Stakeholder Forum | Opinion

Dispelling the Myth of the Canadian Hydroelectric Cornucopia

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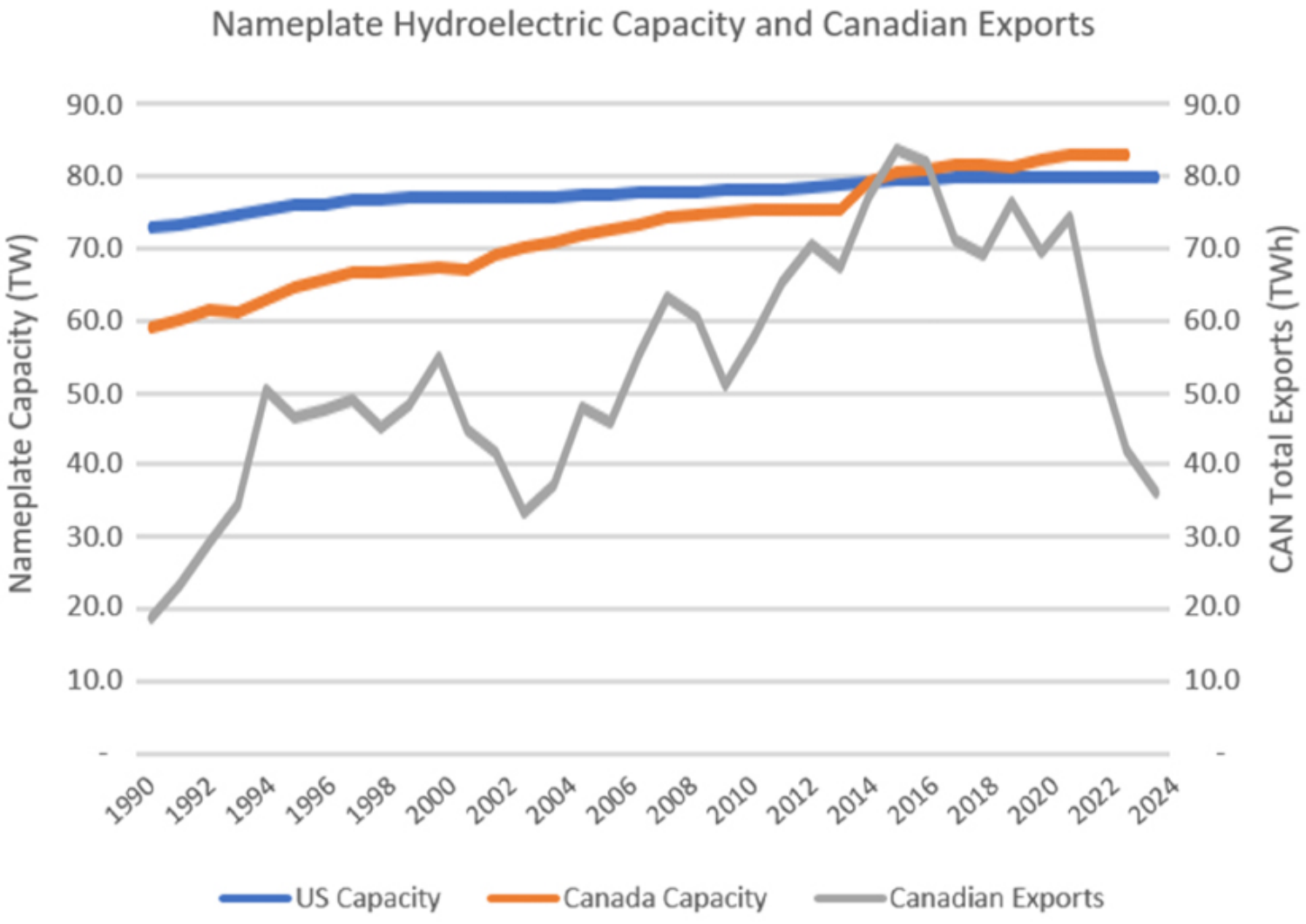


(//www.rtoinsider.com/132159-dispelling-myth-canadian-hydroelectric-cornucopia/)

Data from NEB, EIA & McCullough Research

May 13, 2026 | Stakeholder (//www.rtoinsider.com/author/stakeholder/)

By Robert McCullough

Commercial exaggeration is a time-honored part of our culture. As Garrison Keillor memorably remarked: “That’s the news from Lake Wobegon, where all the women are strong, all the men are good-looking, and all the children are above average

And he is correct. My small town in northern Wisconsin exemplifies all three of these claims. However, at 386 people, two churches and six bars, this may not be a very good factual basis for planning and upgrading to internet fiber-optic service. The same concerns arise when considering the cornucopia of Canadian hydroelectricity and its dubious relevance to hydroelectric exports to the U.S.

Why This Matters **May 14, 2026**

Since the energization of the New England Clean Energy Connect, Hydro-Quebec has imported thermal energy from Ontario and NYISO on a daily basis — more, in fact, than the hydro they have been delivering to Massachusetts.

Since the onset of the Hydro-Québec export drive in 2010, the rhetoric has been, well, rhetorical: “This energy will avoid approximately 200,000 tons of CO_2 emissions in the region, equivalent to removing 50,000 cars from the road each year,” the company said in a *news release (https://news.hydroquebec.com/news/press-releases/all-quebec/the-clean-energy-corridor-will-deliver-power-at-a-discounted-price-for-maine.html)* in July 2020. This is in addition to the annual avoided emissions equivalent to removing 700,000 cars from the road that will result from the NECEC project.”

NECEC is the New England Clean Energy Connect. (See *NECEC Transmission Line Ready to Begin Commercial Operations (https://www.rtoinsider.com/122870-necec-tx-line-ready-commercial-operations/)*.)

“Hydro-Québec stands by Maine in its efforts to recover from the pandemic’s toll,” CEO Sophie Brochu explained. “We’re pleased to contribute with a commitment that guarantees reliable power deliveries as well as considerable savings.”

While this is reassuring, it directly *contradicts (https://news.hydroquebec.com/news/press-releases/montreal/growing-electricity-demand-forecasted-in-quebec-despite-the-public-health-crisis.html)* the contemporaneous Hydro-Québec system plan. The energy balance shows that the current and projected supplies from Hydro-Québec Distribution and Shared Services are sufficient to meet demand through 2026.

But the Reality is Quite a Bit Different

Precipitation is not always reliable, and CO_2 isn’t offset unless a new unused supply of hydroelectricity has been developed. Viable hydroelectric sites are in limited supply. And while U.S. and Canadian hydroelectric capacity is roughly comparable, good sites both north and south of the U.S. border have been largely developed or set aside for environmental reasons.

Not surprisingly, exports from Canada to the U.S. have fallen precipitously since Canadian loads have grown, relative to their resources. In addition, hydroelectric output has fallen because of a three-year drought stretching

from British Columbia to Québec. (See *Hydro-Québec Halted NECEC Deliveries amid Reliability Concerns (https://www.rtoinsider.com/124194-hydro-quebec-halted-necec-deliveries-amid-reliability-concerns/)*.)

The last two major dams built in Canada were Site C in British Columbia and Muskrat Falls in Labrador. Both were overbudget and overschedule — largely because of geotechnical issues.

Ownership and/or control of hydroelectric capacity in Canada is highly concentrated into just a few hands. Hydro-Québec's hydroelectric capacity is 56% of all Canadian hydroelectric capacity. This makes it sensible to focus on Hydro-Québec's hydroelectric generation.

In 1987, the U.S. Department of Energy's Office of Policy, Planning and Analysis published an extensive analysis of Canadian hydro titled "*Northern Lights (https://www.rtoinsider.com/wp-content/uploads/2026/05/19870901-Northern-Lights.pdf)*." This 266-page analysis specifies the potential energy, capacity, construction cost and transmission costs for hundreds of dams across Canada.

Almost all of the high-priority dams on this list have been built or set aside for environmental reasons. For example, the page on likely projects in Québec and Labrador specifies 34 projects. The only two plants mentioned in recent years are Little Mecatina and Gull Island. At their original 1987 cost estimates, Gull Island ranked third and Little Mecatina 17th in terms of cost.

Only 2 Viable Projects

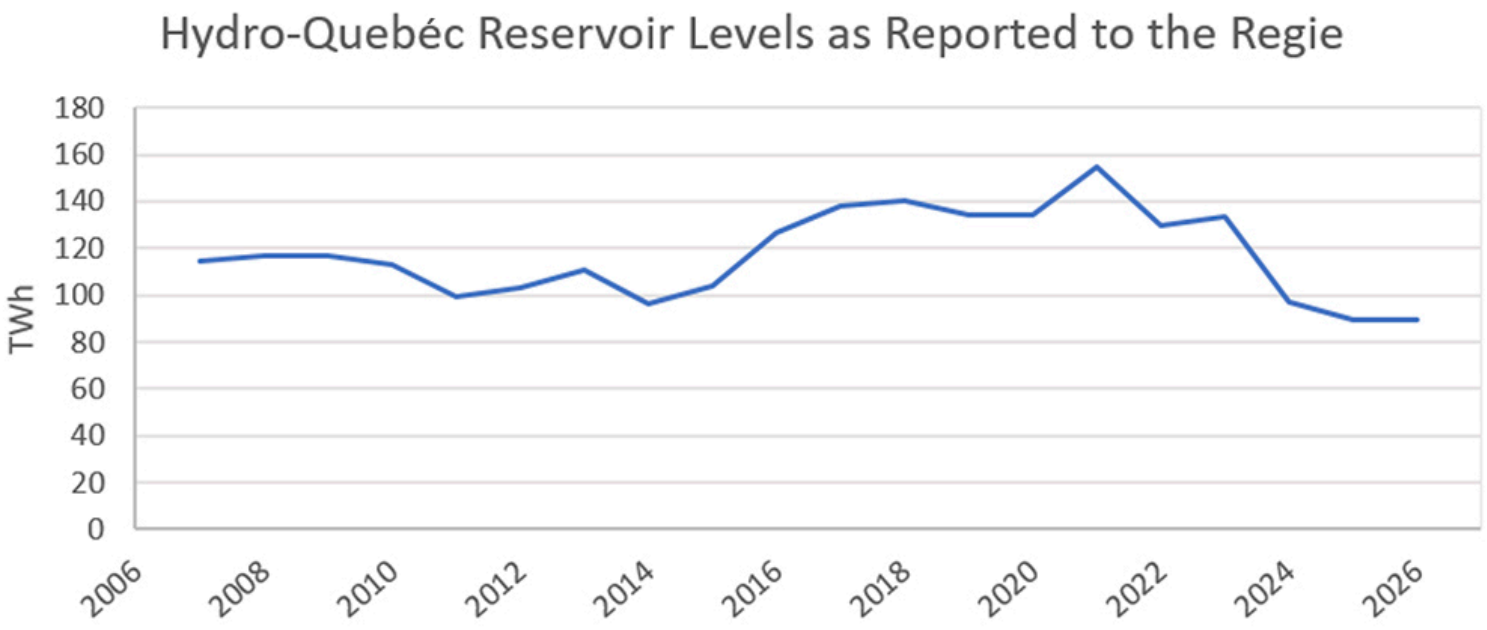
Today, they are the only two viable projects mentioned in current planning documents. The costs of both are much higher than projected 50 years ago — even allowing for inflation. Gull Island, for example, is now expected to cost 640% of the 1987 forecasted cost in real terms.

Gull Island also will require two 745-kV transmission lines measuring 650 miles to reach a load center. Even without considering the significant transmission costs, these two projects would have fallen to 23rd and 28th on the list of 34 projects, ordered by cost of generation per kilowatt.

The most recent Hydro-Québec planning document is the "*2035 Action Plan Towards a Decarbonized and Prosperous Québec (https://www.hydroquebec.com/data/a-propos/pdf/action-plan-2035.pdf)*." This specifies adding 3,800 to 4,200 MW of capacity from hydroelectricity over the next decade, of which 2,000 MW are capacity upgrades at the La Grande Complex in northern Québec. Such capacity upgrades are standard at aging plants in the U.S. and Canada but generally do not change the energy output by more than a few percentage points.

Of course, no discussion of Canadian hydroelectricity is complete without the mention of the three-year drought across Canada. We are just seeing the thaw in Québec that hopefully will refill increasingly empty reservoirs. The news so far is bleak, but inconclusive. The initial inflows appear to be matching last year's disappointing results.

Hydro-Québec has been importing more thermal power from the U.S. and Ontario than it has been exporting to the U.S. — which is a prudent strategy when reservoirs are low. The official Hydro-Québec filings place reservoir levels at the lowest levels in 20 years.



| *Quebec Energy Board*

Since the energization of NECEC, Hydro-Québec has imported thermal energy from Ontario and NYISO on a daily basis — more, in fact, than the hydro they have been delivering to Massachusetts.

This raises the question of which electrons are going where. Under the 2000 Québec Energy Board law, Hydro-Québec's hydroelectric projects are basically reserved for the patrimonial pool to serve provincial customers. Obviously, because all electrons are identical, the electrons themselves can give us little guidance. However, it is logical to assume that some, if not all, NECEC "hydro" exports this spring have been thermal electrons. However, this is a debate reserved for philosophers and lawyers; common sense may well be a poor guide.

In sum, the cornucopia of Greek mythology does not remotely describe Canadian hydro today, nor has it been accurate for some time.

Robert McCullough is an energy consultant based in Portland, Ore.

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