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6 April 2026

Impact Assessment Agency of Canada
600-55 York Street
Toronto, Ontario
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Re: Ontario Pumped Storage Hydropower Project – Project Reference: 89803

Dear Sirs:

The Ontario Rivers Alliance (ORA) is a not-for-profit grassroots organization with a mission to protect, conserve, and restore Ontario rivers. ORA advocates for effective policy and legislation to ensure that development affecting Ontario rivers is environmentally and socially sustainable.

1. Introduction and ORA Position

ORA respectfully submits the following critique of the Initial Project Description – Plain Language Summary (IPD Summary) for the Ontario Pumped Storage Project (the Project), proposed by TransCanada Energy Ltd. (TC Energy) near Meaford, Ontario.

ORA notes that the IPD Summary was prepared by a consulting firm retained and funded by the proponent (Stantec Consulting Ltd.). This is an inherent limitation of proponent-led assessment processes: any consultant commissioned and paid by the proponent will necessarily reflect the proponent's perspective and interests, and the resulting document cannot be considered an independent or neutral characterization of the Project and its effects. The document reads in significant part as a promotional piece rather than an objective preliminary environmental description. While ORA understands that this is an Initial Project Description and that detailed environmental work is forthcoming, the gaps, omissions, and framing issues identified below are substantial enough to require attention before the Impact Assessment Agency of Canada (IAAC) determines whether a full Impact Assessment (IA) is required.

ORA acknowledges, and has previously supported, the concept of closed-loop pumped storage as a technology that can store surplus renewable and nuclear energy without the continuous entrainment of water from a living ecosystem. The Project, however, is an open-loop design using Georgian Bay as its lower reservoir. This fundamental design choice drives the majority of the environmental, ecological, and cumulative impact concerns raised in this submission.

ORA also formally supports the concerns raised by the Georgian Bay community, as documented by the Save Georgian Bay coalition (savegeorgianbay.ca), and incorporates those concerns by reference in this submission.

ORA also draws IAAC's attention to an important deteriorating shift in the provincial regulatory context. Prior to 2018, Ontario's Ministry of Natural Resources (MNR) and Ministry of the Environment and Climate Change (MECP) played an active directing role in provincial environmental assessment processes, guiding proponents on the scope of studies required, the

standards to be met, and the gaps to be addressed. That directing function served as an important check on proponent-led assessments and contributed meaningfully to the rigour of environmental review in Ontario. The progressive removal of those oversight roles under the banner of "cutting red tape" has significantly weakened the provincial environmental assessment framework and reduced the early-stage discipline applied to what proponents are required to study and disclose.

This situation has been further compounded by Bill 5, the Protect Ontario by Unleashing our Economy Act, 2025, which creates "special economic zones" and designates certain infrastructure projects as "Priority Projects," enabling them to proceed under streamlined permitting with significantly reduced environmental regulatory requirements. Energy projects of the type proposed by TC Energy are among those that stand to benefit from these provincial exemptions. The Project is already strongly supported by the provincial government as a key component of its clean energy expansion agenda and is proceeding in a provincial regulatory environment deliberately restructured to minimize environmental scrutiny and accelerate approvals. In practical terms, this means the Ontario Pumped Storage Project may face little or no meaningful provincial environmental oversight, leaving the federal IAAC process as the last substantive line of independent environmental review available to the public, to Indigenous rights-holders, and to the ecosystems at risk.

The federal regulators, including the Department of Fisheries and Oceans (DFO), Environment and Climate Change Canada (ECCC), Natural Resources Canada (NRCan), Transport Canada, and Health Canada, now represent the only remaining mechanism through which rigorous, independent direction can be provided to the proponent on a project of this scale and consequence. ORA respectfully urges IAAC to exercise that role fully, and to require the additional studies and assessments identified in this submission before any determination is made on whether a full Impact Assessment is warranted.

2. Summary of Critical Issues and Gaps

The following table summarizes the key issues and gaps identified in the IPD Summary, together with ORA's recommended actions. Each issue is addressed in greater detail in Section 3.

Issue / Gap	ORA Concern	Recommended Action
Open-Loop Design & Georgian Bay Entrainment	The IPD Summary does not adequately characterize the chronic, daily mass entrainment risk to fish and aquatic invertebrates associated with pumping 23 billion litres of Georgian Bay water per cycle.	Require an independent, peer-reviewed assessment of fish entrainment and impingement using site-specific Georgian Bay species composition data prior to any IA decision.
Absence of Cumulative Effects Assessment (CEA)	No CEA has been conducted or even scoped for Georgian Bay, the Niagara Escarpment, or the broader watershed. The IPD Summary treats each potential effect in isolation.	Require a full CEA consistent with DFO frameworks[1,2] and ECCC Synthesis of Freshwater Science[3] before IA approval.
Military Contamination & Toxic Mobilization	The IPD Summary acknowledges UXO but does not disclose the full range of known contaminants	Require disclosure of all DND Federal Contaminated Site assessments and independent

Issue / Gap	ORA Concern	Recommended Action
	(white phosphorus, PAHs, heavy metals, Agent Orange concerns) and their risk of mobilization into Georgian Bay.	modeling of contaminant pathways to Georgian Bay under construction and operational scenarios.
Niagara Escarpment – UNESCO Biosphere Reserve	The IPD Summary minimizes the project's relationship to the Niagara Escarpment, noting only that it is on federal land and therefore not subject to Niagara Escarpment Commission jurisdiction, without acknowledging the ecological significance of the formation.	Require explicit assessment of impacts to the Niagara Escarpment World Biosphere Reserve values and geological integrity, regardless of jurisdictional exemption.
GHG & Energy Balance Misrepresentation	The IPD Summary claims the project will reduce GHG emissions by 490,000 tonnes/year without disclosing that pumped storage consumes approximately 30% more electricity than it generates (a ~70% round-trip efficiency), nor adequately accounting for construction phase emissions.	Require full lifecycle GHG analysis including round-trip efficiency losses, construction emissions (598,153 tCO2e disclosed), and comparison to battery storage alternatives.
Alternatives Analysis Is Inadequate	The IPD Summary dismisses alternative technologies (e.g., grid-scale battery storage) without substantive comparative analysis. The IESO itself has twice declined to endorse this project as the preferred storage solution.	Require rigorous alternatives analysis including long-duration battery storage, distributed renewables, and demand-side management, consistent with IESO findings.
Indigenous FPIC & Consultation Gaps	Ongoing engagement with Saugeen Ojibway Nation does not constitute Free, Prior and Informed Consent (FPIC). The IPD Summary acknowledges no partnership agreement has been reached and the project will not proceed without SON support—yet the IA process is advancing.	FPIC must be a prerequisite to IA approval, not a parallel process. Require confirmation of SON consent or formal agreement before IA proceeds.
Species at Risk – Scope and Severity	The IPD Summary lists only three SAR (Butternut, Western Chorus Frog, Black Ash) within the project footprint. DND's own assessments suggest up to 30 SAR could be affected. Aquatic SAR in Georgian Bay are not addressed.	Require a comprehensive terrestrial and aquatic SAR survey, including Georgian Bay nearshore and lakebed species, prior to IA commencement.
OCCIA 2023 Absent	The IPD Summary makes no reference to the Ontario Climate Change Impact Assessment	Require integration of OCCIA 2023 findings into all climate-

Issue / Gap	ORA Concern	Recommended Action
	(OCCIA 2023), which is essential planning context for any long-lived infrastructure in the Georgian Bay watershed.	related projections and long-term operational assessments.
Ratepayer Risk & Cost Escalation	The IPD Summary does not disclose that project cost estimates have escalated from $2.2B (2019) to a currently capped $7B, nor that pre-development costs are being charged to ratepayers without competitive procurement.	Require independent cost-benefit analysis with full disclosure of ratepayer exposure and comparison to competitively procured alternatives.

3. Detailed Analysis of Issues and Gaps

3.1 Open-Loop Design and the Entrainment Risk to Georgian Bay

The most fundamental and irreversible environmental choice embedded in this project is the use of Georgian Bay as the lower reservoir in an open-loop configuration. The IPD Summary describes the intake and release of water from Georgian Bay through a Lower Inlet/Outlet Structure and acknowledges risks of fish entrainment and impingement, but does so only in general terms and without quantitative analysis.

Georgian Bay is one of the most ecologically and culturally significant freshwater bodies in the world. It supports nationally and provincially significant fish populations, including lake trout, lake sturgeon (a Species at Risk), walleye, cisco, and numerous nearshore species that are essential to Saugeen Ojibway Nation's Treaty-protected fishery. The Project proposes to cycle approximately 23 billion litres of water from Georgian Bay daily for an operational lifespan of 100 years.

The precedent set by the Ludington Pumped Storage Plant on Lake Michigan is directly relevant and must be disclosed in full. The Ludington facility, which TC Energy cites as a comparable project, was found to kill an estimated 150 million fish per year before court-ordered mitigations were imposed. Even with mandatory two-kilometre screens, fish under 12 centimetres remain vulnerable. The IPD Summary does not mention Ludington's documented environmental record, and this omission is a material gap. It is also notable that Ludington's well-documented costs and environmental failures are widely cited as one reason no new open-loop pumped storage project has been built on this continent since 2010. The Project would be the first such facility constructed in North America in over fifteen years, at a time when the ecological standards applied to such projects have increased substantially.

ORA notes that the IPD Summary describes inlet/outlet screens and "flow dispersion measures" as mitigation, but provides no design specifications, modelled fish passage rates, or basis for confidence that these measures are adequate for a Georgian Bay ecosystem. The IPD Summary itself (Table 11-1) acknowledges potential effects on fish habitat, fish mortality, SAR fish populations, and changes to temperature and flow – yet the plain language summary presents these as manageable contingencies rather than probable, severe, and likely irreversible impacts.

ORA's position is that the open-loop design should be rejected in favour of a closed-loop configuration that does not withdraw from or discharge into a living ecosystem. If the proponent

insists on the open-loop design, a fully independent, peer-reviewed fish entrainment and impingement study using Georgian Bay-specific species composition, population density, and seasonal movement data must be completed before the IA proceeds. That study must also characterize the full lakebed footprint of the intake and transmission infrastructure, including the corridor between Meaford and Wasaga Beach.

The physical scale of the Lower Inlet/Outlet Structure is also materially understated in the IPD Summary. In representations made to Wasaga Beach council in January 2023, TC Energy's own team described the underwater intake and discharge system as a pipe looped under the Georgian Bay lakebed over an area of approximately 1,500 metres in diameter, with a series of 10-metre-tall ports installed at approximately 15 metres depth. This lakebed installation extends well beyond the Meaford nearshore and has not been fully described or assessed in the IPD Summary. Furthermore, TC Energy purchased a Shore Lane property in Wasaga Beach in 2021 to serve as the landfall point for an underwater transmission line running to Hydro One facilities in Stayner.

The project's direct surface and lakebed footprint therefore spans from the Meaford escarpment to the Wasaga Beach shoreline. The cumulative lakebed and nearshore disturbance across this entire corridor – including the transmission cable route, the port structures, and the intake pipe loop – has received no assessment in the IPD Summary. Save Georgian Bay, the community coalition formally referenced in this submission, has warned that the project will put "*our Georgian Bay water at risk, including in the small shallow bay and lot in Wasaga Beach where the high voltage cables will go out of the lake, and where three concrete bunkers will be built to connect the cables.*"[1] ORA endorses this concern and recommends that the full lakebed and nearshore corridor be included in the scope of any environmental assessment.

3.2 Absence of Cumulative Effects Assessment

The IPD Summary does not include, or even commit to, a Cumulative Effects Assessment (CEA) for Georgian Bay or the Niagara Escarpment watershed. Each potential environmental effect is listed in Table 11-1 as a discrete interaction between a project component and an environmental receptor. This siloed approach is inconsistent with best practice and with applicable federal frameworks.

DFO's *A Review of Cumulative Effects Research and Assessment in Fisheries and Oceans Canada* establishes that cumulative effects assessment requires a typology of approaches—activity-based, stressor-based, species- or habitat-based, and area-based, to be applied in combination.[2] DFO's *Science Advisory Report 2022/055* further confirms that "*Consideration of Cumulative Effects (CE) requires an ecosystem-level perspective including knowledge of ecosystem integrity (composition, structure, and function)*."[3] ECCC's *Synthesis of Freshwater Science in Canada* reinforces this conclusion, identifying freshwater challenges as multidisciplinary and interconnected, driven by the compounding effects of climate change, land and water use intensification, contamination, and human interventions in hydrological systems—including diversions, reservoirs, and groundwater withdrawals, that collectively impose complex biochemical and ecological stresses on water quality and aquatic ecosystems.[4]

Georgian Bay already faces cumulative pressures from shoreline development, recreational boating, commercial and recreational fishing, climate-driven thermal changes, and invasive species. The introduction of a facility that will alter daily water temperature, turbidity, and flow patterns at the nearshore for 100 years represents a major additional stressor that can only be properly evaluated through a rigorous, science-based CEA conducted prior to project approval – not as a condition of it.

ORA strongly recommends that IAAC mandate a CEA before any IA approval, and that it address:

1. Fish and fish habitat in Georgian Bay, including SAR;
2. Nearshore and lakebed benthic communities;
3. Water temperature and thermal stratification;
4. Turbidity and sediment transport; and
5. Interactions with existing and reasonably foreseeable future stressors on the Bay.

3.3 Military Contamination and Toxic Mobilization Risk

The 4th Canadian Division Training Centre (4 CDTC) is an active military base with approximately 80 years of ordnance use. The IPD Summary acknowledges UXO (unexploded ordnance) and includes UXO clearance as a construction activity, but does not disclose the full character and extent of known contamination on the site. Based on publicly available information from the DND Federal Contaminated Sites inventory and community investigations, known or suspected contaminants include:

- White phosphorus from smoke grenades, tracer shells, and mortars
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Heavy metal compounds including lead and arsenic
- Methylmercury
- Organo-metallic compounds
- Dioxin-based compounds (Agent Orange, subject to ongoing concern)

The IPD Summary's description of contaminant risk under Section 12 (Waste and Emissions) focuses almost entirely on operational liquid discharges and does not address the risk that major civil excavation, including drilling, blasting, and tunneling through contaminated substrate, will mobilize legacy contaminants into groundwater aquifers and ultimately into Georgian Bay.

This is not a speculative risk. DND's own internal assessments, obtained through access to information requests, have raised concerns about soil disturbance and contaminant pathways.

ORA recommends full public disclosure of all existing DND contaminated site assessments for 4 CDTC and an independent groundwater and surface water contaminant transport model before the IA commences.

3.4 Niagara Escarpment World Biosphere Reserve

The IPD Summary states that the project site is "adjacent to" and "on top of the level plateau of the Niagara Escarpment," and notes that it is on federal land not subject to Niagara Escarpment Commission regulations. What the document does not acknowledge is that the Niagara Escarpment is a UNESCO World Biosphere Reserve—recognized for its exceptional ecological, geological, and cultural significance.

The proposed 135-hectare ring-dam reservoir will be carved into the Escarpment plateau. The headraces, tailraces, and powerhouse will be bored through the Escarpment's limestone formation. The Escarpment is not merely a regulatory boundary; it is a living geological and ecological system. Its karst hydrogeology creates complex groundwater connections to Georgian Bay that are not well characterized and could transmit both construction-phase contaminants and long-term hydrological disturbances.

The full surface footprint of the Project on and adjacent to the Escarpment is also larger than the IPD Summary conveys. Save Georgian Bay has publicly characterized the Project as "damaging 500 acres of the escarpment", a figure substantially larger than the 135-hectare (approximately 333-acre) ring-dam reservoir footprint alone, suggesting that access roads, tunneling works,

construction staging areas, and above-ground infrastructure collectively impose a far greater disturbance on the Escarpment landscape than the IPD Summary acknowledges.

ORA notes that this discrepancy has not been explained or reconciled by the proponent. The jurisdictional exemption from Niagara Escarpment Commission oversight does not remove the environmental significance of the impacts.

ORA recommends that the IA include an explicit assessment of project effects on Niagara Escarpment World Biosphere Reserve values, the integrity of the limestone karst system, the groundwater-surface water connectivity between the reservoir site and Georgian Bay, and the full scope of surface disturbance across the entire project footprint on the Escarpment.

3.5 GHG Claims, Round-Trip Efficiency, and Energy Balance

The IPD Summary prominently claims that the project will reduce GHG emissions by approximately 490,000 tonnes per year, equivalent to taking 150,000 cars off Ontario roads. This figure, from a 2020 Navigant consulting report commissioned by the proponent, is not independently verified and omits critical context.

Pumped storage is not a generation technology; it is a storage technology with inherent energy losses. TC Energy's own project documents acknowledge a round-trip efficiency of approximately 70%, meaning that for every 10 units of electricity pumped into the reservoir, only 7 are recovered as generation. The 30% net energy loss is drawn from Ontario's grid. If that electricity comes from non-emitting sources, the project is a net consumer of clean energy. The IPD Summary does not clearly acknowledge this fundamental characteristic, and the GHG benefit claim cannot be accepted at face value without a full lifecycle energy balance analysis.

Furthermore, the IPD Summary (Section 12) discloses that construction-phase GHG emissions are estimated at 598,153 tonnes CO_2e over five and a half years. This figure is presented without any critical examination or comparison to the claimed operational benefit. ORA notes that this construction footprint alone is substantial and must be included in any honest assessment of the project's climate credentials.

ORA also notes that the IPCC *Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* recognizes hydropower reservoirs as sources of methane emissions through decomposition of inundated organic matter, requiring that water impoundments be accounted for in national GHG inventories where organic material decomposes under anaerobic conditions, a process that intensifies methane rather than CO_2 release.

> *"Flooded Land is defined as: water bodies where human activities have caused changes in the amount of surface area covered by water, typically through water level regulation. Examples of Flooded Land includes reservoirs for the production of hydroelectricity, irrigation, and navigation".*[5]
>
> *"Flooded Land emits CO_2, CH_4 and N_2O in significant quantities, depending on a variety of characteristics such as age, land-use prior to flooding, climate, upstream catchment characteristics and management practices. Emissions vary spatially and over time."*[6]
>
> *"Flooded land is exposed to natural or anthropogenic regulation of water levels, creating a drawdown zone. Greenhouse gas emissions from the drawdown zones are considered significant and similar per unit area to the emissions from the water surface (e.g. (Yang et al. 2012), (Deshmukh et al. 2018)) and are therefore included when estimating greenhouse gas emissions from Flooded Land. Lakes converted into reservoirs without substantial changes in water surface area or water residence times are not considered to be managed Flooded Land,*

in accordance with the 2006 IPCC Guidelines. Reservoirs are classified according to the length of time they have been flooded:

(i) Flooded Land Remaining Flooded Land – includes reservoirs that were converted to Flooded Land more than 20 years ago.

(ii) Land Converted to Flooded Land – includes reservoirs that were flooded less than or equal to 20 years ago." [7]

While the Project's reservoir would not permanently inundate new land in the same manner as a conventional hydropower reservoir, the periodic wetting and drying of the reservoir margins and the thermal and chemical dynamics of a 26-million cubic metre cycling water body warrant assessment under IPCC guidelines. The IPD Summary does not address this at all.

3.6 Inadequate Alternatives Analysis

Section 7 of the IPD Summary addresses project alternatives but does so only in the most superficial terms. TC Energy states that it has "identified a business case" for pumped storage and that this is therefore the preferred alternative "to" the project. No comparative analysis of alternative storage technologies is presented.

This omission is particularly significant given that the Independent Electricity System Operator (IESO), the body responsible for managing Ontario's grid, has twice declined to endorse this project as providing a clear economic benefit to ratepayers. In its September 2023 report to the Minister of Energy, the IESO concluded that *"the PS projects do not compare favourably to currently available alternatives, including battery storage or a portfolio of other non-emitting resources, and therefore neither PS project is able to provide net benefits to Ontario's electricity system or ratepayers."*[8] Instead, the IESO has awarded contracts to at least eight grid-scale battery storage projects, including the Oneida Battery Storage Project, a 250 MW / 2,000 MWh facility co-owned by Six Nations of the Grand River.[9] Battery storage technologies now demonstrate round-trip efficiencies of 80–95%, compared to this project's estimated 70%. Battery installations require no access to a water body, no open-loop ecosystem connection, far less land, and can be sited closer to load centres such as Toronto.

ORA also notes that the proponent simultaneously characterizes renewable energy alternatives (solar and wind) as "intermittent" sources requiring storage support, while proposing a project that itself requires approximately 30% more energy input than it can deliver. The logical conclusion is that the same investment in distributed renewable generation, paired with grid-scale battery storage, would deliver greater climate benefits with far less environmental risk.

A particularly significant credibility issue is the fact that TC Energy is itself currently constructing an 81-megawatt battery storage project near Okotoks, Alberta. The proponent has historically criticized battery storage technology in its promotional materials for this project, characterizing it as an inferior alternative to pumped storage. The concurrent development of a large-scale battery facility by TC Energy in another jurisdiction directly undermines that position and raises questions about the objectivity of the alternatives analysis presented in the IPD Summary.

ORA submits that IAAC should take note of this inconsistency when evaluating the proponent's characterization of battery storage as a non-viable alternative. It is further relevant that TC Energy is in the process of splitting into two separate corporate entities. This restructuring introduces additional uncertainty regarding the long-term corporate commitment to, and liability for, a 100-year open-loop infrastructure project on Georgian Bay—a consideration that should be addressed explicitly in any IA.

ORA recommends that the IA include a full, independently conducted alternatives analysis comparing this project to grid-scale battery storage, distributed renewable generation, and

demand-side management, using current IESO cost and performance data rather than the proponent's 2020 Navigant study.

3.7 Indigenous Rights, FPIC, and the Saugeen Ojibway Nation

The IPD Summary describes an extensive history of engagement with Saugeen Ojibway Nation (SON) dating to October 2018, and notes TC Energy's commitment to not construct the project without SON support. This commitment is meaningful, but it is not the same as Free, Prior and Informed Consent (FPIC) as recognized under UNDRIP and affirmed as a Crown obligation by the Supreme Court of Canada.

As of the date of this IPD Summary (February 24, 2026), no commercial partnership agreement with SON has been reached. The Project is located entirely within SON's traditional territory (Treaty 45½ and Treaty 72 area), on Georgian Bay, a water body of profound cultural, spiritual, and subsistence significance to SON. Section 8.2 of the IPD Summary summarizes SON's own concerns, including fish mortality, restrictions on access to traditional territories, water quality, and the safety of the reservoir–concerns that remain unresolved.

ORA's position is that FPIC is a prerequisite for this project, not a goal to be pursued in parallel with the IA process. The advancement of the IA while consent remains outstanding creates a procedural pressure on SON that is inconsistent with the Crown's consultation and accommodation obligations.

ORA calls on IAAC to confirm that no IA approval will be granted until SON's FPIC has been freely and demonstrably given.

3.8 Species at Risk – Incomplete Scope

The IPD Summary's Environmental Setting (Section 10) identifies only three terrestrial SAR within the 4 CDTC boundary: Butternut, Western Chorus Frog, and Black Ash. This list is almost certainly incomplete. DND's own wildlife assessments for the Meaford base have identified approximately 30 SAR potentially affected by this project, including bat species (Tri-coloured Bat, Little Brown Myotis – both Endangered under SARA), several migratory bird species, and plant communities of the Niagara Escarpment. Significantly, DND itself has warned that the project could devastate approximately 10% of the total wildlife at the 4 CDTC training centre, a direct acknowledgment from the land-owning federal department that the project's ecological consequences are severe and wide-ranging. This warning from DND is absent from the IPD Summary and represents a material omission.

More critically, the IPD Summary does not identify aquatic SAR in Georgian Bay that may be affected by the open-loop intake and discharge operations. Lake Sturgeon (Acipenser fulvescens) is assessed as Threatened under SARA in the Great Lakes, Upper St. Lawrence River population; Lake Chubsucker and various mussel species may also occur in the Project's nearshore influence area. These species are entirely absent from the preliminary effects analysis.

ORA recommends a comprehensive SAR survey, covering both the terrestrial footprint and the Georgian Bay nearshore and lakebed within the operational influence area of the Lower Inlet/Outlet Structure, to be completed and publicly disclosed before the IA proceeds.

3.9 Absence of OCCIA 2023 and Climate Adaptation Context

The Ontario Provincial Climate Change Impact Assessment, 2023[10] (OCCIA 2023), provides essential planning context for all major infrastructure in Ontario, including projections for heat, drought, and precipitation extremes.

The Report warns that "*changes in Ontario's climate are expected to continue at unprecedented rates… and it will pose indirect threats to things like water availability and water quality."* In addition, *"by the 2080s, northern Ontario, which experiences on average four extreme heat days annually, is projected to see upwards of 35 such days each year. Whereas, "southern, central and eastern Ontario will average 55 to 60 such extreme heat days per year—a fourfold increase from the current annual average of about 16 days."*[11]

"Climate change poses risks to water sources, which affect supply and quality. Dry conditions and extreme hot temperatures change water balances and cause disruptions to the water flow regulation service, leading to reduced surface and groundwater levels, changes in intra-annual patterns of water availability, loss of available freshwater supplies for human use, wetland drying and loss, changes in distribution and abundance of animal and fish species and altered ecosystem function over a long term…"[12]

"The highest risks across all sub-categories were found to be for electrical power generation infrastructure. Risks are 'high' now and expected to remain 'high' for all future time periods. Extreme precipitation events can lead to water damage and damage from objects carried by overland flow and flooding damaging equipment and decreasing the useful life of the infrastructure."[13]

The IPD Summary makes no reference to OCCIA 2023.

This omission is material. Georgian Bay is projected to experience significant changes in thermal regime, water level fluctuations, and storm intensity over the 100-year operational lifespan of this project. These changes will affect the project's hydrology, its fish-entrainment risk profile, its effect on nearshore habitats, and the integrity of the ring dam under extreme precipitation events. Infrastructure designed without reference to OCCIA 2023 projections may be systematically under-designed for the conditions it will face.

ORA recommends that OCCIA 2023 findings be integrated into all aspects of the Impact Assessment, including hydrological modelling, climate resilience assessments, and the evaluation of project effects on Georgian Bay's aquatic ecosystem under future climate scenarios.

3.10 Ratepayer Risk, Cost Escalation, and Procurement Concerns

The IPD Summary notes that the Ontario Government announced a $285 million investment to advance pre-development work in January 2025. It does not disclose that the project's total cost estimate has escalated from approximately $2.2 billion (2019) to a currently capped figure of $7 billion, representing more than a 200% increase before a single shovel has entered the ground. Nor does it acknowledge that the project's own schedule has slipped substantially: in January 2023, TC Energy represented to Wasaga Beach council that construction would commence in 2025 and that the project would be commissioned in 2030. As of the date of the IPD Summary (February 2026), the project has not entered construction and remains in the federal environmental assessment process. This schedule slippage of at least one full year, with commissioning now implausible by 2030, is directly relevant to the Project's claimed energy system benefits, ratepayer cost exposure, and the reliability of TC Energy's Project representations generally.

ORA is opposed to the shifting of speculative infrastructure development costs onto electricity ratepayers, as this constitutes a risk transfer from private proponents to the public without competitive procurement. No public tender was issued for this project. The IESO has not endorsed it as the least-cost storage solution. Yet provincial ratepayers are already bearing pre-development costs and will face exposure to a long-term electricity contract for a facility that the IESO's own analysis suggests is economically inferior to available alternatives.

ORA recommends that the IA include an independent cost-benefit analysis, prepared by a party with no financial interest in the project's approval, and that the analysis explicitly address ratepayer risk exposure, cost escalation history, and comparison to the cost of equivalent storage capacity through competitively procured battery storage.

4. Summary Recommendations to IAAC

ORA respectfully submits the following recommendations to the Impact Assessment Agency of Canada in relation to the Ontario Pumped Storage Project:

1. Require the proponent to commission and publicly release an independent, peer-reviewed fish entrainment and impingement risk assessment using Georgian Bay-specific species data before the IA commences.
2. Require a Cumulative Effects Assessment consistent with DFO and ECCC frameworks, conducted prior to any IA approval, covering Georgian Bay, the Niagara Escarpment watershed, and all reasonably foreseeable future stressors.
3. Require full public disclosure of all DND Federal Contaminated Site assessments for 4 CDTC and an independent contaminant transport model demonstrating the risk to Georgian Bay under all construction and operational scenarios.
4. Require an explicit assessment of impacts on Niagara Escarpment World Biosphere Reserve values and the karst hydrogeological system, regardless of jurisdictional exemption from Niagara Escarpment Commission oversight.
5. Require a full lifecycle GHG and energy balance analysis, including round-trip efficiency losses (~30%), construction-phase emissions, and IPCC reservoir emission guidelines.
6. Require a rigorous, independently conducted alternatives analysis comparing this project to grid-scale battery storage, distributed renewables, and demand-side management, using current IESO cost and performance data.
7. Require confirmation of Free, Prior and Informed Consent from Saugeen Ojibway Nation as a prerequisite to IA approval, not as a condition of approval.
8. Require a comprehensive SAR survey covering both the terrestrial project footprint and the Georgian Bay nearshore and lakebed within the operational influence area of the Lower Inlet/Outlet Structure.
9. Require integration of OCCIA 2023 findings into all hydrological modelling, climate resilience assessments, and long-term operational projections.
10. Require an independent cost-benefit analysis with full disclosure of ratepayer exposure and cost-escalation history, and a comparison to competitively procured storage alternatives.

5. Recommendations to Improve the Project and Alleviate Local Concerns

ORA acknowledges that Ontario has a legitimate and growing need for energy storage, and that TC Energy has made commitments to SON that should be honoured. The following

recommendations are offered as constructive improvements that, if implemented, could substantially reduce the environmental risk profile of this project and address the concerns raised by the Georgian Bay community, the Municipality of Meaford, and Indigenous rights-holders.

5.1 Convert to a Closed-Loop Design:

The single most impactful improvement would be converting this project to a closed-loop configuration, using a dedicated lower reservoir rather than Georgian Bay as the lower water source. A closed-loop design would eliminate chronic fish entrainment and impingement, remove the risk of contaminant transport via open-loop cycling, and decouple the project from the ecological integrity of Georgian Bay. ORA previously supported a closed-loop pumped storage proposal in Ontario for exactly this reason. ORA urges TC Energy to evaluate the technical feasibility of a closed-loop design at this location, including the potential use of excavated or existing lower basins, before proceeding further with the open-loop configuration.

5.2 Prioritize Full Contaminant Characterization Before Construction

TC Energy should commit to full independent characterization and public disclosure of all contamination at 4 CDTC before any civil works commence. This includes completion of Phase II and Phase III Environmental Site Assessments across the full construction footprint, remediation of identified hazardous areas, and binding commitments to contaminant containment protocols throughout the construction period. This step would directly address the concerns of the Meaford community and DND regarding the mobilization of legacy military contamination.

5.3 Establish an Independent Environmental Monitoring Trust

TC Energy should establish, before construction commences, an independent environmental monitoring trust funded by the proponent but governed by a board that includes IAAC, DFO, SON, the Municipality of Meaford, and community environmental groups, including Save Georgian Bay. This trust should have the authority to commission monitoring studies, require operational adjustments, and report publicly on an annual basis. This structure would address the community's concern that TC Energy's self-monitoring cannot be trusted to identify and report adverse effects.

5.4 Secure FPIC and Binding Economic Partnership with SON Before Construction

TC Energy should formalize its commitment to SON's self-determination by executing a binding economic partnership agreement before any construction begins, including equity ownership, revenue sharing, employment and training commitments, and defined cultural and environmental monitoring roles for SON members. This would transform the current aspirational partnership into a binding legal commitment that protects SON's rights regardless of future changes in corporate ownership or provincial energy policy.

5.5 Conduct a Genuine Alternatives Analysis Including Battery Storage

TC Energy should commission an independent comparative analysis of grid-scale battery storage as an alternative, using current (2025–2026) cost and performance data. Given the IESO's own endorsement of battery storage and the rapid improvement of battery technology, the proponent owes it to Ontario ratepayers and the public interest to demonstrate transparently why this project is preferable to less environmentally damaging alternatives. If the project cannot survive an

honest alternatives test, the public interest is best served by investment in battery storage rather than an open-loop pumped storage facility on Georgian Bay.

5.6 Minimize the Surface Footprint on the Niagara Escarpment

TC Energy should commit to minimizing the above-ground footprint of the ring dam and reservoir and exploring whether alternative reservoir geometries, partial berming into the escarpment landscape, or underground storage elements can reduce habitat loss on the Niagara Escarpment plateau. Visual impact assessments should be conducted in partnership with the Niagara Escarpment Commission even if the project is not formally subject to NEC jurisdiction, to demonstrate respect for the UNESCO Biosphere Reserve designation.

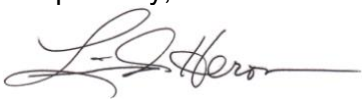
6. Conclusion

The Ontario Pumped Storage Project Initial Project Description – Plain Language Summary presents an incomplete, proponent-favourable characterization of a project with potentially severe, long-duration, and in some cases irreversible environmental consequences. The most critical gaps are the absence of a cumulative effects assessment, the inadequate treatment of fish entrainment and contaminant mobilization risks, the incomplete Species at Risk inventory, the absence of OCCIA 2023 considerations, and the lack of a genuine alternatives analysis.

ORA is not categorically opposed to energy storage development in Ontario. We recognize the need for the province to balance an increasingly renewable and battery-dominated grid. However, we are firmly opposed to the approval of a project that uses a living Great Lakes ecosystem as an open-loop reservoir, mobilizes military contamination through civil excavation of a federal contaminated site, and advances without the Free, Prior and Informed Consent of Saugeen Ojibway Nation, all without the benefit of a Cumulative Effects Assessment, an honest alternatives analysis, or a lifecycle GHG accounting.

ORA calls on the IAAC to require the additional studies and assessments outlined in Section 4 of this submission before determining whether a full Impact Assessment is required, and to treat the concerns of the Georgian Bay community, SON, and environmental organizations as substantive policy inputs rather than matters to be managed through engagement processes.

Respectfully,



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[6] *2019 Refinement of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Chapter 7, Wetlands, 7.3 Flooded Land. P-6/52.*

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[11] *Ibid.*

[12] *Ibid.*

[13] *Ibid.*