. 7 — uncommitted reactor technology — participation resource depletion

The Statutory Requirement

Section 10(1) of the Impact Assessment Act requires a proponent to provide the Agency with an initial project description that includes the information prescribed by the Physical Activities Regulations. Regulation 7(c) requires identification of the designated project's physical components, including the type and dimensions of permanent structures. Regulation 7(d) requires identification of the physical activities carried out in connection with the project. The project description filed by Energy Alberta in April 2025 named the CANDU MONARK as the proposed reactor technology. No technology commitment has been made since. As of this submission, Energy Alberta's own project page lists two technologies — the CANDU MONARK and the AP1000 — as simultaneously under consideration. The IAA's project description requirements cannot be satisfied by a description that names two mutually exclusive physical configurations.

The reactor is not a component ancillary to this project. The reactor is the project. The technology selection determines the applicable safety case, the radiological source term, the tritium emission profile, the spent fuel volume and isotopic composition, the design basis accident scenarios, the emergency planning zone dimensions, the required cooling water volume, and the applicable CNSC vendor design review status. Without a committed reactor technology, every quantitative element of the project description required by Regulation 7 is either provisional, inapplicable, or contingent on a decision the proponent has not made.

The Parameters That Remain Uncommitted

The following parameters are materially different as between the CANDU MONARK and the AP1000. They are not differences of degree within a common design envelope. They are differences in physical configuration, fuel type, radiological profile, and regulatory basis that affect the substance of every technology-specific assessment the IAAC has required.

- Tritium emissions: CANDU reactors produce tritium through neutron activation of the heavy-water moderator and coolant. Routine annual tritium discharge from a CANDU unit is of the order of 60,000 TBq per reactor per year. The AP1000 is a light-water reactor with no heavy-water circuit; its tritium discharge is approximately 800–1,000 TBq per reactor per year. The two figures differ by roughly two orders of magnitude. Every tritium exposure assessment, every downstream health burden calculation, and every comparison with the CNSC's own Derived Release Limits is specific to one of these values and cannot be transposed to the other.
- Spent fuel volume and composition: CANDU reactors use natural uranium fuel at low burnup, generating approximately 100–130 tonnes of used fuel per reactor per year. AP1000 reactors use enriched uranium fuel at higher burnup, generating approximately 25–30 tonnes per reactor per year for a comparable output. The waste volume is different by a factor of approximately four depending on the technology chosen. The isotopic composition also differs, affecting shielding requirements, transport specifications, and interim storage design.

- Design basis accidents: CANDU accident analysis is conducted against a pressure-tube rupture model with heavy-water release as a primary concern. AP1000 accident analysis uses a passive safety system model with different initiating events, different release fractions, and a different set of design extension conditions. Emergency planning zone dimensions and off-site dose projections prepared under one design basis are not applicable to the other.
- Cooling water demand: The thermal efficiency and heat rejection profile of the two designs differ, directly affecting the quantitative water demand analysis required by the IAAC's own Summary of Issues and the analysis filed in Show Stopper 28.
- Lifecycle CO2 emissions: The enrichment requirement for AP1000 fuel introduces a processing stage absent from the natural uranium CANDU fuel cycle. Lifecycle carbon accounting differs between the two technologies as a consequence.

The CNSC Regulatory Position

The CNSC has confirmed, as of March 2026, that it has not yet begun a preliminary assessment of the CANDU MONARK — the technology named in Energy Alberta's IPD. A preliminary assessment under the CNSC's pre-licensing vendor design review process is the earliest stage at which the CNSC forms a view on a reactor design's conformance with Canadian requirements. Without that assessment, no CNSC technical basis exists for evaluating the CANDU MONARK against the regulatory requirements applicable to this site.

The AP1000 completed Phase 2 of its CNSC Vendor Design Review in 2013 — thirteen years before this submission. Phase 3 has not been completed. The CNSC has therefore confirmed that neither technology currently identified by the proponent has a completed Canadian regulatory basis.

Resource Depletion Through Uncommitted Technology Revision

The Participant Funding Program operated by the IAAC is designed for a stable project description against which participants can direct bounded research effort. Where the proponent retains the ability to revise the technology basis of its project without formal amendment and without triggering a fresh participation phase, a structural asymmetry is introduced: the proponent bears no cost from each revision, while every cost is borne by participants who must independently re-analyse a changed set of physical parameters.

Each parameter listed above requires an independent technical analysis from source materials — peer-reviewed literature, CNSC regulatory documents, IAEA safety guides, and engineering reference data. None of these analyses can be transposed from a CANDU to an AP1000 basis. The submitter has completed technology-specific analyses on a CANDU MONARK basis across the submissions filed in this proceeding. If the AP1000 is the technology adopted, those analyses are inapplicable and must be repeated in full. The cost of that re-analysis is caused by the proponent's failure to commit to a technology before the assessment commenced — and by the CNSC's failure to require such a commitment as a condition of pre-licensing engagement.

The IAAC's Public Participation Framework describes capacity to participate in an informed manner as a constituent element of meaningful participation. A participant who has exhausted available research resources on superseded parameters does not have equivalent capacity to re-engage with a changed technology basis from a standing start. The Participant Funding Program has no existing provision to fund re-analysis caused by proponent-initiated technology changes.

What the IAAC Must Find

The Panel cannot make a positive finding under IAA sections 60 to 63 in respect of a project whose defining physical parameter has not been established. Each statutory assessment required under those sections — adverse effects, public interest, contribution to or hindrance of Canada's environmental obligations — is technology-specific. None can be completed for a project described as either a CANDU MONARK or an AP1000.

Before the assessment proceeds to the Impact Statement phase, the Panel must require Energy Alberta to either commit irrevocably to a single named reactor technology and provide an amended project description incorporating all technology-specific parameters required by Regulation 7, or formally adopt a Plant Parameter Envelope methodology that identifies the outer bound of each relevant parameter across all technologies under consideration and commits to assessing the project against those envelope values. The IAAC must make supplementary participant funding available for any fresh comment period that results.

THE IAAC IS TRAPPED:

Cannot complete the statutory assessments under IAA ss. 60–63 for a project whose reactor technology has not been identified. The project description does not satisfy s. 10 and Regulation 7 in the absence of a technology commitment.

Cannot certify the participation record as satisfying the meaningful participation obligation under IAA ss. 6(1)(h), 11, and 27 where participants engaged with CANDU MONARK-specific parameters on the basis of a project description the proponent has subsequently undermined, without formal notice to participants.

CNSC NEGLECTED ITS DUTY:

Confirmed in March 2026 that it has not begun a preliminary assessment of the CANDU MONARK — the technology named in the proponent's IPD. Phase 3 of the AP1000 Vendor Design Review is also incomplete. Neither technology has a completed CNSC regulatory basis.

Did not require a technology commitment or a formally documented Plant Parameter Envelope before pre-licensing engagement commenced. Did not notify the IAAC or participants when the proponent's commercial position changed in October 2025.

PARTICIPATION RESOURCE DEPLETION:

Each unannounced technology revision requires participants to independently repeat a full set of technology-specific analyses: tritium source terms, spent fuel volumes and composition, accident consequence profiles, cooling water demand, and lifecycle emissions. No element of these analyses is transferable between the CANDU MONARK and the AP1000. The cost is borne entirely by participants; the proponent bears none.

The Participant Funding Program contains no provision to fund re-analysis caused by proponent-initiated technology changes. The submitter has personally completed CANDU-

specific analyses across multiple filed submissions that will require full repetition if the AP1000 is adopted.

SHOW STOPPER 24

Nuclear Waste to Nowhere: No Repository, No Transport, No Plan

Nuclear Fuel Waste Act — IAA s. 22(1)(a) full lifecycle — no licensed disposal pathway — spent fuel in Treaty 8 territory indefinitely

The Waste Endpoint Does Not Exist

Canada has no operating permanent repository for high-level radioactive waste. The only proposed facility — the Nuclear Waste Management Organization's Deep Geological Repository at Ignace, Ontario — was selected as the preferred site on 28 November 2024. Its Initial Project Description was filed with the IAAC on 5 January 2026. The IAAC issued its Summary of Issues to the NWMO on 16 February 2026 — twenty-five days before this submission. The integrated IAAC-CNSC assessment for the DGR has not yet begun. The NWMO's own documentation projects operations from the 2040s at the most optimistic estimate, with fuel placement continuing into the 2080s.

A four-unit Peace River facility operating on CANDU parameters would produce approximately 400–500 tonnes of spent fuel annually — tens of thousands of tonnes over a 70-year operating life. The proponent's IPD contains no waste management plan. The IAAC's Summary of Issues of June 2025 explicitly required one, including alternate waste storage site, long-term containment, transportation risk, and interjurisdictional responsibility. None has been provided. If the AP1000 is adopted, spent fuel is enriched pressurised water reactor fuel — physically different from the CANDU fuel the NWMO's DGR concept is designed for, adding a further layer of uncertainty to a disposal pathway that does not yet exist for either fuel type.

The Court Challenge

On 20 December 2024, the Eagle Lake First Nation filed a court challenge to the NWMO's site selection. If the challenge succeeds, the DGR site selection must restart. Even without litigation, the NWMO's timeline assumes uninterrupted regulatory approvals, no further Indigenous consent challenges, and no design complications — none of which can be assumed on the current record.

The Transportation Gap

There is no identified transportation corridor between the Peace River site and the Ignace DGR — approximately 3,500 kilometres by the most direct route. No rail line connects the two. No interim storage facility has been sited, licensed, or approved for the Peace River region. Spent fuel will remain at the Peace River site in interim storage — in Treaty 8 territory, on the Peace River watershed — potentially into the twenty-second century if no permanent solution materialises.

The Statutory and Charter Position

Section 22(1)(a) of the Impact Assessment Act requires assessment of changes to the environment over the full project lifecycle. Spent fuel with no licensed disposal pathway is not a temporary effect. It is a radiological burden that will persist for thousands of years on the site and in the surrounding watershed. The precautionary principle under IAA sections 6 and 22 applies to threats that are irreversible even if uncertain. Generations of Peace Region Indigenous peoples who have not consented to this facility will live in proximity to interim spent fuel storage with no

permanent solution. The right to life and security under Charter section 7, as interpreted in Carter and Bedford, cannot be satisfied by deferring the waste problem indefinitely.

What the IAAC Must Find

The Panel cannot make a public interest finding on a project whose defining waste stream has no approved disposal pathway, no transportation plan, and no interim storage site. The only proposed DGR's regulatory process commenced twenty-five days before this submission and is subject to active litigation. The Panel must require, as a condition of proceeding to the Impact Statement phase, that the proponent provide a complete waste management plan demonstrating: a confirmed interim storage design and approved site, a licensed transportation pathway, a confirmed DGR acceptance agreement with the NWMO, and a legally binding financial assurance instrument covering full costs.

THE IAAC IS TRAPPED:

Cannot make a public interest finding on a project whose defining waste stream has no approved disposal pathway, no transportation plan, and no interim storage site. Proceeding means deciding that 70 years of spent fuel accumulation in Treaty 8 territory is in the public interest on the basis of a disposal plan that does not exist.

Cannot assess the full project lifecycle under IAA s. 22(1)(a) when the waste endpoint — the DGR — is in early pre-licensing, subject to active court challenge, and designed for a fuel type that may not match the reactor the proponent ultimately chooses.

CNSC NEGLECTED ITS DUTY:

Under the Nuclear Fuel Waste Act and CNSC licensing framework, a proponent must demonstrate a credible and fully funded waste management plan before construction is licensed. The CNSC allowed this project to advance to Impact Assessment without requiring the proponent to address foundational waste management gaps: no licensed DGR, no transport corridor, no interim storage site, no financial assurance for Peace River-specific requirements.

Did not flag the Eagle Lake First Nation court challenge to the DGR site selection as a material uncertainty in its IAAC advisory inputs, nor the consequence for the waste pathway if that challenge succeeds.

SHOW STOPPER 25

Canada's World Heritage Obligation: UNESCO Reactive Monitoring Mission Proceeding Concurrently

World Heritage Convention — UNESCO 2023 SOC Decision 4339 — Alberta-NWT Transboundary Water Agreement — August 2026 In Danger assessment

The UNESCO Standing Requirement

Wood Buffalo National Park — a UNESCO World Heritage Site since 1983 and a Ramsar Wetland — encompasses 4.5 million hectares including the Peace-Athabasca Delta, the world's largest inland freshwater delta. The Park's Outstanding Universal Value depends substantially on the hydrological dynamics of the Peace River. The proposed nuclear facility sits upstream on that river.

UNESCO's 2023 State of Conservation Decision (SOC 4339) confirmed that the Park continues to face significant ascertained and potential threats, in particular as a result of changes in the hydrology of the Peace-Athabasca Delta. It explicitly required Canada to ensure that all major development projects in the PAD watershed are subject to federal impact assessments and specifically address potential impacts on the Outstanding Universal Value of the property before approval. It scheduled a UNESCO/IUCN Reactive Monitoring Mission for August 2026 to assess whether the Park should be inscribed on the List of World Heritage in Danger. That mission is proceeding this August. This IAAC assessment is proceeding now, upstream on the same river.

CONCURRENT RISK:

UNESCO's August 2026 Reactive Monitoring Mission will determine whether Wood Buffalo National Park should be placed on the World Heritage In Danger list. This IAAC assessment is proceeding simultaneously upstream on the Peace River. Any positive public interest finding made on a record that does not address UNESCO's standing requirements would be made while Canada is actively under UNESCO's highest conservation alert for the downstream consequence of exactly this type of Peace River development.

The NWT Government and First Nations Formal Record

On 23 July 2025, the Northwest Territories government wrote formally to the IAAC stating that the draft Impact Statement Guidelines ignore the Alberta-NWT Transboundary Water Agreement — a bilateral instrument obligating both governments to notify each other of developments affecting shared waters. The NWT identified water quality, water quantity, and air quality as primary concerns. In November 2025, Dene National Chief George Mackenzie formally demanded meaningful consultation, stating that the project threatens the integrity of the Mackenzie water basin. Four First Nations — Beaver First Nation, Dene Tha', Little Red River Cree Nation, and Tallcree First Nation — filed joint legal submissions in October 2025 documenting impacts on their Treaty 8 rights throughout the Peace River Corridor.

The Northwest Territories is on a separate electrical grid. It receives none of the benefits of this facility. It receives all of the downstream risks: tritium transport through the Peace River, thermal pollution affecting fish habitat and ice formation, and radioactive contamination pathways to Great Slave Lake and the Mackenzie River Basin in the event of an accident beyond design parameters.

The Treaty-Level Obligations

Canada's World Heritage Convention obligations are binding treaty commitments. UNESCO's 2023 SOC Decision explicitly requires all major PAD watershed projects to specifically address OUV impacts before approval. The Transboundary Water Agreement creates a parallel bilateral obligation. The NWT government has formally documented that it has been breached. A positive finding on a record that has not addressed either obligation is vulnerable to judicial review on treaty grounds independent of all other arguments in this submission.

What the IAAC Must Find

The Panel cannot find this project to be in the public interest while UNESCO's August 2026 mission is actively assessing whether Wood Buffalo National Park should be declared In Danger. The Panel must require a cumulative effects assessment of the project's impacts on the Peace-Athabasca Delta and the Park's Outstanding Universal Value, conducted in consultation with the World Heritage Centre and IUCN, timed so its findings can inform the August 2026 UNESCO mission. The Panel must require the proponent to satisfy Transboundary Water Agreement notification obligations and provide the NWT government and affected NWT Indigenous nations with meaningful participation as affected parties.

THE IAAC IS TRAPPED:

Cannot find this project to be in the public interest while UNESCO's August 2026 mission is actively assessing whether Wood Buffalo National Park should be declared In Danger. UNESCO's 2023 SOC Decision explicitly required all PAD watershed projects to address OUV impacts before approval. The record before the Panel does not address them.

Cannot proceed on a record that ignores the Alberta-NWT Transboundary Water Agreement, breach of which has been formally documented by the NWT government. Both obligations are treaty-level and the Panel cannot waive either.

CNSC NEGLECTED ITS DUTY:

Did not flag UNESCO's 2023 SOC Decision standing requirement in its IAAC advisory inputs. Has not produced any assessment of the proposed plant's effects on the Peace-Athabasca Delta or the Park's Outstanding Universal Value, despite UNESCO's explicit requirement that all major PAD watershed projects address these impacts before approval.

Did not require the proponent to address the Transboundary Water Agreement notification obligations in its project description or Environmental Management Plan, and did not notify the IAAC that those obligations had been identified as breached by the NWT government.

SHOW STOPPER 26

The CNSC Has Formally Refused to Determine Whether the Benefits Outweigh the Harm

IAEA SF-1 Principle 4 — IRRS 2019 Suggestion S9, IRRS 2024 unresolved — CARN v BWXT 2022 FC 849 — IAA ss. 60–63 public interest requirement

The International Justification Standard

IAEA Safety Fundamentals SF-1, Principle 4 requires that for nuclear facilities to be authorised, the benefits they yield must outweigh the radiation risks to which they give rise. This is a precondition for licensing, not a post-hoc consideration. It requires a regulator to determine, before authorising a facility, that the radiation risks imposed on the surrounding population are outweighed by the benefits the facility delivers. It is the foundational justification gate in the international nuclear safety architecture.

The CNSC's Refusal — Twice on the International Record

The IAEA's 2019 Integrated Regulatory Review Service mission found that there is no systematic evaluation of justification for practices involving radiation sources in the CNSC's licensing process. It recommended that the CNSC establish a procedure for systematic justification of all facilities. Canada formally rejected the recommendation, publishing on the CNSC's own website: Not accepted. Parliament has given the CNSC the statutory authority to regulate the nuclear industry in Canada. This is not a substantive response to the IAEA's concern. It is a statement that the benefits-outweigh-harm test does not exist in Canada's nuclear licensing process, and that the CNSC will not be creating it.

The IAEA's June 2024 follow-up IRRS confirmed that Suggestion S9 remains open. The outstanding item is explicit justification of facilities and activities whereby radiation risks must be considered in terms of the overall benefit, in line with IAEA safety standards. Five years and two consecutive review cycles have passed. The CNSC has not moved.

The Federal Court Confirmation

The CNSC confirmed the same position in open court in CARN v BWXT Nuclear Energy Canada Inc, 2022 FC 849: the IAEA benefits-outweigh-harm justification standard is not a legal obligation in Canada. The Federal Court's dismissal in that case turned on a finding of no serious or irreversible damages — a finding that is not available in this proceeding. Peace River presents documented above-average cancer incidence of unknown aetiology, INWORKS confirming chronic low-dose radiation effects at community exposure levels, and epidemiological evidence from multiple independently replicated studies associating residence near operating nuclear facilities with elevated cancer rates in the closest proximity subgroup.

The Statutory Trap

IAA sections 60 to 63 require the Panel to determine whether this project is in the public interest, having regard to its health and environmental effects. A public interest determination is a benefits-versus-harms judgment. It is precisely the analysis the CNSC has twice refused to conduct. The CNSC's submission to this Panel will tell the Panel that licence conditions will be met and dose limits will be respected. It will not tell the Panel whether the radiation risks imposed on Peace River residents are outweighed by the project's benefits. That is the dispositive question under

sections 60 to 63. The CNSC has institutionally excluded itself from answering it — on the published international record, in Federal Court, and by the consistent structure of its licensing process.

What the IAAC Must Find

The Panel must find that the CNSC's submission does not constitute a benefits-outweigh-harm assessment and cannot substitute for one under sections 60 to 63 of the Act. The Panel must require an independent justification analysis applying IAEA SF-1 Principle 4, conducted by a body that applies the international standard the CNSC has twice formally refused, before any public interest finding is made. The Panel cannot discharge its statutory obligation by deferring to an institution that has structurally excluded the central analytical step that obligation requires.

THE IAAC IS TRAPPED:

Must make a public interest finding under IAA ss. 60–63. That finding requires a benefits-outweigh-harm analysis. The CNSC has formally refused to conduct one twice before the IAEA and confirmed in Federal Court that it does not apply this standard. The Panel cannot discharge its statutory obligation by deferring to an institution that has structurally excluded the central analytical step the obligation requires.

CNSC NEGLECTED ITS DUTY:

Published a formal rejection of the IAEA's 2019 recommendation to establish systematic justification procedures: Not accepted. That published rejection is on the CNSC's own website. The IAEA's 2024 follow-up confirmed the matter remains unresolved. This is an affirmative policy choice, not an implementation gap. No other G7 nuclear regulator has taken this position on the published international record.

Confirmed in Federal Court in 2022 that the benefits-outweigh-harm test is not a legal obligation in Canada. The same regulator is now the primary health and safety evidence source for a Panel that must make a public interest determination using precisely that test.

SHOW STOPPER 27

No Dose Constraint Exists for This Community: IAEA Non-Compliance in 2019 and 2024, Still Unresolved

IAEA GSR Part 3 Requirement 29 — IRRS 2019 Recommendation R2 — IRRS 2024 unresolved — ALARA without a ceiling — elevated Peace River cancer baseline

What a Dose Constraint Is and Why It Matters

A dose constraint under IAEA GSR Part 3 Requirement 29 is a prospective upper bound on the dose to any individual from a specific facility, established before the facility is designed, used as the ceiling within which ALARA optimisation must operate. It is not the same as a regulatory dose limit. It is a facility-specific design target that must be set before engineering decisions are made, so that the proponent designs to a health-protective ceiling rather than toward whatever the regulator will accept at the licensing stage.

Without a dose constraint, ALARA — the CNSC's central optimisation tool — has no fixed ceiling. It optimises toward whatever the proponent proposes, which may be far above the level a properly set constraint would require. For Peace River, with its documented above-average cancer incidence of unknown aetiology, the absence of a ceiling is not merely a procedural gap. It is a substantive health protection failure for the population most at risk.

Found Non-Compliant in 2019. Found Non-Compliant Again in 2024.

The IAEA's 2019 IRRS mission recommended that the CNSC establish public exposure dose constraints for all Class I nuclear facilities. The 2024 IRRS follow-up confirmed that Recommendation R2 remains open, as dose constraints are not established for all Class I nuclear facilities. The Peace River facility is a proposed Class I nuclear facility. No dose constraint has been established for it.

The CNSC's own response to the 2024 IRRS explains its implementation plan: new requirements will apply immediately for all new applications, but with a phased implementation under which the constraint will be phased in within the timeframes for licence renewal. For a new-build project, this means the constraint will not be set until the construction licence application phase — after the facility design has already been substantially fixed. That is the precise reverse of what IAEA GSR Part 3 requires: the constraint must precede the design, not follow it.

The Elevated Baseline Problem

A dose constraint calibrated to average Canadian population health may be wholly inadequate for a community whose cancer incidence is already above the provincial and national baseline. The IAAC's own Summary of Issues required characterisation of the Peace River region's health baseline precisely because it is not average. If no constraint is set before construction design is fixed, the Panel has no basis for evaluating whether the ALARA process will limit dose to Peace River residents to a level compatible with their existing health situation. An ALARA process without a defined endpoint is not a health protection framework. It is an optimisation exercise with no health standard constraining its conclusion.

What the IAAC Must Find

The Panel cannot accept the CNSC's dose projections as adequate health protection for Peace River residents. Those projections are produced by an ALARA framework the IAEA found non-compliant in two consecutive reviews, specifically because it lacks the dose constraint that gives the framework its health-protective function. The CNSC's own implementation plan confirms the constraint will not be set before construction design is fixed.

The Panel must require the CNSC to establish a site-specific dose constraint for the Peace River facility — calibrated to the community's documented elevated cancer baseline — before any positive public interest finding is made on health grounds. This requirement cannot be deferred to the construction licence phase without defeating the purpose of a dose constraint entirely.

THE IAAC IS TRAPPED:

If the Panel accepts the CNSC's dose projections as adequate health protection, it accepts projections from a framework the IAEA found non-compliant in two consecutive reviews specifically because it lacks the dose constraint that bounds them. The CNSC's own plan confirms the constraint will not be set before the construction design is fixed. There is no point at which the Panel can defer to the CNSC on dose management for Peace River without endorsing a framework the world's nuclear safety authority has twice formally found deficient.

CNSC NEGLECTED ITS DUTY:

Found non-compliant by the IAEA on dose constraints in 2019. Found non-compliant again in 2024. Confirmed its own implementation plan defers the constraint to the construction licence phase — after design is fixed — which is the precise reverse of what IAEA GSR Part 3 requires. Has not established a dose constraint for the Peace River facility and has not disclosed to the IAAC that this foundational element of public dose management is absent.

Did not flag the elevated Peace River cancer baseline as a factor requiring a community-specific rather than population-average dose constraint. The existing ALARA framework operates without a ceiling in a community where the starting health position is already above the national average.

SHOW STOPPER 28

Water Security Over a 100-Year Operating Cycle: The Mandatory Assessment Has Not Been Filed

IAA s. 22(1)(a) full lifecycle — Alberta Water Act — IAAC Summary of Issues June 2025 mandatory requirement — Peace River over-allocation — climate hydrology

The Mandatory Assessment That Is Missing

The proposed facility would draw cooling water from the Peace River throughout a 70-year operating life. No water licence under Alberta's Water Act has been applied for. The IAAC's Summary of Issues of June 2025 explicitly required long-term projections of water quantity and flows in the Peace River watershed based on varying climate change projections, to understand whether sufficient water supply will be available to safely support the plant based on a one-hundred-year operating cycle. That assessment has not been provided. The Panel is therefore being asked to assess a project whose most fundamental operating input — water — has not been demonstrated to be available over the operating period the IAAC itself identified as the relevant timeframe.

The Climate and Cumulative Pressure Context

The Peace River's primary water source is Rocky Mountain snowpack. Climate projections for western Canada consistently show declining snowpack over the facility's operating period across all emissions scenarios. The Smoky-Wapiti sub-basin — the Peace River's primary tributary in the project region — is the most highly allocated sub-basin in the entire Peace watershed. Alberta's Water Act was amended in 2025 to enable inter-basin transfers, which Treaty Chiefs formally opposed as imposing severe cumulative impacts on every watershed in the region. The proposed Wonder Valley AI data centre in the same region adds further water demand to the same over-allocated system.

Nuclear cooling cannot be interrupted for drought conditions. A facility operating at up to 4,800 MWe drawing from a drought-stressed, climatically declining, over-allocated river over a 70–100 year operating period is a water security risk the IAAC has itself identified as requiring quantitative assessment. That assessment does not exist.

The Downstream Cascade

Cooling water returned to the Peace River is warmer than ambient and carries low-level tritium, altering ice formation dynamics, fish habitat seasonality, and the sediment and temperature regime on which the Peace-Athabasca Delta depends. Ice jam flooding is the primary mechanism by which the PAD is periodically replenished. UNESCO's 2023 SOC Decision specifically required assessment of changes in the hydrology of the PAD. Thermal discharge effects on ice formation are a direct pathway between this water security show stopper and the UNESCO obligations addressed in Show Stopper 25. Neither assessment exists in the current record.

What the IAAC Must Find

Section 22(1)(a) of the Act requires assessment of changes to the environment over the full project lifecycle. The proponent's water characterisation covers neither the 100-year timeframe the IAAC's own Summary of Issues identified as mandatory nor the climate projections that

determine whether sufficient water will be available across that period. The Panel has been explicitly told by the IAAC's own preliminary process that this assessment is required. The proponent has not provided it. A Panel cannot proceed to a public interest determination on a record that the IAAC's own Summary of Issues identified as factually incomplete in this specific respect.

The Panel must require: a hydrological baseline study for the Peace River at the project site; long-term flow projections under low, medium, and high-emission climate scenarios over 100 years; a thermal discharge assessment including effects on ice formation, fish habitat, and downstream flow to the Peace-Athabasca Delta; and a Water Act licence application or equivalent confirmation that a licence can be obtained before construction proceeds.

THE IAAC IS TRAPPED:

The IAAC's Summary of Issues declared 100-year climate-adjusted water projections a mandatory component of this assessment. The proponent has not provided them. The Peace River is the most over-allocated watershed in Alberta. No water licence exists. Nuclear cooling cannot stop for drought. The Panel cannot find the project's water impacts acceptable when the mandatory assessment the IAAC itself required has not been filed.

Cannot complete the s. 22(1)(a) lifecycle assessment for a project whose primary operating input over a 100-year period has not been demonstrated to be available under the climate scenarios that will govern the back half of that operating period.

CNSC NEGLECTED ITS DUTY:

Did not require the proponent to demonstrate that a Water Act licence can be obtained before recommending the project for Impact Assessment. Did not require the proponent to address the 100-year operating cycle water security assessment that the IAAC's own Summary of Issues identified as mandatory. These are foundational due diligence failures at the pre-licensing stage.

Has not produced any assessment of thermal discharge effects on the Peace-Athabasca Delta ice regime, despite UNESCO's 2023 SOC Decision explicitly requiring assessment of changes to PAD hydrology from Peace River developments, and despite the CNSC's role as the primary environmental technical adviser to the IAAC.

SHOW STOPPER 29

Proponent Technology Revision After Commencement: The Prior Participation Record Cannot Be Rehabilitated

IAA ss. 6(1)(h), 11, 27 — participation conducted on a superseded technology basis — structural invalidity of the planning phase record — FPIC implications

The Legal Proposition

This Show Stopper is analytically independent of Show Stopper 23. It does not depend on a finding that the current project description is deficient under section 10 or Regulation 7. It addresses a prior question: whether the participation record already produced in the planning phase satisfies the IAA's meaningful participation obligation, given that the factual basis on which participants were invited to engage has since been materially altered by the proponent's own commercial conduct.

The distinction matters because it bears directly on the legal status of the Panel's report. If the Panel were to require a technology commitment today and invite further submissions, those submissions would satisfy the meaningful participation obligation going forward. They would not make the prior record valid. A Panel report that rests in part on planning phase submissions addressing a technology the proponent has since moved away from is a report that rests on a participation record built against a project that may not be built.

How the Participation Record Was Built

Energy Alberta filed its Initial Project Description in April 2025 naming the CANDU MONARK as the proposed reactor technology. The IAAC issued its Summary of Issues in June 2025, requiring Energy Alberta to address, among other matters, the management of tritium emissions specific to CANDU heavy-water reactors, the volume and isotopic composition of CANDU spent fuel, CANDU-specific design basis accident consequences, and long-term cooling water demand on CANDU thermal parameters. Participants who responded to those requirements addressed CANDU MONARK parameters because the regulatory process identified those as the parameters requiring assessment. Their submissions were not CANDU-specific by discretion. They were CANDU-specific because that was what the process asked for.

On 21 October 2025, Energy Alberta signed a Memorandum of Understanding with Westinghouse Electric for the AP1000 reactor. This agreement was not disclosed to participants through any formal process notice. No amendment to the project description was filed. No direction was issued by the CNSC or the Agency that existing submissions should be revised or supplemented in light of the changed technology position. The assessment was suspended at Energy Alberta's request in August 2025 and resumed in March 2026 with no technology commitment in place.

The Statutory Obligation and How It Fails

Section 6(1)(h) of the Act declares as a purpose of the legislation that opportunities be provided for meaningful public participation. Sections 11 and 27 require the Agency to ensure that the public is provided with an opportunity to participate meaningfully in the planning phase and in the impact assessment itself. The Agency's Public Participation Framework identifies three constituent elements of meaningful participation: participants must have the information they need; they must have the capacity to participate in an informed manner; and the process must be fair and open.

None of these elements was present for participants who responded to the June 2025 Summary of Issues. Participants did not have the information they needed because the project description named a technology the proponent was simultaneously in commercial negotiations to replace. Participants could not participate in an informed manner because the physical basis of the project was changing while submissions were being prepared. Submissions addressing CANDU tritium emissions, CANDU spent fuel volumes, and CANDU accident scenarios do not influence the assessment of an AP1000 project. The participation right was formally extended; it was substantively expended on a project that may not be built.

Why Subsequent Process Does Not Repair the Prior Record

The planning phase participation record is complete. The Panel cannot re-open the planning phase. Further submissions in the assessment phase will supplement the record but will not remove the planning phase record from it. The Panel's report must account for both. To the extent the report rests on planning phase submissions that addressed a superseded technology, it rests on a participation record that does not satisfy section 11 of the Act. That deficiency is not cured by the quality of subsequent process.

The capacity problem is also not resolved by a further comment period. Participants who directed their available resources toward CANDU-specific analysis during the planning phase do not emerge from that process with equivalent capacity to repeat the same work on an AP1000 basis. The Participant Funding Program issued finite funding for finite phases. The compounding risk is equally relevant: the proponent has not committed to a technology. It retains the ability to revise its position again at any point in the remaining assessment. Each revision depletes participant capacity further. The only mechanism that closes this loop is a Panel-ordered technology commitment before further participation is solicited.

The FPIC Dimension

Section 35 of the Constitution Act and Bill C-15 incorporating UNDRIP require Free, Prior, and Informed Consent from affected Indigenous peoples before the approval of projects affecting their lands and health. Free, Prior, and Informed Consent requires that the information on which consent is based be accurate and complete. Nineteen First Nations and Métis communities are formally listed in the IAAC's Indigenous Engagement and Partnership Plan for this assessment. Consent to a CANDU MONARK project is not, as a matter of law, consent to an AP1000 project. The radiological profiles, waste streams, and site-specific operational impacts differ materially. If the proponent changes technology, the consent basis must be re-established. The current record does not support a finding that any Indigenous consent given during the planning phase remains valid for a project whose physical character may change after that consent was given.

The Plant Parameter Envelope Alternative

OPG's proposed Wesleyville project adopted a Plant Parameter Envelope methodology from the outset of its assessment. Under that approach, OPG identified the outer bound of each relevant parameter across all technologies under consideration and committed to assessing the project against those envelope values. Participants engaging with the Wesleyville process were informed from the first document that they were assessing an envelope, not a named design. Their submissions addressed parameters that remained stable irrespective of the technology eventually selected. Nothing was wasted when the technology was later identified.

Energy Alberta's assessment proceeded on the opposite basis. A technology was named. Technology-specific participation was solicited against that named design. The proponent then entered a commercial agreement suggesting the named design may be replaced, without

adopting an envelope methodology and without notifying participants. The planning phase record was built on parameters that may be superseded. The distinction is not procedural formality. It is the difference between a participation record that remains valid across technology changes and one that does not.

What the IAAC Must Find

The Panel cannot certify the planning phase participation record as satisfying the meaningful participation obligation under IAA sections 6(1)(h), 11, and 27. The record was built against a CANDU MONARK project description that the proponent materially altered through the Westinghouse MOU of October 2025, without formal notice and without adopting a parameter envelope that would have preserved the analytical value of participant submissions.

The Panel must require Energy Alberta to commit to a single named technology — or to formally adopt a documented Plant Parameter Envelope equivalent to the Wesleyville model — before further participation on technology-specific matters is invited. The IAAC must make supplementary participant funding available for a fresh or supplementary comment period. The Panel should recommend that the IAAC establish a policy applicable to all future nuclear impact assessments requiring that no planning phase comment period addressing technology-specific parameters be opened until the proponent has either committed to a named technology or formally adopted a documented Plant Parameter Envelope. The absence of such a policy has created a systemic risk, visible across multiple concurrent Canadian nuclear assessments, that participation records will be built on uncommitted technology descriptions.

THE IAAC IS TRAPPED:

Cannot certify the planning phase participation record as satisfying IAA ss. 6(1)(h), 11, and 27. The record was built against a CANDU MONARK description that the proponent undermined through the Westinghouse MOU without notice to participants. Subsequent process supplements but does not repair the prior record.

Cannot issue a Decision Statement that rests in part on planning phase submissions addressing a project description the proponent has since partially abandoned. Cannot treat any Indigenous consent given during the planning phase as valid for a project whose physical character changes after that consent was given.

CNSC NEGLECTED ITS DUTY:

Did not require a technology commitment before pre-licensing engagement commenced. Did not advise the IAAC when the proponent's commercial position changed materially in October 2025. Confirmed in March 2026 that it has not begun a preliminary assessment of the CANDU MONARK — meaning the CNSC cannot provide a technical basis for the CANDU-specific assessments participants have already completed and filed.

Has not established a pre-licensing engagement policy requiring technology commitment or a documented Plant Parameter Envelope before public participation on technology-specific matters commences, creating a systemic risk of participation record invalidity across multiple concurrent Canadian nuclear assessments.

PARTICIPATION RESOURCE DEPLETION:

The mechanism of resource depletion is structural. The proponent controls the timing and content of technology revisions. Participants do not. Each revision imposes a full independent re-analysis burden across at least five parameter categories with no element transferable from the prior technology. The better-resourced party in this process controls the scope of the research burden imposed on those opposing the project.

The Participant Funding Program has no provision to fund re-analysis caused by proponent-initiated technology changes. Participants who exhausted planning phase resources on CANDU-specific analysis face the choice of repeating that work at personal cost on a changed technology basis, or withdrawing from the assessment. Neither outcome serves the IAA's meaningful participation objective.