

Feedback Form

Capacity Accreditation for IESO Procurements – Date, September 17th 2026

Feedback Provided by:

Name: Linda Heron

Title: Chair

Organization: Ontario Rivers Alliance

Email: [REDACTED]

Date: 1 October 2026

To promote transparency, feedback submitted will be posted on the Capacity Accreditation for IESO Procurements 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 Capacity Accreditation for IESO Procurements September 17 2026, engagement webinar, the Independent Electricity System Operator (IESO) is seeking feedback from stakeholders on the items discussed. The presentation and recording can be accessed from the [Capacity Accreditation for IESO Procurements](#).

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 October 1st 2026.

General Comments/Feedback

Re: Capacity Accreditation for IESO Procurements, engagement of 17 September 2026

The Ontario Rivers Alliance (ORA) is a grassroots not-for-profit organization with a mission to protect, conserve and restore Ontario rivers. We speak for the people who live on them, fish them, paddle them and pay for the power taken from them.

ORA supports the Independent Electricity System Operator (IESO) in moving away from Unforced Capacity to a forward-looking measure of what a resource actually delivers when the system is under stress. **Capacity accreditation must come before procurement. ORA opposes the procurement of any resource before its accredited capacity value has been published, with hydroelectric generation separated from pumped storage and assessed on its own merits.** Pumped storage is refilled by pumping. Hydroelectric stations are refilled by inflow, and they are not the same thing. The accredited capacity value of every eligible resource type, with hydroelectric reported separately from pumped storage, must be published before proposals are submitted in any procurement that uses it.

ORA takes no position on which probabilistic method is technically superior. That is a modelling question. Nor does ORA support using accreditation to disadvantage storage or renewable generation. A battery and a reservoir are both called energy-limited, and they are not the same problem. A battery runs down and is recharged from the grid, and the IESO's own analysis shows that building it longer restores its value. A reservoir is refilled by inflow.

Ontario Power Generation (OPG) draws the same line on its own public page, where it describes three basic types of hydro station. *“Run-of-the-river stations generate electricity using the natural water flow in a river. A second type uses a dam with a reservoir to store and shift the timing of water flow, this type is the most common. The third type, called pumped storage, works much like a rechargeable battery.”*¹

OPG's third type behaves like a battery because it is refilled by pumping, and draws electricity from the grid to pump. This submission focuses on the first two: hydropower stations whose fuel is natural inflow, not pumped storage.

1. What capacity accreditation decides:

Capacity accreditation is how the IESO decides how many megawatts a generator or a battery is really worth when the grid is under the greatest stress. Most stations are worth less than their nameplate at those moments, and accreditation is the number that says how much less. It determines how each offer is valued, and so what ratepayers pay for capacity.

Four methods were presented. Unforced Capacity (UCAP) reduces a resource's installed capacity using that resource's own history of outages. It looks backwards. Effective Load Carrying Capability (ELCC), Marginal Reliability Impact (MRI) and Direct Loss of Load (DLOL) all look forward, using a probabilistic model of the whole system. Two of them, ELCC and MRI, measure a real resource against a theoretical one. The IESO defines that benchmark, perfect capacity, as capacity assuming *“fully dependable resources with zero variability or risk of failure”*.² The four methods do not agree with one another. The IESO's David Richardson told the session, of the four, *“None of them produce the same results.”*³

The IESO recommends MRI, and its reason for moving away from UCAP is a reason ORA has put to the IESO before. UCAP, the IESO says, *“may not reflect evolving system conditions or capture the declining marginal value of resources identified through probabilistic analysis, often overstating the reliability value of incremental capacity”*.⁴ ORA agrees. The IESO has shown that this is true of energy storage. ORA asks whether it is also true of a resource whose fuel is inflow, and notes that the IESO

has never calculated or published an accredited capacity value for hydroelectricity by the methodology now under consultation.

2. The IESO publishes a number for its auction, but not for procurement:

ORA searched the full text of the two documents the IESO presented at this engagement. The words hydroelectric, water, drought, reservoir, run-of-river and inflow do not appear in the 17 September presentation.⁴ In the technical paper behind it, the word hydro appears once, in a footnote that reads “*These capacities do not include the existing pumped hydro storage at Beck PGS*”.² Neither document reports a capacity value for any hydroelectric resource.

That paper is the IESO's one worked example of how capacity value is calculated in Ontario. It reports marginal capacity values for energy storage. It reports results for twenty combinations of storage size and duration. It reports a capacity value for no other resource class. Hydroelectricity is one of the resources for which it reports no value. At 9.3 gigawatts (GW) it is second only to gas and oil in installed capacity, and it is more than seven times the size of the resource the paper studies.⁵

The IESO's own 2026 Annual Planning Outlook puts hydroelectricity at 9.3 GW, or 24% of Ontario's installed capacity in 2026, second to gas and oil at 11.4 GW and ahead of nuclear at 8.5 GW. Energy storage stands at 1.2 GW.⁵ The Ontario Waterpower Association puts the province's installed waterpower at “*Currently, there is 9,000 MW of existing waterpower in the province*.”⁶ The IESO's own figures put energy storage at approximately 252 MW in 2024, rising to an estimated 3,000 MW by 2028, figures that exclude the pumped storage at Beck.² Even against that 2028 forecast, waterpower will still be roughly three times the size of the resource the IESO has studied.

What the IESO already publishes:

The IESO does publish a capacity value for hydroelectricity, and it publishes one every year. Its Capacity Auction sets an availability de-rating factor for each resource type, which is the share of installed capacity the resource is credited with. For the 2025 auction the hydroelectric factors run from 0.46 in the Northwest zone to 0.67 in Niagara for a summer obligation, and from 0.55 to 0.74 for a winter obligation. Capacity storage resources are set at 0.95 in both seasons, and thermal generation at 0.94.⁷ Market Manual 12 gives the calculation for dispatchable hydroelectric resources: the “*Median[AQEI+SQROR/MAPC] in Top 200 hours of Ontario Demand per season for the last 5 years*”, which is median energy injected plus scheduled operating reserve over maximum active power capability.⁸ That manual is one of the documents the IESO has linked on this engagement's own web page.

The IESO has also published the figure in megawatts. Table 2 of its 2024 Annual Planning Outlook, “*Ontario's Summer and Winter Effective Capacity by End of 2024*”, puts hydroelectricity at 9.3 GW installed, 6.5 GW of summer effective capacity and 7.3 GW of winter effective capacity. That is 70% of installed capacity in summer and 78% in winter.⁹ The table does not appear in the 2025 or the 2026 Annual Planning Outlook. Both publish the same data only as a stacked chart from which no value can be read.

That 6.5 GW includes pumped storage. Table 2 lists Storage as a separate fuel type at 0.02 GW of installed capacity and 0.01 GW of summer effective capacity, which is too small to hold the Sir Adam Beck Pump Generating Station.⁹ The methodology says where that station sits: it is “*modelled in aggregate with the rest of the hydroelectric capacity at the Sir Adam Beck complex on the Niagara River*”.¹⁰ So the only megawatt figure the IESO has published for hydroelectricity counts a pumped storage facility inside it, and the IESO has not stated how much of the 6.5 GW that facility accounts for. The one number on the public record overstates what Ontario's rivers deliver, and nobody outside the IESO can say by how much.

And it has published dependable hydroelectric capacity in megawatts for the north. Its 2022 Need for Northeast Bulk System Reinforcement sets out, for three sub-systems, the installed capacity of the hydroelectric fleet beside the output available 98% and 85% of the time. For the area north of Sudbury, 1,686 MW of installed capacity gives 367 MW at the 98% level, which is 22% of installed capacity. For East Lake Superior, 718 MW gives 212 MW, which is 30%. For the Northeast as a whole, 2,985 MW gives 932 MW, which is 31%. The report states the basis: “*Dependable outputs from the hydroelectric generation are assumed at its historical generation level that is available 98% and 85% of the time, for the assessments with all transmission elements initially in-service and one element initially out-of-service, respectively.*”¹¹ The same table was republished in the 2023 North and East of Sudbury plan.

What the IESO has not published:

What is missing is the number this engagement is about. The 2026 Annual Planning Outlook (APO) distinguishes the two measures: “*Installed capacity refers to a resource’s maximum potential output; while effective capacity accounts for real-world factors such as fuel availability, ambient conditions, and outages.*” Figures 6 and 7 of that APO plot summer and winter effective capacity by fuel type, and hydroelectric is one of the fuel types shown. At page 46 the APO names hydroelectricity, with gas and wind, as a resource whose performance results in “*less effective capacity in the summer than in the winter.*”⁵

None of those figures is given as a number. The 2026 APO does not state the megawatt value or the share of installed capacity for hydroelectricity, in the report’s text, in a table or in an appendix.⁵ Nor does the methodology document the APO points to. The 2026 APO Resource Adequacy and Energy Assessments Methodology sets out at length how hydroelectric performance is modelled and reports no result.¹⁰

So, the IESO holds three figures for hydroelectricity and uses none of them in procurement. The auction factor looks backwards, built from five years of past performance in the top 200 demand hours of each season. The Annual Planning Outlook figure was published for 2024 and then withdrawn. The dependable capacity figures are regional and four years old. The accreditation methodology now under consultation would produce a fourth number, forward-looking and province-wide, and for hydroelectricity it has not been calculated or published.

That methodology states five things about how hydroelectricity enters the model, none of which has been set against a published figure. Hydroelectric resources enter at their full nameplate capacity rating: “*For hydroelectric, wind, and solar resources, monthly ICAP ratings are equal to the installed capacity.*”¹⁰

Run-of-river stations are modelled from “*a different yearly run-of-river profile from the previous thirty years of data*”, drawn at random in each model run. Peaking stations are capped at “*the 90th percentile of daily maximum offers*”. Hydroelectric outages are not tested as events: “*Hydroelectric planned outages are generally not modelled explicitly, as outages are embedded within the historical profiles.*” And the hourly profiles of most of OPG’s transmission-connected stations are “*rearranged to follow modified load profiles on a daily basis without changes to the daily energy*”, which allows the model to move that water toward the hours when it is needed.¹⁰

One further matter belongs on the record, and it bears directly on the figure ORA is asking for. The IESO models Ontario’s largest storage facility as part of the hydroelectric fleet: “*The largest energy storage facility in Ontario is the Sir Adam Beck Pump Generating Station. It is modelled in aggregate with the rest of the hydroelectric capacity at the Sir Adam Beck complex on the Niagara River.*”¹⁰ The August 2025 storage paper excludes that same station from its storage figures.² That sentence appears

word for word in the IESO's 2024, 2025 and 2026 methodologies.¹² So that station is counted in the hydroelectric total, left out of the storage total, and its dependable capacity is stated in neither.

Pumped storage is refilled by pumping and does not wait on inflow, so it depends on the grid in a way that a run-of-river station on the same river does not. Nor is a reservoir station dependable in the same way. It is refilled by natural inflow rather than by pumping, and while it refills, it is not generating. The IESO's own modelling sets a peaking station's floor at "*the average daily minimum flow for the month*",¹⁰ and its bulk plan for the area north of Sudbury cites "*reduced dependable hydroelectric output during overnight periods*" as one cause of the regional need.¹³ In a drought, neither kind of station recovers until the water returns. Placing a pumped storage facility inside the hydroelectric fleet raises the fleet's average. By how much, ORA cannot say, because the IESO has published no figure for either the station or the fleet. OPG owns the Beck pumped storage station, and OPG is the party that asked the IESO to apply an effective load-carrying capability measure to battery storage in procurement. ORA asks the IESO to publish the hydroelectric figure with the Sir Adam Beck Pump Generating Station taken out of it, and to state that station's capacity separately.

ORA Recommendation 1: That the IESO apply the accreditation methodology it adopts to hydroelectricity on the same basis as every other resource class.

ORA Recommendation 2: That the IESO publish each resource class's accredited capacity value as a share of installed capacity before proposals are submitted in any procurement that relies on it.

ORA Recommendation 3: That the IESO produce and publish a technical paper on the capacity value of hydroelectricity in Ontario, to the same standard as its August 2025 paper on energy storage.

ORA Recommendation 4: That the IESO report run-of-river and reservoir hydroelectricity separately in that paper.

ORA Recommendation 5: That the IESO publish the accredited capacity value of reservoir hydroelectricity separately from pumped storage and exclude the Sir Adam Beck Pump Generating Station from the hydroelectric figure.

ORA Recommendation 6: That the IESO resume publishing summer and winter effective capacity by fuel type in megawatts in the Annual Planning Outlook, as it did at Table 2 of the 2024 Annual Planning Outlook.

ORA Recommendation 7: That the IESO publish that effective capacity as a share of installed capacity for each fuel type.

ORA Recommendation 8: That the IESO state the relationship between the Capacity Auction availability de-rating factor for hydroelectricity and the accredited capacity value it proposes to use in procurement evaluation.

ORA Recommendation 9: That the IESO state how much of the hydroelectric effective capacity it publishes is contributed by the Sir Adam Beck Pump Generating Station.

ORA Recommendation 10: That the IESO publish, with any capacity value it states for hydroelectricity, the derivation of that value: the input data, the assumptions applied, and the generating stations included and excluded.

ORA Recommendation 11: That the IESO state whether the effective capacity it publishes in the Annual Planning Outlook is the same measure as the accredited capacity value it proposes to use in procurement evaluation, and, where it is not, what the difference is.

3. The IESO has written the rule and applied it to one resource:

The August 2025 paper does not merely measure storage. It states a rule. Capacity qualification frameworks, the IESO writes, “*should account for these dynamics by progressively adjusting capacity credits downward as storage penetration increases, reflecting its diminishing marginal contributions*”.²

ORA supports the principle behind that rule, which is about penetration rather than about batteries, and asks the IESO to apply it beyond battery storage. If the reliability value of each additional megawatt falls as a resource's share of the grid grows, that applies to any resource at a high share, not only to batteries. Hydroelectricity holds 24% of Ontario's installed capacity.⁵ ORA asks the IESO to test whether the same effect applies at that share.

This is not a new request. ORA filed it on 31 August 2026 in the LT2 Window 2 engagement, as the fifteenth recommendation in that filing: “*That the IESO publish, for every resource type eligible under the LT2 RFP including hydroelectricity, the dependable capacity or effective load carrying capability value it uses in planning, expressed as a share of installed capacity, before proposals are submitted; and that if any measure of contribution at peak is adopted for evaluation purposes, it be applied to every resource type without exemption, with the dependable capacity of each made publicly available on the IESO website.*”¹⁴ The IESO has now recommended such a measure, and has published a worked capacity value for one resource class. ORA repeats the recommendation.

The IESO has published figures of this kind before, and they are small. Its 2015 North of Dryden regional plan defines the term: “*Dependable capacity refers to the portion of the total installed capacity that can be relied upon to meet local or system peak capacity needs. This refers to 98-percentile output.*”¹⁵ Table 7 on the same page puts the dependable capacity of run-of-river hydroelectricity in that northwestern sub-region at 15 to 30% of installed capacity.¹⁵ The 2022 Need for Northeast Bulk System Reinforcement gives megawatts for three northern sub-systems, the lowest of them 22% of installed capacity.¹¹

Eleven years later, the IESO's North of Sudbury Bulk Plan models energy-limited and variable resources, hydroelectric and renewable generation together, “*at levels available approximately 98 per cent of the time*” with all elements in service, and at “*levels available approximately 85 per cent of the time*” under outage conditions, while “*Non-energy-limited resources are modelled at their seasonal installed capability.*” It does not state what share of installed capacity any of those levels represents for any resource.¹⁶

The same report is blunt about why, in the region it covers. At page 28 it records that hydroelectric generation is “*predominantly made up of run-of-river or peaking facilities with limited storage capability*”, and that “*The lack of long-duration water storage, together with variations in water availability and operating patterns, results in large differences between installed hydroelectric capability and the amount of generation that can be depended upon in all hours of the day and under all system conditions.*”¹⁶

ORA does not offer a regional finding as a provincial one. The IESO describes the area north of Sudbury as having “*a distinct supply profile*”.¹⁶ ORA sets out what the IESO has recorded in the one region where it has recorded it and asks whether the same gap between installed and dependable hydroelectric capability exists province-wide, and what it amounts to.

In that region the IESO has described the shortfall. Its bulk plan states that “*The identified need is not confined to a single peak hour. It appears in both summer and winter, in both daytime and overnight periods, and becomes more severe under outage conditions*”, and attributes it in part to “*reduced dependable hydroelectric output during overnight periods*”, a phrase it uses for two separate interfaces.¹³ Its own presentation of 20 May 2026 put it plainly: a large share of supply in the area is hydroelectric, “*which is energy-limited and cannot be relied on at full output in all hours*”, and “*As a result, installed supply does not equal dependable, all-hour supply, particularly during outages*”. A later slide lists the causes of the need, the second being “*Low overnight hydro generation (energy-limited resources)*”.¹⁷ ORA asks whether that pattern is confined to one region.

Both documents work at a 98% threshold, the 2015 plan as 98-percentile output over the evaluation period and the 2026 bulk plan in the all-elements-in-service case. ORA asks the IESO to confirm whether the two thresholds are the same measure, and what the share is province-wide for each resource class.

Ontario Power Generation (OPG) publishes the scale of the resource. It reports “*Our 66 hydro stations and 239 dams are on 24 river systems across the province.*”¹ Its hydroelectric fleet has 7,623 MW of in-service generating capacity as at 30 June 2026, and it produced 34.1 terawatt-hours (TWh) in 2025.¹⁸ Those two numbers can be set against each other. A fleet of 7,623 MW running flat out every hour of a year would produce about 66.8 TWh. OPG's fleet produced 34.1 TWh, which is about 51% of that. Across the year, in other words, the fleet generated about half of what its nameplate suggests. That figure is an annual average of energy produced. It is not a measure of what the fleet can be counted on to deliver in the hours when the system is under the greatest stress, and ORA does not offer it as one. It is the energy number. The capacity number is the one this submission asks for, and OPG publishes no measure of what the fleet delivers at times of system stress.

Meanwhile, the IESO's public education page misleadingly tells Ontarians that “*Nuclear and run-of-the-river hydro plants generate a constant, steady supply of electricity - 24 hours a day, 7 days a week*”.¹⁹ Its own 2015 regional plan puts run-of-river dependable capacity at 15 to 30% of installed capacity.¹⁵ Both statements are the IESO's. A procurement turns on the dependable capacity figure.

ORA Recommendation 12: That the IESO calculate an accredited capacity value for every resource class eligible in the procurement, without exception, using the methodology it adopts against a current base case.

ORA Recommendation 13: That the IESO publish each of those values as a share of installed capacity.

4. Ontario's largest generator has asked for a measure of real contribution:

The strongest on-the-record support for this comes from the province's largest generator. In its filed feedback on the LT2 RFP, OPG recommended “*incorporating the technology-neutral Effective Load Carrying Capacity (ELCC) evaluation criteria into the procurement framework*”, because “*a fixed or nameplate-based capacity accreditation approach does not capture*” the declining marginal reliability value that OPG describes for storage as its share of the grid grows.²⁰ OPG described the measure as one that “*measures actual reliability contribution rather than prescribing a specific duration, reflecting the reliability contribution of different technologies and allowing them to compete based on their respective system value*”.²⁰

ORA agrees with OPG on three points. A nameplate approach does not capture declining marginal value. Resources should compete on their measured system value. Measuring system value requires measuring it for every resource. OPG then asked the IESO to act on the very paper discussed above, citing it by name: “*OPG recommends that the IESO apply the findings from the ELCC study, with*

updates as required, to ongoing and future procurements to ensure procurement frameworks reflect Ontario's changing system needs, along with a full evaluation of system value of the different types of capacity resources.”²⁰

ORA asks the IESO to act on that sentence in full. What is good for battery storage is good for all. A full evaluation of the system value of the different types of capacity resources means all of them. The study OPG asks the IESO to apply evaluates only one.

The number that would settle it has not been published:

In the same submission, OPG states that *“According to the ELCC report, these BESS facilities are likely to provide lower ELCC compared to energy-backed capacity resources”*.²⁰ ORA takes no position on that comparison, because the report OPG relies on contains a measured value for storage and no measured value for any other resource class. OPG is comparing a measured number for batteries with no measured number at all for hydroelectricity, gas or biomass. ORA asks the IESO to calculate the number for every resource and publish it.

Two filings, side by side:

ORA notes one further matter for the record. In the procurement where energy-backed resources compete directly against storage for capacity, OPG has asked for a measure of what each resource contributes. Hydroelectricity is procured through a separate energy stream under the Long Lead-Time RFP, on which OPG's filed position was that it *“supports the bifurcation of energy and capacity streams”* and *“supports a minimum forty (40) year contract term”*.²¹ ORA asks whether the accreditation methodology the IESO adopts will apply to hydroelectric resources procured through an energy stream.

ORA Recommendation 14: That the IESO state whether the accreditation methodology it adopts will apply to hydroelectric resources procured through an energy stream.

5. Who decides, and on whose recommendation:

ORA raises one governance matter and confines it to disclosure. OPG has asked the IESO in writing to adopt a particular capacity accreditation methodology. The IESO is now deciding that methodology. OPG is the largest owner of the resource whose value that methodology will set.

The Chair of the IESO's Board of Directors, Ken Hartwick, is the former President and Chief Executive Officer of OPG. The IESO's own website records that in 2024 he *“retired from his position as President and CEO of Ontario Power Generation”*, after a *“tenure spanning nearly nine years”*.²² ORA has raised this concern in previous submissions to the IESO and has not received a response to it. ORA asks the IESO to publish the procedure by which conflicts of interest are identified and managed in decisions of this kind.

The IESO opened this engagement on published principles, among them that it be *“Traceable”*, meaning to *“Allow everyone to follow the path that is being taken”*, and *“Transparent”*, meaning to *“Show how engagement helped shape the final outcome”*.⁴

ORA Recommendation 15: That the IESO publish the conflict of interest and declaration of interest policy that applies to its Board of Directors.

ORA Recommendation 16: That the IESO state, in its response to feedback on this engagement, at what level of the organization the capacity accreditation methodology is decided.

ORA Recommendation 17: That, in the event the Board of Directors is involved in the decision, the Chair recuse himself from the selection of the capacity accreditation methodology.

6. How water enters the model is not stated in this engagement's documents:

At the September session, the IESO was asked what it meant by changing system conditions and answered: the resource mix, demand shape, and weather patterns.²³ Weather-driven fuel availability is represented in the model for wind and solar. Nothing in the presentation, the session or the technical paper states how it is represented for hydroelectricity.

The IESO has stated it elsewhere, in a document not published for this engagement. Its 2026 Annual Planning Outlook (APO) says the supply outlook “*considers historical production data for hydroelectric, and simulated data for wind and solar resources, which helps to capture the impact of extreme events on the performance of these resources in the probabilistic models*”.⁵ The methodology behind it draws run-of-river output from thirty years of record.¹⁰ What neither document states is whether that representation treats reduced inflow as a risk correlated across a river system, or whether it carries any forward-looking signal at all. On the second question, the IESO has recorded the gap itself: “*As actual weather and seasonal trends diverge from historical trends, supply resources may perform differently from assumed historical performance. If the performance and contribution of resources is overestimated, there could be resource adequacy concerns at certain periods in the future.*”⁵

That admission bears on hydroelectricity more than on any other resource, because hydroelectricity is the resource whose representation in the model is built almost entirely out of the past. Run-of-river output is drawn from thirty years of production record. Peaking inputs use “*the last five years of operational data*”. The IESO measures how often a gas plant fails and puts that number into the model. It does no such thing for a hydroelectric station. Whatever outages happened over the last thirty years are buried inside the old output figures, so the model never tests what happens when a station is out of service at the same time the water is low.¹⁰ The IESO has now said that history is becoming a less reliable guide. ORA asks what the accredited value of hydroelectricity would be if the record it rests on looked forward instead.

This is understandable in a paper about batteries, whose fuel is the grid. The paper's own list of the factors affecting the capacity value of storage runs to eleven items: load magnitude and shape, resource mix, transmission congestion, penetration, duration, technology, charge and discharge rates, round-trip efficiency, response time, cycle life and operational profile.² Fuel availability is not among them, because for the studied resource it is not a variable. For a hydroelectric station, it is the variable the paper does not reach, and the one that moves output most. OPG says as much on its own website: “*Hydro relies on the water cycle of evaporation, condensation, precipitation and collection.*”¹ A changing climate changes the water cycle.

The IESO has written this down before. Its 2015 North of Dryden plan states that “*Northern hydroelectric generation is an energy limited resource known to have significantly reduced output and availability during drought conditions of the river system supplying these generating units.*”²⁴

Ontario's own Provincial Climate Change Impact Assessment says the same in its own words. At page 163: “*Electrical power generation can be impacted by climate change in a variety of ways, and in part depends on energy sources. For example, low water flows due to drought conditions can reduce hydroelectricity generation.*” At page 402: “*Hydropower generation may be particularly impacted by dry conditions or drought, should water availability be reduced.*” And at page 442, on the reservoirs themselves: “*Less rainfall and longer dry periods mean groundwater recharge may be reduced and ponds, water-storage tanks and reservoirs may not fill enough to support agriculture, communities and businesses that are dependent on them, causing issues with water availability and accessibility.*”²⁵

The same assessment rates the risk. Of every category of utility service it examined, electrical power generation is the only one already carrying a high score: “*All Level 2 categories have a risk score of*

'medium' in the current timeframe, except Electrical power generation which has a current risk score of 'high'." Table 6.17 holds it at high through the 2050s and the 2080s in every region of the province.²⁵

Hydro Québec's Senior Vice President of Partnerships and Development told Canada's National Observer in August 2026 that "*There is greater volatility to hydropower*", explaining that its utility has moved into wind generation.²⁶ OPG's own public information page meanwhile describes hydroelectric power as "*a clean, reliable, and low-cost way to produce the energy Ontario needs*".¹⁸ That page reports installed capacity and annual output. It reports no dependable or accredited capacity figure for the fleet.

There is a further point that a backward-looking method does not reach. A forced outage takes one machine off the grid. A dry season reduces output across whole river systems at once. The IESO has written this down. Its North of Sudbury Bulk Plan states at page 29 that "*The energy-limited and variable nature of hydroelectric generation means that dependable supply can be materially lower than installed capability, particularly during extended periods of reduced water availability or under outage conditions*."¹⁶ That sentence is about hydroelectric generation, not about one region. UCAP, built on each machine's independent outage history, does not represent correlated fuel risk. The IESO states that its probabilistic models use historical hydroelectric production data. ORA asks whether that representation treats reduced inflow as correlated across river systems, and whether it carries any forward-looking climate signal.

One answer will be that the remedy is water storage. The IESO attributes the gap in part to limited storage, and ORA does not dispute the physics. But storage on a river shifts the timing of water within a season. It does not create inflow. In an extended dry period, a reservoir system loses output along with the run-of-river stations above and below it. That is why ORA's question is about fuel availability across a river system rather than about outage rates at individual machines.

The IESO has also assessed the transmission needed to integrate potential new hydroelectric development in the Moose River Basin. It did so at the request of Taykwa Tagamou Nation, Moose Cree First Nation and OPG, through ongoing co-planning activities involving the two First Nations and OPG. It found that roughly 430 MW could be integrated under near-term reinforcements and about 1,000 MW with the full reinforcement pathway.²⁷ That assessment covers transmission capability and operability. It does not report a capacity contribution for the generation itself. That number belongs in the accreditation work now under way.

The IESO has named the software it uses, General Electric's Multi-Area Reliability Simulation.²

ORA Recommendation 18: That the IESO state publicly whether its capacity adequacy model represents hydroelectric fuel availability as a weather-driven risk correlated across a watershed.

ORA Recommendation 19: That, where the model does represent hydroelectric fuel availability, the IESO state the years of production record used to set it.

ORA Recommendation 20: That, where the model does not represent hydrologic variability, the IESO incorporate it using the Ontario streamflow record.

ORA Recommendation 21: That the IESO publish the sensitivity of each hydroelectric resource's accredited value to an inflow scenario drier than the historical record.

7. What other participants asked for, and where ORA stands:

Four organizations raised questions at the 17 September session that bear on this submission.²³ ORA sets out their positions, and where it agrees and where it does not.

The Canadian Renewable Energy Association said of the proposed methodologies that “*when you move from high transparency and predictability to lower of both of those, that's an alarming thing*”, for investors committing capital to major infrastructure, and that folding this work into LT2 Window 2 may be too tight a timeframe, suggesting Window 3 instead.²³ ORA shares the transparency concern, for a different reason. ORA's concern is the accountability the IESO owes the ratepayers who fund every contract it signs. ORA's position is the one set out at the start of this submission: the accredited capacity value for hydroelectric generation, reported separately from pumped storage, must be published before the measure is used in any procurement.

Environmental Defence Canada asked whether the methodology accounts for “*fuel supply disruptions correlated to other types of vulnerabilities or externalities*”.²³ That question put correlated fuel risk on the record. The IESO's answer went to modelling granularity rather than to correlation: sub-hourly behaviour is not modelled over a long-term planning horizon, so “*the impact of the fast response isn't captured within the model*”. On environmental performance, the IESO answered that such performance is captured only to the extent that a relevant policy constraint requires the model to capture it.²³ ORA extends the question to hydrology, which the answer did not reach.

ORA takes no issue with the IESO describing the limits of its own model and draws the consequence. The IESO's answer means its capacity adequacy model does not evaluate environmental performance unless a policy constraint requires it. The same answer was reported from the session: environmental attributes matter only where the model includes a relevant policy constraint.³

Any environmental outcome expected from a procurement therefore has to be set as policy by the Minister of Energy and Mines. It does not arrive through the contract either. The IESO's draft Long-Term 2 energy contract of 14 August 2026 uses the word climate zero times, the word hydrology zero times and the words water level zero times. The word drought appears once, in the force majeure list at section 11.3(a), among “*acts of God, including extreme wind, ice, lightning or other storms, earthquakes, tornadoes, hurricanes, cyclones, landslides, drought, floods and washouts*”.²⁸ The IESO's draft Long Lead-Time energy contract of 1 April 2026, under which hydroelectric generation is procured on a forty-year term, uses the same three words zero times and carries the same force majeure list.²⁹

Drought is not an unforeseeable event. Climate change and its effects on temperature and water availability have been documented for decades, and Ontario's own climate assessment expects dry periods to become more frequent and more severe.²⁵ A contract that lists drought beside earthquakes and hurricanes treats a foreseeable and worsening condition as an accident. The IESO already knows how to exclude a known risk from that clause. Section 11.2(g) of both contracts refuses force majeure “*in respect of any impacts of the COVID-19 pandemic, the Russo-Ukrainian military conflict or the military conflict in, adjacent to or relating to the state of Israel or the Islamic Republic of Iran, that were known or ought reasonably to be known by the Supplier*”.²⁸ Declining water availability is known to every hydroelectric proponent in Ontario and all across Canada, and belongs on that same list.

The Pembina Institute asked how the methodology would be applied in procurement. The IESO's Ben Weir answered that the final treatment used in the RFP would be “*fully transparently known to bidders*” before proposals are submitted. He also said the change would be reflected in the second window of the Long-Term 2 RFP, without saying how, noting only that the values would be reflected “*in some way*”.³

Hydroelectricity is eligible in that procurement. The draft LT2 RFP names hydro once, in a background description of the IESO's role, where it says the province's needs “*may be met through diverse resources such as wind, solar, hydro, biomass, nuclear, natural gas, demand response, conservation, storage or other innovative technologies*”. Its eligibility provisions name no technology at all. An Eligible Existing Facility is “*an existing, licensed, operating Electricity generation or storage facility that is registered as a resource in the IESO-administered markets*” and that either holds a Medium-Term

contract or “*was commissioned no later than May 1, 2009*”, with any other IESO contract expiring no later than 30 April 2032.³⁰ Hydroelectricity is therefore eligible by silence rather than by name, and a large part of Ontario's transmission-connected hydroelectric fleet falls inside that definition. New builds and repowering both qualify. So, the measure will be applied to hydroelectricity, and two gaps remain.

The first is that the value may never be stated for hydroelectricity on its own. When OPG asked how the IESO would handle the fact that each additional megawatt has a different reliability value, the IESO's David Richardson said it plans to evaluate each procurement as a whole and assign one accreditation value to the increment being procured.³ In a procurement open to all of the technologies named above, a single blended figure would not say what hydroelectricity contributes, and the number ORA is asking for would still not exist.

The second is the procurement the IESO has not mentioned. It runs a separate Long Lead-Time RFP whose eligible resources are hydroelectric and certain long-duration energy storage technologies. On the IESO's own published schedule the final LLT documents were released on 6 May 2026, the deadline for issuing addenda passed on 13 August 2026, registration opened on 23 September 2026 and closes on 6 October 2026, and proposals are due on 26 November 2026.³¹ Comments on this engagement close on 1 October 2026, and the IESO has scheduled a further session for 22 October 2026 to present detailed methodology and results.³ The IESO has not said whether the accreditation methodology will apply to that procurement at all. If it will, it has to reach proponents through an RFP that was final in May and closed to addenda in August.

ORA Recommendation 22: That, where an accreditation value is assigned to a procurement increment as a whole, the IESO publish the accredited capacity value of each resource class within that increment.

ORA Recommendation 23: That the IESO state how the basis of evaluation will be disclosed to proponents in a procurement whose deadline for issuing addenda has already passed.

Sustainability Solutions Group asked how this relates to regional resource planning, and the IESO answered that this is the provincial adequacy picture, into which regional needs feed.²³ ORA notes that the IESO has confirmed in writing that “*Hydroelectricity is not included in the evaluation of wire and non-wire options*” in regional planning.³² Hydroelectricity is therefore outside that comparison, and no accredited capacity value for it has been published provincially. ORA asks the IESO to say where in its planning the capacity contribution of hydroelectricity is assessed.

ORA Recommendation 24: That the IESO record in the Request for Proposals itself the commitment given at the 17 September session, that the basis on which each resource type will be evaluated is disclosed to proponents before proposals are submitted.

ORA Recommendation 25: That the IESO advise the Minister of Energy and Mines that its capacity adequacy model reflects environmental performance only where a policy constraint requires it, so that any environmental outcome expected from procurement is set by directive rather than assumed.

8. A number less visible than the one it replaces:

The IESO's own evaluation scores UCAP high on transparency and predictability, and all three probabilistic alternatives low on transparency.⁴ A more accurate number may be harder to see. The ratepayer is still entitled to see the workings.

The only worked example the IESO has published rests on a base case it has since superseded: “*The 2022 Annual Planning Outlook case was used because this study was initiated in late 2022, and it was*

*the latest available case at the time.*² The paper was published in August 2025 and footnoted as authority in September 2026. Marginal Reliability Impact is a marginal value, and a marginal value turns on the shape of demand. The IESO says as much of its own results: they “*should not be taken as absolute, as they are highly situational and depend on the specific system conditions at the time*”.² ORA agrees, and treats that as a reason to publish the workings rather than a reason to rely on the numbers in a procurement.

The IESO's own research records significant uncertainty in the demand forecast that such a value depends on. Its Demand Research Technical Papers webinar of 24 September 2025 reports “*significant uncertainty associated with*” large step loads; heat pump modelling “*Currently relying on American data that may be based on different temperatures, building mix, and occupancy assumptions*”; a forecasting tool whose limitations mean it assumes a heat pump “*meets 100% of heating load*”; and “*no longer basing the reference demand forecast on the federal Electric Vehicle Availability Standard*”.³³ OPG asked that the study's findings be applied “*with updates as required*”.²⁰

The storage study used assumptions generous to the studied resource. It assumed “*Perfect Arbitrage*”, meaning storage charges in every surplus hour and discharges in every deficit hour, which the paper itself calls an idealization. It excluded transmission congestion, which the same paper names as a factor that reduces a capacity value.² Even so, for the 2029 summer case the paper reports the average marginal value of eight-hour storage falling from nearly 80% for the first 250 MW block to under 20% for a final 2,000 MW block added to a system already holding 2,000 MW. The same paper shows that lengthening duration sustains much of that value, which is a design choice open to storage and not to a reservoir.² That is thorough work, and the paper states its own limits.

The IESO has since said how it intends to apply the result. Asked by OPG how it would handle the fact that each additional megawatt has a different reliability value, its David Richardson said the IESO plans to evaluate each procurement as a whole and assign one accreditation value to the increment being procured.³ A procurement confined to hydroelectric resources would therefore produce a single accredited value for hydroelectricity. That is the number ORA is asking for. ORA asks only that the same work be done for waterpower.

The IESO invited this feedback directly during the session, asking stakeholders what the IESO would need to publish to ease concerns about transparency.²³

ORA Recommendation 26: That the IESO update the August 2025 analysis against a current Annual Planning Outlook base case before its findings are relied upon in any procurement.

ORA Recommendation 27: That the IESO publish, for any accreditation methodology it adopts, the reference system, the base case, the input assumptions and the update cycle.

ORA Recommendation 28: That the IESO publish the sensitivity of each resource's accredited value to the demand scenario used.

ORA Recommendation 29: That, where the accredited value used in a procurement differs from the planning value the model produces, the IESO publish both figures.

ORA Recommendation 30: That the IESO publish the reason for that difference.

9. Conclusion:

The IESO is right that Unforced Capacity looks backwards, and right that the reliability value of each additional megawatt of storage falls as its share of the grid grows. ORA supports both. ORA asks whether the same holds for other resources at their present shares.

ORA opposes the procurement of any resource before its accredited capacity value has been published, with hydroelectric generation reported separately from pumped storage. Hydroelectricity holds 24% of Ontario's installed capacity, compared with energy storage's 3%, and its inflow is changing with the climate.⁵ The IESO has the figures. Its Capacity Auction credits hydroelectricity with 46% to 67% of installed capacity in summer, against 95% for storage.⁷ Its 2024 Annual Planning Outlook put hydroelectric effective capacity at 6.5 GW in summer against 9.3 GW installed.⁹ What it has not done is carry any of that into the procurement work now underway or produce the forward-looking value the methodology under consultation would give.

ORA asks the IESO to apply the methodology it adopts to every resource class, and to publish the result for each. Hydroelectricity has been treated differently for a long time. The IESO stated its effective capacity in megawatts in 2024 and stopped. It credits hydroelectricity at roughly half to two-thirds of nameplate in its auction and has not explained how that relates to the value it will use in procurement. The one worked capacity study it has published covers battery storage and no other resource. Its public pages describe hydroelectric generation as steady and around the clock, while its own planning documents record that dependable output falls overnight and in dry periods. Ratepayers fund these contracts for 20 to 40 years,²¹ and they are paying for effective, dependable capacity that nobody has validated or been shown.

The IESO publishes these figures for its auction. It has not published them for procurement, and it has not published a forward-looking value for hydroelectricity at all. Nor has it shown how it derived any of them. The one-megawatt figure on the record counts pumped storage inside the hydroelectric total. The auction factor rests on five years of past output in 200 hours a season. Neither comes with a derivation a ratepayer can follow. The IESO opened this engagement on a principle of its own choosing, that its work be “*Traceable*”, meaning to “*Allow everyone to follow the path that is being taken*”.⁴ ORA asks for that path: the inputs, the assumptions, the stations counted and the stations left out, set out so the figure can be checked by someone who does not work for the IESO. Adopting the recommendations in this submission would give hydroelectricity the same scrutiny the IESO has already applied to battery storage and would demonstrate an openness and transparency on hydroelectric generation that is long overdue.

Respectfully submitted,

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