



July 13, 2020

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**Re: Case 10-T-0139: Champlain Hudson Power Express; Hydro-Québec Statement on Misstatements made by Sierra Club and NAMRA in their submission to New York PSC Docket #10-00741/10-T-0139 (a requested amendment to the Certificate of Environmental Compatibility for the Champlain Hudson Power Express transmission project)**

Dear Secretary Phillips:

In a submission addressed to the United States Department of Energy and also filed with the New York State Public Service Commission, the Sierra Club Atlantic Chapter and the North American Megadam Resistance Alliance (NAMRA) have made numerous false claims about Hydro-Québec and Québec hydropower, and we wish to provide, in the attached Appendix, information to rectify their incorrect and misleading statements.

The points brought up by Sierra Club / NAMRA have little bearing on the issues under review in Case 10-T-0139, which pertain to certain Preferred Alternative Routes for the New York section of the Champlain Hudson Power Express transmission line. However, the comments made in the Sierra Club / NAMRA letter and put on the public record are inaccurate and potentially harmful to Hydro-Québec's reputation. We appreciate the opportunity to correct comments containing erroneous statements on the company and its hydropower generation facilities in Canada. This letter does not address any other comments made in Case 10-T-0139.

We sincerely hope that the enclosed information is useful and remain available to provide any further explanations or documentation.

A handwritten signature in blue ink, appearing to read 'M. Imbleau'.

Martin Imbleau

## **Appendix: Hydro-Québec Response to Claims Raised by Sierra Club / NAMRA in Case 10-T-0139**

### **The Necessity for New Transmission, Not New Dams**

Sierra Club / NAMRA claim that the Champlain Hudson Power Express (CHPE) transmission project is directly responsible for the continued construction of dams in Eastern and Central Canada. This is an erroneous statement. The only construction of dams currently in Québec is the completion of the La Romaine Complex. Construction of this complex began in 2009; its design and environmental permitting occurred well before that, and consequently well before the CHPE transmission project was proposed. Furthermore, there are no current plans for additional hydropower build-out in Québec. On numerous occasions, Hydro-Québec has stated that it currently has considerable surpluses available for export. Hydro-Québec undertook a major construction phase beginning in 2003. Once this phase is completed, in 2021 with the commissioning of the final generation station in the La Romaine Complex, the company will have brought on line over 5,000 MW of new generating capacity. However, the company has not commissioned a new interconnection line with its export markets in the U.S. Northeast for over 30 years. The issue here is the necessity for new transmission, not a question of new dams.

### **Québec Hydropower Is Clean and Renewable Energy**

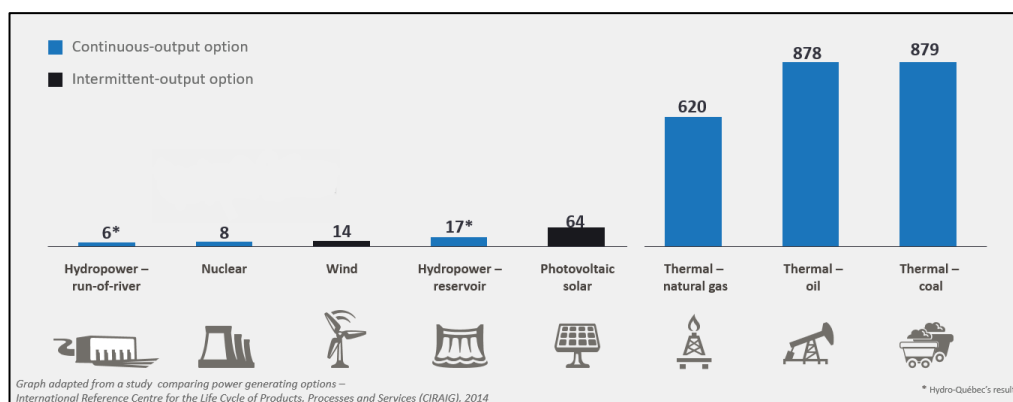
Sierra Club / NAMRA question the clean and renewable character of hydropower generated in Québec, citing, among other sources, “peer-reviewed science”. In fact, Sierra Club / NAMRA refer especially to newspaper articles and to a study that they themselves financed. The only peer-reviewed study referenced in their letter is a Harvard study that lacked information on hydropower development in Québec. We will discuss that study further below (see section 2016 Harvard Study).

Québec hydropower is a generating option with very low greenhouse gas emissions and emits none of the air pollutants responsible for acid rain and smog. All forms of electricity generation emit GHG over the course of their lifespan (construction, operation and decommissioning). For hydropower, GHG emissions are mainly carbon dioxide, and to a lesser extent, methane, resulting from decaying vegetation in flooded land. Based on a life cycle analysis<sup>1</sup>, net GHG emissions from Québec hydropower (these are linked to the construction of generating stations and emissions from the creation of reservoirs) are significantly lower than electricity generation from natural gas and coal, and on par with wind. See Figure 1 for more details.

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<sup>1</sup> International Reference Centre for the Life Cycle of Products, Processes and Services (CIRAIG): Technical Report: Comparing Power Generation Options and Electricity Mixes, 2014. Available at <http://ciraig.org/index.php/lca-study/comparing-power-generation-options-and-electricity-mixes/>

**Figure 1. GHG Emissions by Energy Source**



Hydro-Québec has been a pioneer in the study of greenhouse gas emissions from hydroelectric reservoirs. Our studies show that emissions peak immediately after reservoir creation, and decline to the levels found in natural lakes within five to ten years<sup>2</sup>.

Hydropower is also a renewable resource as it depends on the natural water cycle. Water evaporates and rises into the atmosphere, where it condenses and turns into clouds. The water droplets and ice crystals that form clouds eventually fall back onto the ground as rain or snow. The water then flows through the rivers, and generating stations can use the water to produce electricity or store the water in reservoirs for generation at a later time.

It is interesting to note that the Sierra Club in Canada supports the export of Hydro-Québec hydropower into other provinces in Canada as a source of clean energy. Fundamental differences in opinions over Hydro-Québec's electricity appear to exist within the Sierra Club organization. For several years, Sierra Club Canada has been advocating for additional imports from Hydro-Québec into Nova Scotia as part of the "Clean Energy Now" campaign. As recently as June 4, the national programs director of Sierra Club Canada, Gretchen Fitzgerald, reiterated the importance of Hydro-Québec's resources to decarbonize Nova Scotia in *The Chronicle Herald* (<https://www.thechronicleherald.ca/opinion/local-perspectives/fitzgerald-times-right-for-emma-to-get-nova-scotia-off-coal-458040/>). It is the same energy, coming from the same hydropower installations, with the same low-carbon footprint.

### **Virtually All of the Electricity Generated and Purchased by Hydro-Québec is from Low-Carbon Sources**

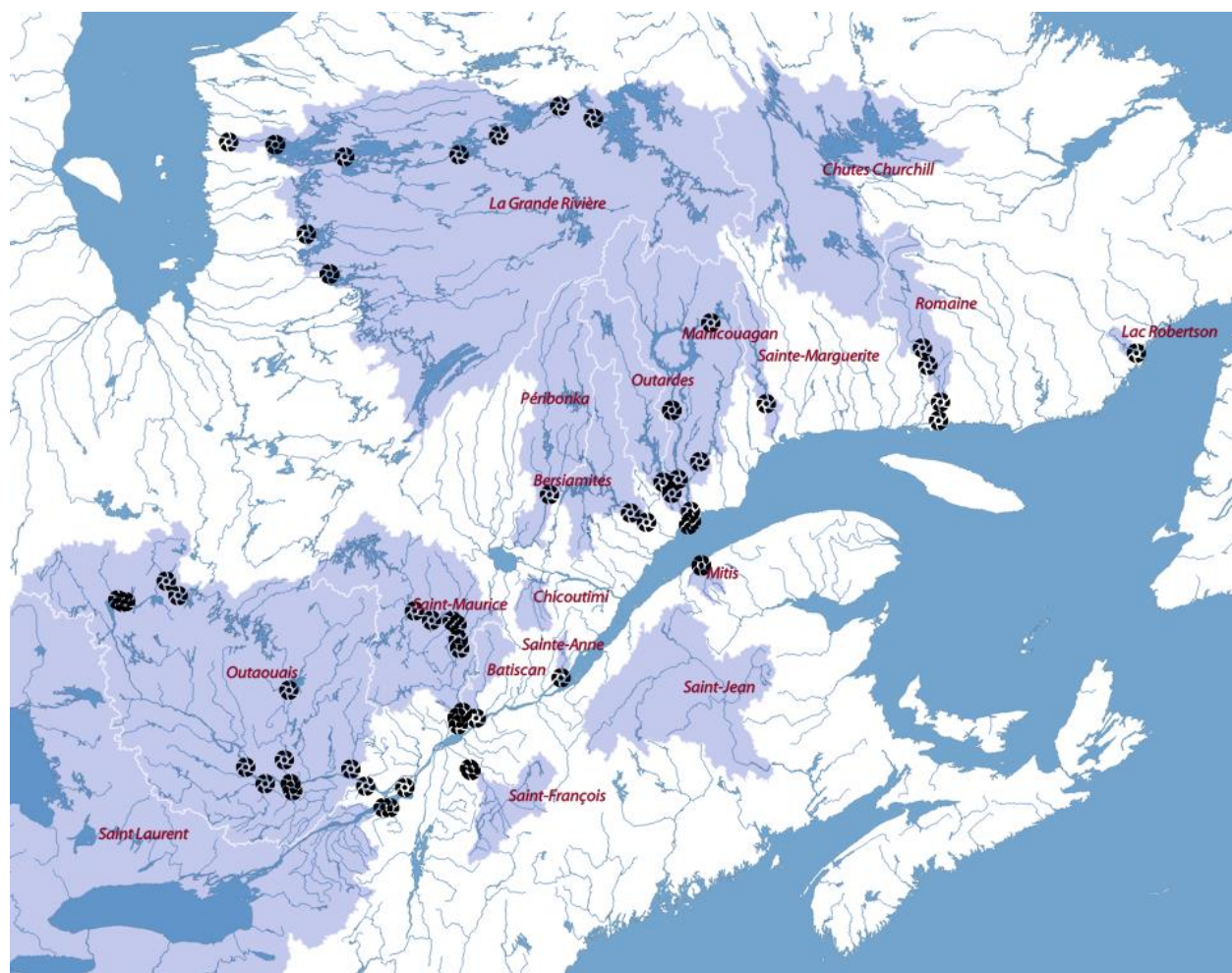
Sierra Club / NAMRA assert that "Hydro-Quebec produces electricity at 86 generating stations in Quebec, of which 62 are hydroelectric and 24 are gas and diesel". While this is a true statement, it is misleading without recognizing that 23 of the 24 gas and diesel stations are off-grid and supply remote Indigenous communities (132 MW). Hydro-Québec is currently exploring various

<sup>2</sup> <https://www.hydroquebec.com/sustainable-development/specialized-documentation/ghg-reservoir.html>

solutions (such as distributed solar power generation) to reduce gas and diesel generation in these Québec communities (see below).

Today, Hydro-Québec owns and operates 62 hydropower generating stations, with a combined installed capacity of approximately 37,000 MW. In total, 75 of Québec's 4,500 rivers have been developed for power generation (see Figure 2).

**Figure 2. Hydro-Québec's Hydropower Generating Systems**



In addition, the company has long term supply contracts with hydropower, wind and biomass generators totalling over 10,000 MW. There is close to 4,000 MW of wind capacity already installed in Québec, and a vast further potential amount could still be developed.<sup>3</sup>

Sierra Club / NAMRA further states that “Hydro-Quebec thorough [sic] an affiliate sells and buys power generated by large dams, fossil fuels and nuclear in Manitoba, Ontario, New Brunswick

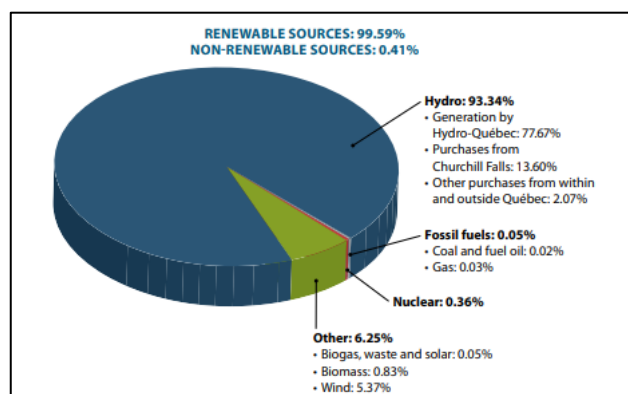
<sup>3</sup> Study conducted for the Government of Québec (available in French only): Inventaire du potentiel éolien exploitable du Québec, Hélimax Énergie inc., AWS Truewind, LLC, June 2005, ([https://mern.gouv.qc.ca/publications/energie/eolien/vent\\_inventaire\\_inventaire\\_2005.pdf](https://mern.gouv.qc.ca/publications/energie/eolien/vent_inventaire_inventaire_2005.pdf))

and Nova Scotia.” Hydro-Québec does indeed purchase electricity from surrounding markets, but only infinitesimally small volumes are purchased.

In 2019, 99.6% of the company’s energy supply was clean and renewable. The remainder was from our single on-grid thermal generating station that is only used at extreme peak times as well as an infinitesimal percentage of imported energy that comes from fossil fuel sources.

Each year, the company publishes an audited statement providing a breakdown of energy generated and purchased by Hydro-Québec.<sup>4</sup> This statement shows that imports of fossil fuel-generated electricity from neighboring markets and from the one thermal generating station belonging to Hydro-Québec totalled only 0.05% of energy flowing on the Hydro-Québec grid in 2019 (see Figure 3).

**Figure 3: Hydro-Québec Sources of Energy Supply in 2019 (excluding off-grid systems)**



Hydro-Québec is moving towards more renewable energy for remote, off-grid locations as well. With support from the Société d’habitation du Québec and Transition énergétique Québec, Hydro-Québec initiated a pilot project on renewables and energy storage in the Nunavik village of Quaqtqaq. Hydro-Québec installed 24-kW solar panels on the rooftops of four houses and electrochemical storage systems in their service rooms and will use them to optimize energy consumption and reduce diesel combustion at the Quaqtqaq power plant. A specific aim of the project is to assess the performance and cost-effectiveness of such solutions for off-grid systems.

In August 2019, the Canadian government announced funding for new clean energy projects in 13 northern Québec Indigenous communities that are not connected to the main Hydro-Québec grid. Some of these funds will go toward installing energy storage devices, which will cut GHG emissions from diesel generation by tens of thousands of tons.

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<sup>4</sup> Breakdown based on energy generated and purchased by Hydro-Québec (excluding off-grid generation as well as energy from Hydro-Québec Production and from independent producers for which renewable energy certificates have been sold or transferred to third parties): 12-month period ended December 31, 2019 Source: <https://www.hydroquebec.com/data/developpement-durable/pdf/etiquette-metrique2020-an.pdf>

## Tracking Hydro Attributes

Hydro-Québec is actively implementing the North American Renewables Registry (“NAR”) attributes tracking platform for on-grid hydropower generation stations and now has 20 plants that are tracked using this system. The inclusion in NAR of Hydro-Québec’s remaining hydro facilities could be completed as early as next year. Based on the current Operating Rules of the New York Generation Attribute Tracking System (v 2.3, May 1, 2020, p.60), the NAR is recognized as a Compatible Tracking System which could be used, along with development of associated and necessary protocols, to track in a transparent and verifiable manner the attributes from the generation source in Québec to the New York Control Area.

## Hydropower Development and Mercury

A temporary increase in mercury levels in fish, following the formation of methylmercury when a reservoir is created, is a well-known and well-managed impact of hydropower development. Hydro-Québec has studied and documented this impact for over 40 years and dedicates considerable scientific resources to follow-up on this question. The Sierra Club / NAMRA claim about a lack of epidemiological studies on mercury from reservoirs is false. Between the end of the 1970s and 2018, a number of peer-reviewed studies<sup>5</sup> were published on this subject, conducted by Health Canada, the Cree Board of Health and Social Services of James Bay, the Québec Institut national de santé publique (Québec national public health institute), McGill University, etc. Several of these studies were financed, in whole or in part, by the agreements signed with the Indigenous communities pertaining to mercury or by the Niskamoon Corporation (Niskamoon – <http://www.niskamoon.org/niskamoon-agreement/> – provides a framework for

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<sup>5</sup> Examples of peer-reviewed epidemiological studies (more references are available if needed):

Susannah Ripley, Elizabeth Robinson, Louise Johnson-Down, Anne Andermann, Pierre Ayotte, Michel Lucas & Evert Nieboer (2018) Blood and hair mercury concentrations among Cree First Nations of Eeyou Istchee (Quebec, Canada): time trends, prenatal exposure and links to local fish consumption, *International Journal of Circumpolar Health*, 77:1, 1474706, DOI: 10.1080/22423982.2018.1474706

Evert Nieboer, Ian D. Martin, Eric N. Liberda, Eric Dewailly, Elizabeth Robinson & Leonard J. S. Tsuji (2017) Body burdens, sources and interrelations of selected toxic and essential elements among the nine Cree First Nations of Eeyou Istchee, James Bay region of northern Quebec, Canada, *Environ. Sci.: Processes Impacts*, DOI: 10.1039/c7em00052a.

Dumont, C., Wilkins, R., Kosatsky, Th., Penn, A. & Lapierre, S. (1988) Recent Changes in Methylmercury Exposure of the James Bay Cree of Quebec. *Arctic Medical Research*, Vol. 47: 168-174.

Dumont, C. (1995) Exposure of James Bay Cree to Methylmercury During Pregnancy for the Years 1983-91. *Water, Air, and Soil Pollution* 80: 13-19.

Girard, M., Noël, F. & Dumont, C. (1996) Varying Mercury Exposure with Varying Food Source in the James Bay Cree Community. *Arctic Medical Research* 55: 69-74.

Dumont, C., Girard, M., Bellavance, F. & Noël, F. (1998) Mercury Levels in the Cree Population of James Bay, Quebec, From 1988 to 1993/94. *CMAJ* 158: 1439-45.

Chevalier, G., Dumont, C., Langlois, C. & Penn, A. (1997) Mercury in Northern Québec: Role of the Mercury Agreement and Status of Research and Monitoring. *Water, Air, and Soil Pollution* 97: 75-84.

cooperation between the Cree people and Hydro-Québec and enables the implementation of the Cree/Hydro-Québec Agreements).

For more information, see the document “[Understanding Québec Hydropower: Mercury in Reservoirs: A Temporary, Well-known and Well-Managed Phenomenon](#)” and Hydro-Québec web resources on this subject at <https://www.hydroquebec.com/sustainable-development/specialized-documentation/mercury.html>.

Hydropower generating stations themselves do not emit mercury. Mercury is present naturally in the rock and soil. Airborne mercury that falls onto this region comes mainly from natural sources (volcanoes and forest fires) or human activity (coal-fired power plants and industrial activity). The flooding of land and ensuing decomposition of vegetation transforms a fraction of inorganic mercury already in the ground cover, leaves and moss into methylmercury, a neurotoxic substance that enters into the aquatic food chain.

While we cannot eliminate this phenomenon, we can make sure that impacts on human health are mitigated. In collaboration with public health agencies and our First Nations partners, Hydro-Québec has developed and implemented site-specific fish consumption guidelines. These guides, which are published in several different languages used by Indigenous populations, specify the number of meals of fish recommended per month for different species of fish.

There have been no known cases of mercury intoxication from reservoir fish consumption in Québec.

### **Hydro-Québec’s Mitigation Measures for Mercury**

For each Hydro-Québec hydropower project, the mercury issue is carefully evaluated during the environmental impact assessment phase. Our project authorizations include obligations related to monitoring and mitigation measures to ensure that the public is not exposed to additional health risks. The mercury monitoring program includes many activities such as: (i) monitoring the evolution of fish mercury concentrations until they return to levels that allow for the consumption of fish from reservoirs at quantities equivalent to recommendations for the region’s natural environments; (ii) communicating the risks and benefits of fish consumption through the regular dissemination of information and the production of updated fish consumption guides; (iii) monitoring mercury exposure in local populations and (iv) assessment of the effectiveness of the communication program. Agreement is reached with government authorities on the schedule of planned follow-up activities before a project begins.

In the case of the La Romaine project, contrary to what is claimed by Sierra Club / NAMRA, a prospective health risk assessment was carried out in 2006, prior to the beginning of project construction. This assessment, which was presented at the public hearings and deemed satisfactory by Health Canada, indicated no additional health risks related to fish consumption by local populations, mainly because only a small proportion of the fish in the communities’ diet would be affected by the project. We measured the mercury levels present in three population

groups. For example, the mercury level measured in 2006 (i.e. prior to the project) for Innu women of childbearing age was 0.28 mg/kg. The predicted post-exposure level (a conservative scenario) is expected to reach approximately 0.44 mg/kg: well below the Health Canada limit for this group which corresponds to 2 mg/kg. The United States Environmental Protection Agency's recommendation corresponds approximately to 1 mg/kg.

In the case of the La Romaine project, monitoring activities for mercury will continue until the year 2039.

It is false to say that Hydro-Québec's approach consists of "telling people not to eat [sic] local foods for decades until the methylmercury levels (presumably) return to "baseline" levels, which until they are sampled, cannot be known to be safe", as alleged by Sierra Club / NAMRA. Hydro-Québec is well aware of the role traditional fishing plays in the lives and culture of Indigenous communities and the health benefits associated with fish consumption, and therefore, the company, in collaboration with health agencies, strongly encourages populations to continue fishing and, in some cases, has opened access to new fishing sites. Also, testing for mercury continues for years after completion of a hydropower project, contrary to Sierra / NAMRA claims.

### **2016 Harvard Study**

Sierra Club / NAMRA refer to a study published by Harvard researchers that examines health issues linked to mercury accumulation at the Muskrat Falls project in Labrador, Newfoundland. This is very misleading. That is a project outside of Québec, being developed by a company other than Hydro-Québec.

Hydro-Québec experts are quite familiar with the Harvard study. In fact, our experts met with the Harvard researchers to better understand their work and to present (i) our approach to health risks associated with mercury in fish, which is based on 40 years of research on the subject, and (ii) how we implement that approach in all of our hydroelectric projects including the La Romaine Complex.

The Harvard study does not take into account the impact of public health measures, such as those that Hydro-Québec implements for all of its hydropower projects, which are an effective way to mitigate this impact.

Contrary to what is alleged by Sierra Club / NAMRA, and wrongly suggested in the Harvard study with respect to Labrador, our studies have shown that the increase of mercury levels in fish has not led to an increase of mercury measured by hair sample or blood sample among populations living in the vicinity of large reservoirs in Québec. This conclusion applies to populations living around the La Grande reservoirs and Sainte-Marguerite reservoirs. And, as previously mentioned, the impact assessment study for the new reservoirs on the Romaine River does not predict any significant increase of mercury for the local populations including Indigenous populations.



Finally, the levels of mercury measured in the affected population in Labrador presented in the Harvard study paper are low and similar to those observed in the Côte-Nord area (Québec) where the Romaine River is situated. Despite the potential for an increase in mercury levels after impoundment, it is our opinion that if the usual measures such as those implemented in Québec in all Hydro-Québec's hydro projects had been implemented by the developers in Labrador, the communities in Labrador could continue to benefit from fish consumption while avoiding any effects related to mercury.

### **Relationship with Indigenous Communities**

The Sierra Club/NAMRA's depiction of Hydro-Québec's relationship with Indigenous communities is misleading and incomplete. Establishing and maintaining good relations with Indigenous communities has long been and remains a priority for Hydro-Québec, as more fully described in the following brochure: <http://www.hydroquebec.com/data/a-propos/pdf/partnership-indigenous-communities-2017g422a.pdf>.

While Hydro-Québec, along with the federal and provincial (Québec) governments, are defendants in judicial proceedings instituted by the Innus of Pessamit and the Innus of Uashat mak Mani-Utenam, the allegations made in this context have not been proven. We note that the hydroelectric facilities at issue in these proceedings were essentially built on public land and obtained the required governmental authorizations at the time of their construction, which, for the most part, goes back several decades ago.

As for the Churchill Falls hydroelectric complex located in the province of Newfoundland-and-Labrador, Hydro-Québec simply wishes to emphasize that it is not the proponent of these facilities.

### **Transmission Line Border Crossing Point**

Sierra Club / NAMRA alleges that Hydro-Québec "has no intention of bringing its transmission corridor across the border under water". This statement is based on information gathered from the company's website on this project, but dating from 2013. They failed to mention the following information on the Hydro-Québec project website:

"The Hertel–New York interconnection project, and its initial form, will be re-evaluated by Hydro-Québec.

New analyses will need to be performed and it is therefore too early to establish new parameters for the project, whether in terms of technical content or detailed scheduling.

When the time comes, new discussions with the host communities will be initiated to ensure that the proposed project has the least impact in terms of various sustainability criteria."

When the Québec portion of the line project is submitted to Canadian authorities to obtain the necessary authorizations, appropriate modifications will be proposed taking into account project evolution and concerns expressed during the Québec consultation process.

It is somewhat surprising that Sierra Club / NAMRA would assume that two partners in a transmission line project could somehow fail to take the necessary steps, from the standpoint of engineering and permitting, to ensure that the two ends of cable in a continuous line project actually come together.

### **Other Inaccuracies**

The Sierra Club / NAMRA letter contains other inaccuracies, such as on p. 7. Hydro-Québec is not an “instrumentality of the government of Canada” but rather a state-owned corporation with a single shareholder, the government of Québec, which is a distinct entity from the government of Canada. Furthermore, Hydro-Québec’s generation and transmission assets belong to the company – see the company’s Annual Report for 2019 (<http://www.hydroquebec.com/about/financial-results/annual-report.html>). As a commercially operated corporation, Hydro-Québec has a high level of autonomy in the way it operates. The company is an “arm’s length entity” with an independent Board of Directors whose job is to efficiently administer the business in accordance with the applicable legislation and the company’s strategic orientations, integrity of its internal controls, disclosure controls and information systems. The 15 members of the Board are appointed by the Québec government for a term of up to four years; of these, 13 sit as independent directors (of the other two members, one is from the Québec Ministry of Energy and the other is Hydro-Québec’s CEO), and hold no direct or indirect financial, commercial, professional or philanthropic interests that may affect their decision-making with respect to Hydro-Québec’s interests. More information on the company’s structure can be found in the [Hydro-Québec Act](#).

In conclusion, Hydro-Québec wishes to mention that company representatives have tried to open a dialogue with NAMRA on the aforementioned issues. In the fall of 2019, we invited NAMRA representatives, who were in New York at that time, to a meeting with some of our specialists to provide information on our hydropower development. NAMRA representatives agreed to attend. We sent a team from Montréal to New York for that meeting. Several hours before it was due to begin, the NAMRA representatives cancelled their participation, but later the same day held a press conference to express opposition to CHPE and Canadian hydropower.