

Feedback Form

2026 Annual Planning Outlook – April 21, 2026

Feedback Provided by:

Name: Linda Heron

Title: Chair

Organization: Ontario Rivers Alliance

Email: [REDACTED]

Date: 5 May 2026

To promote transparency, feedback submitted will be posted on the [2026 Annual Planning Outlook](#) engagement page unless otherwise requested by the sender.

- Yes – there is confidential information, do not post**
 No – comfortable to publish to the IESO web page

Following the April 21 engagement webinar, the Independent Electricity System Operator (IESO) welcomes feedback from stakeholders on the information shared. The presentation and recording can be accessed from the [2026 Annual Planning Outlook](#) engagement page.

Note: The IESO will accept additional materials where it may be required to support your rationale provided below. When sending additional materials please indicate if they are confidential.

Please submit feedback to engagement@ieso.ca by May 5.

General Comments/Feedback

Do you have any general comments or feedback regarding the information shared or recommendations for the IESO to consider regarding future outlooks?

Dear IESO Engagement Team:

The Ontario Rivers Alliance (ORA) is a grassroots, not-for-profit organization with a mission to protect, conserve, and restore Ontario rivers. ORA appreciates the opportunity to provide written comments on the IESO's 2026 Annual Planning Outlook (APO),¹ as presented at the April 21, 2026, stakeholder engagement.²

ORA acknowledges meaningful improvements in the 2026 APO. The recognition of uncertainty in the High and Low demand scenarios, the adoption of the 2025 to 2036 electricity Demand-Side Management (eDSM) Framework, and the publication of qualitative and quantitative risk and uncertainty descriptions per the June 2025 Minister's Directive are credible advances over prior outlooks. ORA credits the IESO for these steps. The remainder of this submission identifies the matters of concern that, in ORA's view, must be addressed before any further commitment to hydroelectric procurement, and provides recommendations within the IESO's mandate of grid reliability and ratepayer protection.

1. New Hydroelectric Procurement Is Not in the Interest of Ontario Ratepayers:

ORA's central concern with the 2026 APO is the IESO's continuing commitment to new-build hydroelectric generation: the 1 TWh annual imputed energy stream under the Long Lead-Time (LLT) Request for Proposals (RFP), Northern Hydro Program, 20- and 40-year contracts, environmental benefits, transmissions lines, ratepayer and taxpayer impacts, and the two proposed Nine Mile Rapids and Grand Rapids hydroelectric stations in the Moose River Basin. The subsections that follow set out, on the procurement record, why this commitment is incompatible with the IESO's own ratepayer-protection mandate.

1.1 The Two Proposed Hydroelectric Stations in the 2026 APO Are Outside the LLT RFP and Outside Competitive Procurement:

Slide 20 of the IESO's April 21, 2026, stakeholder presentation identifies *Potential new hydroelectric stations in northern Ontario (Nine Mile and Grand Rapids)* as in-flight actions for meeting capacity and energy needs. The 2026 APO confirms, at p. 73, that *Energy for Generations*³ indicated support for the early-stage development of these two new hydroelectric stations in northern Ontario to explore their feasibility. The accompanying transmission-planning narrative at p. 57 states that the bulk plan will explore transmission options needed to enable two potential hydroelectric sites in the Moose River Basin: Nine Mile Rapids and Grand Rapids.

ORA places the following on the procurement record. As publicly disclosed by the Government of Ontario and Ontario Power Generation (OPG), the proposed Nine Mile Rapids Generating Station, on the Abitibi River, has an indicative capacity of approximately 256 MW, and the proposed Grand Rapids Generating Station, on the Moose River, has an indicative capacity of approximately 174 MW, for a combined indicative capacity of approximately 430 MW. These two projects are therefore approximately

twice the size of the entire LLT RFP energy stream envelope (1 TWh of total annual imputed generation, equivalent to 200 to 250 MW installed at a 45 to 55 percent capacity factor) as set out in the April 16, 2026, Minister's Directive at clause 4.a.⁴ The Nine Mile Rapids and Grand Rapids projects cannot therefore be procured through the LLT RFP. They were instead the subject of an April 9, 2025, announcement at Sandy Falls Generating Station by the Minister of Energy and Mines of a partnership between OPG, Taykwa Tagamou Nation, and Moose Cree First Nation, in which both First Nations signed Letters of Intent with OPG. The projects were subsequently memorialized as Provincial policy in *Energy for Generations*, the Province's June 12, 2025, Integrated Energy Plan.

Despite the absence of any disclosed competitive procurement vehicle, the IESO has nonetheless reflected these two projects in the 2026 APO supply outlook as in-flight actions and is shaping bulk transmission planning around them.

ORA submits that **this is the very pattern of predetermined "need" at the political level that competitive procurement, ratepayer-protection, and the IESO's Resource Adequacy Framework are designed to prevent.** The 2026 APO does not disclose the procurement vehicle, the structure, the contracted price, the contract term, the climate-hydrology assumptions, or the lifecycle greenhouse-gas accounting under which these two 430 MW reservoir hydropower projects will be paid for by Ontario ratepayers.

ORA acknowledges that Taykwa Tagamou Nation and Moose Cree First Nation have signed Letters of Intent with OPG as host nations and that this is a meaningful step.

ORA places on the procurement record, however, that other Cree First Nations whose Treaty rights, traditional territories, and downstream interests in the Moose River Basin are affected by these projects are not yet on the Province's public engagement record, and that the Free, Prior and Informed Consent (FPIC) framework under the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) requires more than two host-nation Letters of Intent.

The 2026 APO contains no climate-hydrology, lifecycle GHG emissions, or cumulative-effects discussion of these two sites.

ORA submits that committing the Province's bulk transmission planning to enable two named, large new reservoir hydropower projects, on a sole-source basis, before the publication of any climate-hydrology stress test, lifecycle GHG accounting, or comprehensive Indigenous engagement record across all affected First Nations, is incompatible with prudent ratepayer-protection and procurement-design practice. The institutional independence and continuing disinformation dimensions of this procurement record are addressed in Section 8 below.

1.2 Hydroelectric Generation Is Not "Stable" Under Climate Change:

Slide 17 of the IESO's April 21, 2026, stakeholder presentation states that Hydroelectric production is expected to remain stable. The 2026 APO assumes at p. 27 (footnote 9) that hydroelectric resources are available throughout the outlook period regardless of ownership, age of facility, or other considerations. No P50/P10 climate-hydrology stress test, drought sensitivity, or multi-year low-flow scenario is presented anywhere in the four 2026 APO engagement documents (the APO itself, the Demand Forecast Module, the April 21 presentation deck, and the 2027 APO Scenarios deck) for the assumed contribution of existing or new hydroelectric resources.

This assumption is not consistent with current climate science or with the Province's own assessments. The Ontario Provincial Climate Change Impact Assessment, 2023 (OCCIA, 2023),⁵ commissioned by the Ontario Ministry of the Environment, Conservation and Parks and prepared by the Climate Risk Institute over three years with input from over 140 subject-matter experts and Indigenous organizations, classifies electricity generation infrastructure as one of the highest-risk infrastructure categories under both 2030s and 2050s climate scenarios. The 2026 APO does not cite OCCIA 2023 in any of the four engagement documents reviewed, nor in the main APO document. In fact, the Minister's own *Energy for Generations* makes no reference to climate change or its potential impacts on energy planning. ORA submits that this is a material failure.

The lived experience of Manitoba Hydro confirms that drought-related ratepayer risk is not theoretical. Manitoba Hydro reported a \$157 million net loss for fiscal year 2023-24, attributed to drought conditions, low water flows in the Lake Winnipeg basin, and the need to resort to burning fossil fuels.⁶ The following fiscal year, 2024-25, Manitoba Hydro reported an additional \$63 million net loss, again attributed to low water conditions.⁷ Together, these two consecutive drought years cost Manitoba Hydro ratepayers and the Province of Manitoba \$220 million. Ontario ratepayers should not be exposed to similar risk under 40-year LLT RFP or 20-year Northern Hydro Program repowering contracts that assume "stable" hydroelectric output.

1.3 Reservoir Greenhouse-Gas Emissions Are Significant and Worsening, and Treating Hydropower as "Non-Emitting" Is Disinformation:

Reservoir-based hydropower is not "fuel-free" and is not free of lifecycle greenhouse-gas emissions. Rudd, Harris, Kelly and Hecky asked, more than three decades ago, whether hydroelectric reservoirs are significant sources of greenhouse gases.⁸ Successive independent peer-reviewed studies have answered the question affirmatively. Deemer et al. (2016) provided a global synthesis of greenhouse-gas emissions from reservoir water surfaces.⁹ DelSontro and colleagues (2010) documented that extreme methane emissions from a Swiss hydropower reservoir were the highest ever recorded for a midlatitude reservoir, and characterized CO₂ and CH₄ emissions from a eutrophic reservoir.^{10, 11} Maeck et al. (2013) showed that sediment trapping by dams creates methane-emission hotspots.¹² Keller et al. (2021) characterized the global carbon budget of reservoirs as dominated by hydroelectric reservoirs.¹³ Wang et al. (2023) confirmed that inland waters increasingly produce and emit nitrous oxide.¹⁴

OPG's treatment of reservoir greenhouse-gas emissions as "non-emitting" is not the result of an absence of evidence; it is a strategic accounting choice. In October 2016, Intrinsic Corp., retained by OPG to compare lifecycle greenhouse-gas emissions across Ontario electricity generation methods over a 40-year horizon, acknowledged in the body of the report that during the periods of peak emissions following reservoir impoundment, hydroelectric greenhouse-gas emissions *"may be similar to those associated with gas-fired facilities,"* citing a decay curve from 671 g CO₂e/kWh in the first year following flooding to 238 g CO₂e/kWh by the fourth year.¹⁵

Notwithstanding that finding, Intrinsic's Table E-1 (see below) reported hydroelectric lifecycle emissions per kWh as zero, on the methodological basis that *"the flooding of reservoirs and the emissions associated with the decomposition of biomass was considered to be a component of the construction phase and was not included within the operational stage of the current study."* That methodological choice is not defensible on the facts.

Table E-1 Estimated Resource-Specific GHG Emission Rates for the Operation and Maintenance Stage	
<i>Resource</i>	<i>GHG Emissions per Energy Production (g CO₂e/kWh)</i>
Hydroelectric	0
Nuclear	0.15
Wind	0.74
Solar	6.15
Natural Gas	525

OPG itself currently operates and is redeveloping the Kakabeka Falls Generating Station, built in 1906 and now 120 years old,¹⁶ and recently completed a refurbishment of the Coniston Generating Station, built in 1905 and now 121 years old.¹⁷ Reservoir methane, carbon dioxide, and nitrous oxide emissions continue throughout the full operating lifecycle of the dam. Accounting for reservoir greenhouse-gas emissions only as a "construction phase" component, while reservoirs continue to emit methane for more than a century of operation, is willful blindness engineered into the methodology.

Most notably, Soued, Harrison, Mercier-Blais and Prairie (2022), published in *Nature Geoscience*, found that reservoir methane emissions accounted for 5.2 percent of global anthropogenic methane emissions in 2020 and that methane ebullition and degassing flux will make up more than 75 percent of reservoir-induced radiative forcing by 2060.¹⁸ As temperatures rise and nutrient-rich sediments accumulate behind dams, methane production continues to increase, particularly in shallow, slow-moving reservoirs operated as peaking facilities, where daily water-level fluctuations repeatedly wet and dry the littoral zone, accelerating decomposition.

Methane is a greenhouse gas more than 80 times more potent than carbon dioxide over a 20-year horizon. Under the Intergovernmental Panel on Climate Change's (IPCC) 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories,¹⁹ reservoir methane is reportable under both AFOLU/Flooded Lands and Energy source category 1.B.3 (fugitive emissions from hydropower). Canada reports carbon under Flooded Lands but does not currently report methane, as recommended under category 1.B.3. This reporting omission is notable because hydropower makes up about 59% of Canada's electricity grid, and reporting methane would add a significant mountain to climb in achieving net-zero.

For years, ORA has been advocating for OPG and all hydropower proponents to measure and publicly report their GHG emissions, especially those selling Clean Energy Credits (CECs). However, until recently, hydropower proponents and the broader industry objected, arguing that reservoir greenhouse-gas emissions were too variable, too site-specific, or too difficult to measure to be required for procurement or for CEC certification.

That objection is now obsolete. Grilli, DelSontro, Garnier, Jacob, and Némery (2023), published in the *Journal of Geophysical Research: Biogeosciences*, demonstrated the first deployment of a novel Membrane Inlet Laser Spectrometer for fast, simultaneous, in situ, high-spatial-resolution measurement of dissolved methane, ethane, and the stable carbon isotope of methane in lake and reservoir surface waters.²⁰ The methodology delivers high-resolution data sets within a limited amount of survey time and validates that single-point or low-resolution sampling, which has been the industry standard, grossly understates the variability in the littoral zone where the bulk of methane is produced. The tool is a state-of-the-science answer to the measurement problem that the OPG and the hydropower industry at large have repeatedly cited as the basis for not requiring lifecycle GHG accounting.

The study noted that *"The dissolved CH₄ concentration in the pelagic zone was 50 times larger than the concentration expected at equilibrium with the atmosphere, confirming an oversaturation of dissolved CH₄ [methane] in surface waters over shallow and deep areas."* It further noted that prior practice was sparse sampling *"because of the manual nature of these measurements, only a few or even just one sample is often taken in systems."*²⁰

In that regard, on May 23, 2023, ORA met online with OPG's Director, Hydroelectric Business Development and three of her staff. It was an excellent meeting; there were no denials of GHG emissions coming from hydro reservoirs. They allowed me to record the meeting, and we talked openly about the prominent model being used to estimate GHGs from hydropower reservoirs, being the G-RES tool. An OPG staff member stated that G-RES *"is quite good at predicting CO₂ but has its challenges in predicting methane"* and ORA pointed out that G-RES *"is just a model, so it can only give us an estimation,"* and that it underestimates bubbling pathways in particular.²²

In other words, the equilibrium-based and sparse-sampling assumptions underlying much of the prior reservoir-emissions literature, and the modelling tools the Canadian industry currently relies on, can underestimate actual surface methane by orders of magnitude. Modelling tools such as G-RES, while useful at coarse scales, are acknowledged in the literature and by OPG itself to predict CO₂ reasonably well but to systematically understate methane, particularly the ebullition and degassing pathways that Soued et al. (2022) project will dominate reservoir-induced radiative forcing by 2060.

Dr. DeSontro is on the faculty of the University of Waterloo, in Ontario, putting this state-of-the-science measurement capability directly within reach of Ontario procurement design. Any procurement, planning, or CEC certification that continues to proceed on a "non-emitting" representation, while declining to require continuous, high-resolution, in situ measurement and public reporting, can no longer credibly defend itself by invoking measurement barriers.

Both the 2026 APO¹ and *Energy for Generations*³, nonetheless, describe hydroelectric generation as "non-emitting." This is not a technical lapse; it is harmful and misleading disinformation. More than three decades of independent peer-reviewed scientific evidence, summarized above, establish that reservoir methane, carbon dioxide, and nitrous oxide emissions are real, measurable, and persist over the full operating lifecycle of the dam.

The "non-emitting" representation is not due to a knowledge gap. As detailed in Section 8 below, OPG, then under the presidency of Mr. Ken Hartwick, acknowledged in writing on April 17, 2023, in a response to ORA's February 8, 2023 submission to the Minister of Energy, the IESO and OPG, that hydropower lifecycle emissions are not zero.^{21, 22} That admission has not been reflected in the 2026 APO, in *Energy for Generations*, or in the Clean Energy Credit (CEC) representations on which OPG has sold millions of dollars in CECs since 2013, and continues to sell to corporate purchasers. In this way, polluters are actually being misled into paying for CECs to offset their emissions, when in effect, they are paying to fuel climate change.

Treating reservoir hydropower as "non-emitting" for procurement and planning purposes exposes Ontario ratepayers to a foreseeable regulatory risk. As reservoir greenhouse gases come to be acknowledged in successor electricity-sector or industrial-emissions regimes, in line with the IPCC's 2019 Refinement, hydroelectric facilities contracted today as "non-emitting" are more than likely to face emissions penalties, derating, or be ordered to decommission with no up-front financial provisions in the contracts to absorb that cost.

ORA recommends that the IESO convey this omission to the Minister of Energy and Mines and incorporate the GHG/lifecycle methane and climate vulnerability of hydropower into its resource adequacy assessments.

1.4 The Minister's April 16, 2026, Directive Excludes Hybrid Resources Despite the IESO's Own Findings:

The IESO's own *Hybrid Resource Portfolio Equivalency Assessment* (August 2025)²³ examined whether portfolios of variable generation paired with battery energy storage could equivalently meet the resource adequacy services traditionally provided by reservoir-backed dispatchable resources. **The assessment found that, in the Peaky Need Scenario, wind, solar, and battery hybrid portfolios would serve 99.5 to 99.98 percent of load out to 2050, and in the Baseload Need Scenario, 99.7 to 99.9 percent of load.** The assessment further found that a gas plus wind, solar, and battery portfolio achieves 100 percent load served at a lower net present value than a gas-only option in seven of ten weather years. **None of the four 2026 APO engagement documents reviewed by ORA references or builds on this important technical paper.**

ORA submits that this is a significant omission in the IESO's procurement-design narrative. ORA has filed separate detailed feedback on the LLT RFP procurement design with the IESO on April 30, 2026,²⁴ which expands on the serious technical and ratepayer-risk implications of the hydro-only LLT energy stream and is incorporated by reference.

The omission is not academic. On April 16, 2026, the Lieutenant Governor in Council approved Order in Council 619/2026, attaching a Minister's Directive from the Honourable Stephen Lecce, Minister of Energy and Mines, directing the IESO to launch the LLT RFP.⁴ The directive states, on its face, that the Minister has "duly considered the IESO's report back on the design of the LLT RFP, received on August 29, 2025." **Notwithstanding that report-back and the underlying Hybrid Resource Portfolio Equivalency Assessment, clauses 5.b.i and 5.b.ii of the directive restrict the procurements as follows: the energy procurement is open "only" to "new hydroelectric projects, other than pumped hydroelectric storage," and the capacity procurement is open "only" to "new long duration (8 hours or more) energy storage projects, including pumped hydroelectric storage." Hybrid portfolios of variable generation paired with battery energy storage are excluded from this energy stream entirely.**

The Background section of the same directive justifies this exclusion by characterizing wind, solar and inverter-based battery energy storage systems as resources with shorter development timelines and lifespans that are deemed not well-suited to competing against new hydroelectric. **In other words, hydropower cannot compete with wind, solar and battery on any level, and it is a costlier deal for ratepayers.**

ORA submits that this characterization is inconsistent with the IESO's own technical analysis, which demonstrated equivalency. The result is that **40-year ratepayer-backed contracts will be awarded for new reservoir hydropower, with commercial operation dates no later than May 1, 2035, on a procurement design that has been narrowed to exclude the only resources the IESO itself has shown can equivalently meet the same need at lower long-term ratepayer risk.**

ORA places this contradiction on the formal procurement record and asks the IESO to convey it to the Minister.

1.5 The April 23, 2026, Ministerial Announcements Compound These Concerns:

On April 23, 2026, the Minister of Energy and Mines announced three further actions that, taken together, intensify the concerns set out above.²⁵ First, the Minister declared the proposed 162-kilometre Red Lake Transmission Line a "priority project" under the *Electricity Act, 1998*, and designated Hydro One as the transmitter through a Minister's letter to the Ontario Energy Board (OEB), materially abbreviating the OEB's competitive designation process and determination of public interest. The same announcement projects that electricity demand in the Red Lake region could grow by as much as 525 percent (from approximately 120 MW today to potentially over 750 MW by 2050), driven by population growth and a forecast of 41 potential new mines by 2033, attributed to the Northwestern Ontario Municipal Association's Northwest Energy Task Force.

ORA places on the procurement record that **committing approximately \$830 million in transmission build-out, with a designated transmitter, on the basis of an industry-association forecast of 41 hypothetical mines, is precisely the speculative-load planning ORA flagged in its December 2, 2025, submission to the IESO.**²⁶

Second, the Minister launched a new Northern Hydro Program to recontract more than 1,000 MW of existing hydroelectric facilities with capacities over 10 MW and 20-year contracts.

ORA places on the procurement record, however, that **recontracting commits Ontario ratepayers to additional decades of payments for water-dependent resources whose lifecycle methane emissions, climate-hydrology vulnerability, and absence of fish passage have not been disclosed in the 2026 APO.**

Ontario currently has approximately 224 hydroelectric facilities, of which only two have any form of fish passage, and there are no up-front financial decommissioning provisions to remove these facilities when they are no longer able to generate power. **The Northern Hydro Program should not proceed without disclosed financial terms, shorter contract terms, climate-hydrology stress testing, and a watershed-by-watershed cumulative-effects review.**

Third, **the same announcement confirms that the LLT RFP procurement will officially launch on May 6, 2026, one day after the 2026 APO engagement window closes.** The compressed sequencing means that 40-year, ratepayer-backed contracts for new hydroelectric resources will be solicited under procurement documents whose underlying planning assumptions, including the "stable hydroelectric production" assumption and the absence of CER modelling (more in Section 3), remain unaddressed by the IESO. The 2026 APO should not be treated as the analytical foundation for the LLT RFP procurement until the gaps identified in this submission are addressed on the public record.

ORA Recommendations:

1. Disclose, on the formal procurement record for the 2026 APO and all current and future procurements involving new or repowered hydroelectric resources, the climate-hydrology methodology (P50/P10, multi-year drought, drawdown sensitivity) used to derive the assumed hydroelectric output for both existing and new hydroelectric resources over the 2027 to 2050 outlook period. Where no such stress test has been conducted, the IESO should disclose this on the public record and limit contracts to a maximum of 5 years.
2. Require, as a bid-eligibility and recontracting condition under all current and future procurements involving new or repowered hydroelectric resources, that proponents disclose the climate-hydrology assumptions used in their bid economics (specifically, the multi-year

minimum and average flow assumptions) and the resulting capacity-factor sensitivity, so that the IESO can compare bids on a like-for-like ratepayer-risk basis.

3. Require, as a bid-eligibility and recontracting condition under all current and future procurements involving new or repowered hydroelectric resources, that proponents disclose all First Nations that will be affected by the project, that they have all been engaged, and that FPIC processes have been initiated.
4. Formally reference IESO's August 2025 Hybrid Resource Portfolio Equivalency Assessment in the 2026 APO supply analysis and demonstrate, for the resource needs identified in the 2026 APO, what fraction of the energy stream procurement target could be met by hybrid portfolios of variable generation and battery storage at lower long-term ratepayer risk.
5. IESO advise the Minister of Energy and Mines, in writing, that the LLT RFP energy stream as restricted by the April 16, 2026, Minister's Directive (Order in Council 619/2026) to "only new hydroelectric projects" excludes the very resource portfolios the IESO has itself shown can equivalently meet the modelled need, and that the public record of the IESO's 2026 APO and LLT RFP should reflect this contradiction.
6. Maintain the confidentiality of the LLT RFP Reserve Bid Price and the Reserve Bid Prices of all current and future procurements involving new or repowered hydroelectric resources until after all bids are received and processed, and ensure that the IESO does not publish or disclose Reserve Bid Prices in advance of bid submission, in order to protect ratepayer value-for-money.
7. Disclose, on the formal procurement record, the financial terms (contract structure, term, and pricing methodology), the climate-hydrology stress-test methodology, and the watershed-level cumulative-effects screening that will apply to the soon-to-launch LLT RFP, the Northern Hydro Program announced April 23, 2026, or any other hydropower RFP, before any contracting or recontracting decisions are finalized.
8. Require, as a bid-eligibility and recontracting condition under all current and future procurements involving new or repowered reservoir hydropower, and as a condition of the issuance, transfer, or sale of any CEC certifying generation as "clean," "non-emitting," or "low-emitting," that proponents conduct continuous, high-resolution, in situ measurement of reservoir methane, carbon dioxide, and nitrous oxide emissions using state-of-the-science methodologies (such as the Membrane Inlet Laser Spectrometer described in Grilli et al., 2023) or equivalent, and publicly disclose the results.
9. Require, as a bid-eligibility and recontracting condition under all current and future procurements involving new or repowered hydropower, that proponents post or fund up-front decommissioning financial provisions sufficient to cover dam removal, reservoir restoration, and any future emissions liability arising from reservoir greenhouse-gas emissions over the contract term.
10. Advise the Minister of Energy and Mines that reservoir-based hydropower carries lifecycle greenhouse-gas and climate-hydrology risks that warrant pre-procurement FPIC and lifecycle GHG accounting, and that these risks are material to ratepayer protection under 20- and 40-year contracts.

2. The 2026 APO Ignores the Province's Own Climate Change Impact Assessment:

OCCIA 2023, commissioned by MECP and prepared by the Climate Risk Institute, identifies electricity generation infrastructure as one of the highest-risk infrastructure categories under both 2030s and 2050s climate scenarios. The Province's own findings include increased forced outages during extreme weather, reduced generation capacity from low-flow conditions, and accelerated aging of transmission and substation equipment. The 2026 APO does not cite OCCIA 2023 or climate change in any of its four engagement documents reviewed.

OCCIA's findings are directly material to the IESO's ratepayer-protection mandate, particularly when committing to 20- or 40-year contracts under new or repowered hydropower RFPs. ORA further notes that the Office of the Auditor General of Ontario's 2022 Annual Report (Chapter 3.06, *Climate Change Adaptation: Reducing Urban Flood Risk*)²⁷ similarly identified systemic gaps in the Province's preparation for climate-driven infrastructure stress. Together, these two provincial government products establish that "stable" hydroelectric production cannot be assumed without explicit climate-hydrology evidence on the procurement record.

ORA Recommendations:

1. Incorporate the findings of OCCIA 2023 in subsequent APOs as well as in the LLT RFP, Northern Hydro Program, Local Generation Program, and all current and future hydroelectric procurement-design materials, and disclose the resulting changes to assumed hydroelectric output and to capacity adequacy.
2. Reference the Auditor General of Ontario's 2022 Value-for-Money Audit on Climate Change Adaptation in its assessment of climate-related grid resilience risks.
3. Advise the Minister of Energy and Mines that the 2026 APO's "stable" hydroelectric production assumption is not consistent with OCCIA 2023 findings, and that a precautionary climate-hydrology methodology should be adopted before any further hydroelectric procurement is committed.

3. The Federal Clean Electricity Regulations Remain Unmodelled:

The 2026 APO Executive Summary at p. 3 states that the APO does not model the requirements in the Clean Electricity Regulations (CER) and instead reflects a scenario where gas production is limited within the electricity system emissions levels forecast in the previous APO. It further acknowledges that the gas fleet is therefore modelled to operate materially below total capability, but that meeting energy needs in the near to medium term could result in higher actual gas fleet production depending on the availability of new and existing supply resources and the level of demand that materializes.

In the April 21, 2026, online engagement, IESO confirmed that it did not explicitly model the requirements of the federal CER and instead conducted a scenario where gas production is limited within the electricity system emissions levels forecast in the previous APO, on the basis that this approach leads to the same outcome of near-zero emissions by 2050 and helps mitigate some of the reliability and cost risks that may be introduced by the CER. ORA flagged the absence of CER modelling in its December 2, 2025, submission. Six months later, the federal regulations are still not modelled.

ORA acknowledges that the IESO's substitute approach (limiting gas production to the 2025 APO emissions trajectory) is intended to achieve the same emissions outcome. However, the substitute approach does not bind the IESO to the federal regulation's specific emissions performance standard,

technology eligibility, or compliance schedule, and therefore does not allow the public, or the Minister, to assess whether the IESO's resource-adequacy plan is consistent with binding federal law that will apply to Ontario's grid from January 1, 2035 onward.²⁸

The 2026 APO acknowledges at p. 79 that the CER bring uncertainty after 2035, with limited potential for energy from emitting resources combined with long-term forecast demand growth, increasing energy needs. At p. 85, the APO states that the CER would limit production from most of Ontario's gas fleet, reducing energy production from emitting resources when a large portion of contracts expire in the mid-2030s. Despite this admission, the explicit modelling is deferred.

ORA further notes that the IESO's effective treatment of hydroelectric resources as outside the GHG-accounting frame appears to rest on the scope of the federal CER, which applies to fossil-fuel-fired generation. This is a convenient treatment, and at this stage of accumulated scientific evidence, it amounts to a scapegoat and willful blindness. The CER's exclusion of reservoir greenhouse gases is a regulatory gap, not a finding of fact, and the IESO's reliance on the CER's current scope is not a substitute for lifecycle GHG accounting under the IPCC's 2019 Refinement.

ORA Recommendations:

1. Publish, before any further hydroelectric procurement window opens, a sensitivity scenario in which the federal CER, as enacted on December 18, 2024, are modelled in full, and disclose the resulting capacity, energy, and resource-mix consequences.
2. Advise the Minister of Energy and Mines that the absence of CER modelling in the 2026 APO is a transparency gap that should be addressed before any further hydroelectric procurement commitments.

4. The Demand Forecast Scenarios Under-Weight Key Risks:

ORA credits the IESO for recognizing uncertainties and expanding to High and Low scenarios in the 2026 APO, which is a material improvement over the 2025 APO's overly optimistic forecast. However, several material risks remain under-weighted, and certain new federal and provincial policy changes are not yet reflected.

4.1 Speculative Loads Are Embedded Even in the Low Scenario:

The 2026 APO Demand Forecast Module shows that even in the Low scenario, commercial data centre load grows from 3 TWh in 2026 to 14 TWh in 2050, a 394 percent increase. In the Reference scenario, commercial data centre load grows from 4.5 TWh to 22.6 TWh, a 7.1 percent compound annual growth rate, driven by strong interest from new commercial artificial intelligence service-providing data centres. There is no scenario in which IESO models a meaningful pullback in data centre demand.

In the April 21 webinar, IESO acknowledged that the 2027 APO data centre forecast will be higher because IESO received an influx of applications after the reference forecast was finalized. Globally, governments are beginning to cap or pause new data centre approvals due to grid stress, water consumption, and local impacts.

ORA submitted in its December 2, 2025, feedback that data centres should be treated as policy-controllable rather than inevitable. ORA reiterates this recommendation and notes that LLT RFP projects will not be operational for five to ten years, while solar, wind, and battery storage can be deployed more quickly with a lower overall ratepayer cost.

4.2 Bill 17 and Repealed EV Standards Treated as the Default Future:

The 2027 APO Scenarios deck (slide 9) treats Bill 17, which restricts municipalities from initiating green building standards, as the reference scenario baseline, with no building permit or building performance standard requirements assumed. Similarly, the federal repeal of the Electric Vehicle Availability Standard, announced in February 2026, is reflected through downward Electric Vehicle (EV) adoption assumptions. Together, these policy reversals are treated as durable rather than as themselves, uncertain.

ORA submits that the IESO should model upside scenarios in which the federal EV sales targets are reinstated and provincial green building standards are restored, since both are within the realm of plausible future federal and provincial policy change.

4.3 Alto High-Speed Rail Excluded:

The 2026 APO Demand Forecast Module at p. 10 acknowledges that following the finalization of the 2026 APO demand forecast, the federal government confirmed support for proceeding with the Alto High-Speed Rail project (previously VIA High Frequency Rail) and significantly accelerated planned construction timelines. The Alto project is not in the 2026 APO. This is a material gap given the project's announced acceleration and its electricity demand implications.

ORA Recommendations:

1. Add an explicit "data centre slowdown" sensitivity to the 2027 APO scenario design, in which Ontario or federal policy caps data centre growth by 2035, and disclose the resulting demand and capacity needs.
2. Add an explicit "policy reinstatement" sensitivity in which Bill 17 is repealed, and provincial green building standards are restored, federal EV sales targets are reinstated, and the resulting demand impacts are disclosed.
3. Publish, before the 2027 APO is released, an interim memo addressing the demand-forecast implications of the Alto High-Speed Rail project, given the federal commitment.
4. Require all proponents of hydroelectric generation contracts to disclose how their bid economics depend on speculative-load assumptions (data centres, hydrogen electrolysis, mining, large step loads) and to provide sensitivity analysis to load underperformance.

5. Transparency Regression: Marginal Cost Data Tables Removed

In the April 21, 2026, webinar, an Association of Major Power Consumers in Ontario (AMPCO) representative observed that the marginal cost data tables published in the 2025 APO are absent from the 2026 APO. The IESO responded that those tables would be made available later in the year, with a Q3 timeframe.

ORA places on the procurement record that this is a transparency regression. The marginal energy and capacity cost tables are essential reference material for stakeholders, ratepayer-cost analysts, and the public to assess the IESO's plans on a like-for-like basis with prior outlooks. Their delayed release impedes informed feedback during the engagement window.

It is crucial that the public is informed of the full cost of all the electricity infrastructure currently being planned for, and how it will impact their hydro rates and tax dollars.

ORA Recommendation:

1. Restore the marginal energy and capacity cost data tables, in the same format as the 2025 APO, in the 2026 APO publication, and do not defer them to a later product; confirm a publication date in writing on the engagement page.
2. Provide a full cost accounting of the over 1,800 km of transmission lines, new and refurbished nuclear, SMRs, the LT2 RFP, LLT RFP, Northern Hydro Program, Local Generation Program, and anything else in the “Energy Superpower” agenda, and how it will impact ratepayers and taxpayers over the short and long-term.

6. Increased Gas Dispatch as the Fallback Mechanism:

Slide 25 of the April 21, 2026, stakeholder presentation lists *Increased dispatch of the gas fleet as necessary (depending on future policy)* as one of the planned actions for meeting energy and capacity needs. The 2026 APO at p. 3 likewise indicates that meeting energy needs in the near to medium term could result in higher actual gas fleet production depending on the availability of new and existing supply resources and the level of demand that materializes. This is a release-valve commitment to higher gas burn, in apparent contradiction with the 2026 APO’s explicit *near-zero emissions by 2050* trajectory. The combination of:

- (a) Deferring Clean Energy Regulation (CER) modelling,
- (b) Limiting gas production to 2025 APO levels in the modelling, and
- (c) Reserving the option to dispatch the gas fleet beyond those limits if other resources do not materialize, undermines the credibility of the emissions trajectory and exposes ratepayers to higher costs as carbon pricing evolves.

ORA Recommendations:

1. Disclose, on the procurement record, the carbon-cost and emissions-compliance sensitivity of the “increased gas dispatch” fallback under the federal CER as enacted (taking effect January 1, 2035) and Ontario’s Emissions Performance Standards regime as it stands at the time of dispatch.
2. Confirm publicly that the *increased gas dispatch* fallback is not, by itself, a substitute for procuring sufficient non-emitting resources to meet identified capacity and energy needs, and that the fallback is bounded by the federal CER once enforced.

7. Indigenous Engagement Deserves Deeper Framing:

The 2026 APO’s references to Indigenous engagement are limited to descriptions of partnership arrangements (the Waasigan Transmission Line, the Greenstone Transmission Line, Wataynikaneyap, the Northern Ontario Connection Study, and the Saugeen Ojibway Nation in pumped storage). No reference is made to the Crown’s duty to consult, Treaty rights, or the FPIC framework under the UNDRIP. The two named hydroelectric stations in the Moose River Basin (Nine Mile Rapids and Grand Rapids) are subject to Treaty 9 and to the rights of multiple Cree First Nations, whose engagement is not described in any of the engagement documents reviewed.

The April 16, 2026, Minister’s Directive includes Indigenous-related provisions at clauses 5.m, 5.o, 5.p, and 5.q.⁴ Clause 5.m offers an evaluation incentive for proponents that have and retain Economic

Interest from an Indigenous Community, with additional recognition for projects sited on Indigenous Lands or within a treaty area, traditional territory, or homeland of a participating Indigenous Community. Clause 5.o requires a proponent to *demonstrate support* from the Indigenous Community with authority over the lands where the project is sited on Indigenous Lands. Clause 5.q reserves grid connection capacity at specified transformer stations for Six Nations of the Grand River Development Corporation (SNGRDC) renewable energy projects under the SNGRDC Set Aside.

ORA acknowledges these provisions, and the SNGRDC Set Aside in particular, as constructive. ORA places on the procurement record, however, that *demonstrate support* is not equivalent to FPIC. Furthermore, clause 5.p of the directive provides that the Ministry will *determine where consultation with Indigenous communities would be appropriate*, and contemplates the possibility that the Ministry may determine that consultation is not appropriate.

ORA submits that, for new reservoir hydropower projects in Treaty 9 territory in the Moose River Basin, no procurement should proceed on the basis that consultation is *not appropriate*. This is a ratepayer-risk and project-deliverability matter within the IESO's mandate, since the absence of FPIC has been a documented driver of project delay and cost overrun in Canadian hydropower.

ORA places on the procurement record that the IESO has the capacity, through bid-eligibility conditions, to require proponent disclosure of Indigenous consultation status, and that such disclosure is a ratepayer-risk and project-deliverability matter within the IESO's mandate.

ORA Recommendations:

1. Require, as a bid-eligibility and recontracting condition under all current and future procurements involving new or repowered hydroelectric resources, that proponents disclose written confirmation of engagement with all affected First Nations and that FPIC processes have been initiated, and that the IESO advise the Minister of Energy and Mines accordingly.
2. Advise the Minister of Energy and Mines that, for new reservoir hydropower projects in Treaty 9 territory in the Moose River Basin (including Nine Mile Rapids and Grand Rapids), the Ministry should not exercise the discretion under clause 5.p of the April 16, 2026, Minister's Directive to determine that Indigenous consultation is *not appropriate*.
3. Reference Treaty 9 and other applicable Treaty obligations in any 2026 or 2027 APO procurement materials addressing the Moose River Basin sites.

8. Institutional Independence and the Continuing Disinformation:

The matters set out in Sections 1 through 7 are not isolated procurement-design issues. They share a common feature: the same individual has championed, defended, and now superintends the procurement of the very northern Ontario hydroelectric pathway whose climate, lifecycle greenhouse-gas, and ratepayer-protection deficiencies this submission has documented.

In January 2022, the then Minister of Energy publicly directed Ontario Power Generation to investigate new hydroelectric opportunities in northern Ontario. Mr. Ken Hartwick, then OPG's President and Chief Executive Officer, characterized that opportunity in the resulting public statements as new non-emitting waterpower from Ontario's north. On August 25, 2022, *The Narwhal* disclosed that OPG had quietly sold over \$5.5 million in Clean Energy Credits since 2013 on the basis that hydroelectric generation is "non-emitting."²⁹ On September 26, 2022, in announcing OPG's sale of Clean Energy Credits to Microsoft, Mr. Hartwick continued to describe the resource as "clean hydro." On February 8, 2023, ORA

wrote to the then Minister of Energy, to Mr. Hartwick personally as President and Chief Executive Officer of OPG, and to the IESO's Director of Planning, Projects and Sustainability, with peer-reviewed scientific evidence that hydroelectric reservoirs are not emission-free in any climate zone, and asking that OPG either cease selling Clean Energy Credits on a "non-emitting" basis or measure and publicly report the actual lifecycle emissions of its generating fleet.²¹ On April 17, 2023, OPG, under Mr. Hartwick's presidency, responded in writing under the signature of its Director of Hydroelectric Business Development, copied to the Minister of Energy and to the IESO's Director of Planning, Projects and Sustainability. The response, on OPG letterhead, stated that *"OPG agrees that while hydropower lifecycle emissions are not zero, further work will be conducted to better understand the contribution to GHG emissions in Ontario."*²²

OPG's response qualified the admission with a geographic deflection: *"Reservoirs in Canada are colder and more oxygenated than the global average and as such, the methane emissions are much less significant."*

That qualification is not supported by the science when applied to OPG's actual fleet. The majority of OPG's hydroelectric reservoirs are located in the temperate ecoregions of southern, central, and northeastern Ontario, not in the cold-boreal latitudes to which OPG's qualifier appeals. The peer-reviewed literature on temperate-zone reservoir methane emissions, including Maeck et al. (2013) on temperate central European reservoirs and Soued et al. (2022) on reservoirs across boreal, temperate, subtropical, and tropical climate zones, contradicts the suggestion that Canadian conditions render reservoir methane negligible. The qualifier does not survive contact with OPG's own asset base.

OPG further committed at that time to a three-year Natural Sciences and Engineering Research Council of Canada (NSERC) approved study to compare actual emissions with model forecasts at hydroelectric reservoirs across Canada, including Ontario. That study has yet to be published.

Mr. Hartwick retired from OPG in 2024. On April 9, 2025, the Minister of Energy and Mines announced at Sandy Falls Generating Station an OPG partnership with Taykwa Tagamou Nation and Moose Cree First Nation to develop the Nine Mile Rapids and Grand Rapids hydroelectric stations, which is the same northern Ontario hydroelectric pathway Mr. Hartwick had championed in 2022. On June 12, 2025, *Energy for Generations* memorialized those projects as Provincial policy, and continued to describe hydroelectric generation as "non-emitting."

On November 13, 2025, Mr. Hartwick was appointed by the Minister of Energy and Mines to the IESO Board of Directors and named Chair on the same day.³⁰ Three months later, the 2026 APO carried the Nine Mile Rapids and Grand Rapids projects forward as in-flight actions in the IESO's supply outlook, on the same "non-emitting" framing OPG had itself, two and a half years earlier, acknowledged in writing was factually wrong, lifecycle emissions being not zero.

Five months later, Order in Council 619/2026 directed the IESO to launch the LLT RFP with an energy stream restricted to "only new hydroelectric projects," over the IESO's own August 2025 *Hybrid Resource Portfolio Equivalency Assessment* showing that wind, solar and battery-storage portfolios could serve 99.5 to 99.98 percent of load in the Peaky Need Scenario. The directive was approved on April 16, 2026, while Mr. Hartwick chaired the IESO Board responsible for that Assessment.

The April 16, 2026, Minister's Directive at clause 5.d.i instructs the IESO to use the same Enhanced Power Purchase Agreement form of contract as the LT2 energy procurement, in which Environmental Attributes (including CECs, offsets, certificates, and all related entitlements and proceeds) accrue to

the contract. For OPG, identified in the 2026 APO supply outlook as the proponent of more than 430 MW of new reservoir hydroelectric capacity at Nine Mile Rapids and Grand Rapids on a sole-source basis, and continuing to sell CECs on a "non-emitting" basis despite having acknowledged in writing that hydroelectric lifecycle emissions are not zero, the gap between the public representation and the on-record admission is now a material legal, reputational, and ratepayer-protection exposure.

For the IESO, structuring 20- or 40-year ratepayer-backed procurement, and the Environmental Attributes that flow from it, around 'non-emitting' representations that are inconsistent with the Crown corporation's own written acknowledgment that hydropower lifecycle emissions are not zero, while the IESO is now chaired by that Crown corporation's former President and Chief Executive Officer, is a procurement-record defect of institutional independence that the IESO can no longer responsibly allow to stand.

ORA places on the procurement record that the appointment of a former OPG President and Chief Executive Officer to chair the IESO Board, during a period in which OPG-sponsored hydroelectric projects are being carried in the IESO's supply outlook on a sole-source basis without disclosed competitive procurement, and during a period in which the Minister of Energy and Mines has directed the IESO to narrow the LLT RFP energy stream to the resource type the appointee personally championed during his tenure as OPG's President and Chief Executive Officer. ORA submits that this constitutes, at a minimum, a perceived structural conflict of interest that warrants public disclosure, public review, and public response from the IESO Board.

ORA Recommendations:

1. ORA places on the procurement record that the IESO Board should publicly disclose any recusal protocols and conflict-of-interest screens applied to its Chair on matters affecting Ontario Power Generation, the appointment process by which the current Chair was selected during a period of active OPG-sponsored procurement carryover in the IESO supply outlook, and any internal Board reviews of the institutional-independence implications of the current chairmanship.
2. IESO advise the Minister of Energy and Mines, in writing, that OPG's April 17, 2023 written admission that hydropower lifecycle emissions are not zero is incompatible with the 2026 APO's and Energy for Generations' continuing description of hydroelectric generation as "non-emitting," and that the Province should reconcile its public planning representations with the Crown corporation's on-record admission before any further procurement of new or repowered reservoir hydropower proceeds.
3. Disclose, on the procurement record, the public reconciliation between the IESO's August 2025 Hybrid Resource Portfolio Equivalency Assessment and the April 16, 2026, Minister's Directive narrowing the LLT energy stream to "only new hydroelectric projects," including a quantitative statement of the ratepayer cost differential between (a) the procurement design directed by the Minister and (b) the hybrid portfolio designs the IESO's own analysis shows can equivalently meet the modelled need.

9. In Closing:

Ontario faces a generational decision about electricity infrastructure amid unprecedented climate, demand, and policy uncertainty. The 2026 APO contains real improvements over the 2025 APO.

However, it also contains material gaps and one structural defect that the IESO can no longer responsibly leave unaddressed.

The gaps include the explicit decision not to model the federal CER, the absence of any climate-hydrology stress test for hydroelectric resources, the omission of OCCIA 2023, the omission of the IESO's own *Hybrid Resource Portfolio Equivalency Assessment*, the inclusion of the proposed Nine Mile Rapids and Grand Rapids 430 MW hydroelectric stations as in-flight actions in the supply outlook with no disclosed competitive procurement vehicle, and the appearance, against that backdrop, of a former OPG President and Chief Executive Officer in the Chair of the IESO Board.

The IESO professes to be an **Independent** Electricity System Operator, yet one of the highest profile members of the Ontario waterpower industry now sits on the IESO Board as its Chair.

The structural defect is the continued treatment of reservoir hydropower as "non-emitting" in the 2026 APO and in *Energy for Generations*. This characterization is not a technical lapse; it is harmful disinformation, contradicted by more than three decades of independent peer-reviewed scientific evidence, by the IPCC's 2019 Refinement, and, on the procurement record, by OPG's own April 17, 2023, written admission that hydropower lifecycle emissions are not zero.

ORA is strongly opposed to new hydroelectric procurement, for reasons that extend well beyond procurement-record integrity. Reservoir hydropower fragments river systems, obstructs natural flow connectivity, degrades water quality, reduces downstream water availability, alters thermal regimes, disrupts seasonal flow patterns, and contributes to dissolved oxygen depletion. It also generates methane, carbon dioxide, and nitrous oxide emissions over the full lifecycle of the dam through the decomposition of flooded organic matter, sediment accumulation, and ongoing organic inputs. These same biogeochemical processes also drive methylmercury formation and bioaccumulation in fish, creating long-term human health risks for communities that rely on fish consumption. Reservoir operations accelerate shoreline erosion, destabilize downstream channels, trap sediment and nutrients behind dams, and starve downstream reaches of the natural sediment loads required to maintain habitat complexity, channel stability, and productive aquatic ecosystems.

Dams also remain one of the most significant barriers to fish movement and aquatic connectivity. In Ontario, there are approximately 224 hydroelectric facilities, yet only two provide any form of operating fish passage, both limited to eel passage. The cumulative effects of dams, altered flows, habitat fragmentation, and impaired fish access have been a major long-term driver of the decline of Ontario's iconic migratory and river-dependent fish populations.

Compounding these impacts, over the past decade the Ontario Waterpower Association and successive provincial policy changes have materially weakened the Class Environmental Assessment for Waterpower, significantly eroding assurance of meaningful public consultation, narrowing environmental scrutiny, and removing important avenues for independent challenge or appeal. Procuring new hydropower in 2026 under a demonstrably weakened regulatory framework, despite a century of public disinformation portraying reservoir hydropower as non-emitting, despite well-established evidence of lifecycle greenhouse gas emissions, and despite the IESO's own technical characterization of hydropower as an energy-limited resource, would impose additional ecological, climate, Indigenous rights, and financial burdens on Ontario for generations.

Hydropower can no longer credibly be justified as a preferred expansion resource when cleaner, lower-impact, faster-deploying, and increasingly cost-competitive alternatives, including wind, solar, and


battery storage, are available at scale. ORA's opposition to new reservoir hydropower is therefore grounded in sound science, climate reality, ecological protection, fiscal prudence, and the public interest. It is firm and unequivocal.

The IESO's effective reliance on the federal CER fossil-fuel-only scope as a substitute for lifecycle greenhouse-gas accounting of hydropower amounts to willful blindness and exposes Ontario ratepayers and taxpayers to a foreseeable future in which "non-emitting" hydroelectric facilities contracted today face emissions penalties, derating, stranded assets, or ordered decommissioning, with no up-front financial provision in the contracts to absorb that cost.

ORA respectfully submits that no new hydroelectric procurement, and no recontracting of existing reservoir hydroelectric facilities, should proceed until these gaps and these serious defects are addressed on the procurement record. The lowest-cost, lowest-risk pathway to a reliable, affordable, and emissions-aligned grid for Ontario in 2050 is wind, solar, battery storage, distributed energy resources, and aggressive demand-side management, all of which can be deployed faster, more cheaply, and more safely than new reservoir-based hydropower, and the IESO agrees.

Climate change is an existential threat, and the Province should prioritize the resilience of Ontario's rivers by removing dams, not by building more.

Respectfully submitted,



Linda Heron
Chair, Ontario Rivers Alliance



CC:

Mr. Ken Hartwick, Chair, IESO Board of Directors, [c/o Corporate.Secretary@ieso.ca](mailto:c/o.Corporate.Secretary@ieso.ca)
Honourable Stephen Lecce, Minister of Energy & Mines, MinisterEnergy@ontario.ca
Honourable Greg Rickford, Minister of Indigenous Affairs & First Nations Economic Reconciliation, Minister.IndigenousAffairs@ontario.ca
Honourable Tom Hodgson, Minister of Energy & Natural Resources, HonTim.Hodgson@nrcan-rncan.gc.ca
Honourable Julie Dabrusin, Minister of Environment & Climate Change, Ministre-Minister@ec.gc.ca
Auditor General, Office of the Auditor General of Ontario, Comments@Auditor.on.ca
Marit Styles, NDP Leader, Mstiles-QP@NDP.on.ca
Mike Schreiner, Green Party Leader, MSchreiner-co@ola.org
Jamie West, NDP Energy Critic, JWest-QP@NDP.on.ca
Peter Tabuns, NDP MPP, TabunsP-co@NDP.on.ca
France Gelinias, NDP MPP, FGelinias-co@NDP.on.ca
Stephen Blais, Liberal Caucus – SBlais.mpp.co@Liberal.ola.org
Chief Bruce Archibald and Council, Taykwa Tagamou Nation, Bruce@TaykwaTagamou.com
Chief Peter Wesley and Council, Moose Cree First Nation, Peter.Wesley@MooseCree.com
Isak Vaillancourt, Communications Manager, Chiefs of Ontario, Isak.Vaillancourt@coo.org
Claudia Brule', Communications, Canadian Climate Institute, CBrule@climateinstitute.ca

EndNotes:

1. Independent Electricity System Operator. 2026 Annual Planning Outlook: Ontario's electricity system needs, 2027 to 2050. March 2026. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/2026/2026-Annual-Planning-Outlook.pdf>
2. Independent Electricity System Operator. 2026 Annual Planning Outlook, Stakeholder Engagement Presentation. April 21, 2026. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/apo/2026/APO2026-20260421-Presentation.pdf>
3. Ontario Ministry of Energy and Electrification. Energy for Generations: Ontario's Integrated Energy Plan to Power the Strongest Economy in the G7. June 12, 2025. <https://www.ontario.ca/files/2025-07/mem-energy-for-generations-en-2025-07-18.pdf>
4. Lieutenant Governor in Council, on the recommendation of the Honourable Stephen Lecce, Minister of Energy and Mines. Order in Council 619/2026, attaching Minister's Directive to the Independent Electricity System Operator: Long Lead-Time Request for Proposals. Approved and ordered April 16, 2026; issued April 23, 2026. Issued under section 25.32 of the Electricity Act, 1998. See also IESO, Long Lead-Time Request for Proposals, April 23, 2026, stakeholder presentation. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/long-lead-time/LLT-2026/llt-rfp-20260423-presentation.pdf>
5. Ontario Ministry of the Environment, Conservation and Parks (Climate Risk Institute). Ontario Provincial Climate Change Impact Assessment: Technical Report. 2023. <https://www.ontario.ca/page/ontario-provincial-climate-change-impact-assessment>
6. Manitoba Hydro. Manitoba Hydro posts \$157 million net loss due to drought, 2023-24 Annual Report. October 2024. <https://www.hydro.mb.ca/articles/2024/10/manitoba-hydro-posts-157-million-net-loss-due-to-drought-2023-24-annual-report/>
7. Manitoba Hydro. Manitoba Hydro posts \$63 million loss due to drought, 2024-25 Annual Report. September 2025. <https://www.hydro.mb.ca/articles/2025/09/manitoba-hydro-posts-63-million-loss-due-to-drought-2024-25-annual-report/>
8. Rudd, J. W. M., Harris, R., Kelly, C. A., and Hecky, R. E. Are Hydroelectric Reservoirs Significant Sources of Greenhouse Gases? *AMBIO*, vol. 22, pp. 1 to 3, 1993. https://www.researchgate.net/publication/283091278_Are_Hydroelectric_Reservoirs_Significant_Sources_of_Greenhouse_Gases
9. Deemer, B. R., Harrison, J. A., Li, S., et al. Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis. *BioScience*, vol. 66, no. 11, pp. 949 to 964, 2016. <https://academic.oup.com/bioscience/article/66/11/949/2754271>
10. DelSontro, T., McGinnis, D. F., Sobek, S., et al. Extreme Methane Emissions from a Swiss Hydropower Reservoir. *Environmental Science and Technology*, 2010. <https://pubs.acs.org/doi/full/10.1021/es9031369>
11. DelSontro, T., del Giorgio, P. A., and Prairie, Y. T. CO₂ and CH₄ Emissions from a Eutrophic Reservoir. *Environmental Science and Technology*, vol. 44, no. 21, pp. 8217 to 8223, 2010. <https://pubs.acs.org/doi/10.1021/es1003838>
12. Maeck, A., DelSontro, T., McGinnis, D. F., et al. Sediment Trapping by Dams Creates Methane Emission Hot Spots. *Environmental Science and Technology*, pp. 8130 to 8137, 2013. <https://doi.org/10.1021/es4003907>
13. Keller, P. S., Marcé, R., Obrador, B., et al. Global carbon budget of reservoirs dominated by hydroelectric reservoirs. *Nature Geoscience*, 2021. <https://doi.org/10.1038/s41561-021-00734-z>
14. Wang, R., Bastviken, D., Müller, K., et al. Inland Waters Increasingly Produce and Emit Nitrous Oxide. *Environmental Science and Technology*, vol. 57, no. 36, 2023. <https://pubs.acs.org/doi/10.1021/acs.est.3c04230>
15. Intrinsic Corp. GHG Emissions Associated with Various Methods of Power Generation in Ontario. Report commissioned by Ontario Power Generation Inc., Project No. 20-22285. October 2016. Hosted on the ORA website BLOG (the report was removed from OPG's website). <https://www.ontarioriversalliance.ca/intrinsic-report-prepared-for-ontario-power-generation-inc/>
16. Ontario Power Generation Inc. OPG's Kakabeka Falls GS, one of Ontario's oldest hydro stations, set to be redeveloped. OPG Newsroom. <https://www.opg.com/news-resources/newsroom/story/opgs-kakabeka-falls-gs-one-of-ontarios-oldest-hydro-stations-set-to-be-redeveloped/>
17. Ontario Rivers Alliance (Linda Heron, Chair). Coniston Generating Station Life Extension Project. ORA submission, March 10, 2022. <https://www.ontarioriversalliance.ca/coniston-generating-station-life-extension-project/>

18. Soued, C., Harrison, J. A., Mercier-Blais, S., and Prairie, Y. T. Reservoir CO₂ and CH₄ emissions and their climate impact over the period 1900 to 2060. *Nature Geoscience*, vol. 15, pp. 700 to 705, 2022. <https://doi.org/10.1038/s41561-022-01004-2>
19. Intergovernmental Panel on Climate Change. 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. 2019. See Volume 2 (Energy), Chapter 4 (Fugitive Emissions), source category 1.B.3, and Volume 4 (AFOLU), Chapter 7 (Wetlands, Flooded Lands). <https://www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/>
20. Grilli, R., DeSontro, T., Garnier, J., Jacob, F., and Némery, J. A novel high-resolution in situ tool for studying carbon biogeochemical processes in aquatic systems: The Lake Aiguebelette case study. *Journal of Geophysical Research: Biogeosciences*, vol. 128, e2022JG007200, 2023. <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2022JG007200>
21. Ontario Rivers Alliance (Linda Heron, Chair). Re: Hydroelectric and its "Pathway to Decarbonization." Letter and submission to the Hon. Tod Smith, Minister of Energy; Mr. Ken Hartwick, President and Chief Executive Officer, Ontario Power Generation; and Ms. Julia McNally, Director of Planning Projects and Sustainability, Independent Electricity System Operator. February 8, 2023. Hosted on the ORA website BLOG. <https://www.ontarioriversalliance.ca/hydroelectric-and-its-pathway-to-decarbonization/>
22. Ontario Power Generation Inc. (Heather Brown, Director, Hydroelectric Business Development). OPG Response to Ontario Rivers Alliance Submission on Hydroelectric and its "Pathway to Decarbonization." Letter to Linda Heron, Chair, Ontario Rivers Alliance, copied to the Hon. Tod Smith, Minister of Energy, and the Director of Planning Projects and Sustainability, IESO. April 17, 2023, OPG File No. 08507-CORR-1238733-P. Hosted on the ORA website BLOG. See also ORA-OPG meeting transcript, May 23, 2023, on file with ORA. <https://www.ontarioriversalliance.ca/hydroelectric-and-its-pathway-to-decarbonization/>
23. Independent Electricity System Operator. Hybrid Resource Portfolio Equivalency Assessment. August 2025. <https://ieso.ca/-/media/Files/IESO/Document-Library/Technical-papers/Hybrid-Resource-Equivalency-Assessment.pdf>
24. Ontario Rivers Alliance (Linda Heron, Chair). Long Lead-Time RFP April 23, 2026, Feedback Form. Submitted to engagement@ieso.ca, April 30, 2026. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/llt/llt-rfp-20260430-feedback-form-ORA.pdf>
25. Government of Ontario, Ministry of Energy and Mines. Ontario Fast-Tracks Red Lake Transmission Line and Launches New Hydroelectricity Program. News Release, Thunder Bay, April 23, 2026. <https://news.ontario.ca/en/release/> (See also Ministerial letter to the Ontario Energy Board designating Hydro One as the transmitter for the Red Lake Transmission Project, and IESO Northern Hydro Program webpage.)
26. Ontario Rivers Alliance (Linda Heron, Chair). IESO Annual Planning Outlook Demand Forecast and Demand Scenarios, November 18, 2025. ORA submission, December 2, 2025. <https://www.ontarioriversalliance.ca/ieso-annual-planning-outlook-demand-forecast-and-demand-scenarios-november-18-2025/>
27. Office of the Auditor General of Ontario. Value-for-Money Audit: Climate Change Adaptation, Reducing Urban Flood Risk. Annual Report 2022, Chapter 3.06. https://www.auditor.on.ca/en/content/annualreports/arreports/en22/ENV_CCUrbFlooding_en22.pdf
28. Government of Canada. Clean Electricity Regulations, SOR/2024-263, registered December 18, 2024 under the Canadian Environmental Protection Act, 1999. Provisions take effect January 1, 2035. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2024-263/>
29. The Narwhal. OPG quietly made \$5.5M from clean energy credits. August 2022. <https://thenarwhal.ca/opg-clean-energy-credits-profit/>
30. Independent Electricity System Operator. Ken Hartwick Appointed and Named Chair to IESO's Board. November 13, 2025. <https://www.ieso.ca/en/Sector-Participants/IESO-News/2025/11/Ken-Hartwick-Appointed-and-Named-Chair-to-IESOs-Board>