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Mr. Brian Mills
Senior Planning Advisor
Office of Electricity Delivery and Energy Reliability (OE-20)
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

RE: Greenhouse Gas Impacts of Hydro Power From Hydro Québec

Dear Mr. Mills:

We have been reviewing comments submitted on the Draft Environmental Impact Statement (“DEIS”) on the Northern Pass Transmission Project. Several of the comments contain erroneous statements regarding hydropower development in Québec that should be rectified. The public record is clear on the impacts of greenhouse gas emissions associated with hydropower that Northern Pass would carry to New Hampshire and the rest of New England, and we want to make sure that, for purposes of its analysis, the Department of Energy has access to the correct information on the electricity that will flow on Northern Pass.

Two well-documented facts are important to understanding the proper greenhouse gas accounting for the Northern Pass Project: 1) no new hydro is being developed to provide power for Northern Pass; and 2) the full lifecycle greenhouse gas emissions for the power that will be supplied to Northern Pass are equivalent to those of wind power.

First, there is a well-developed public record demonstrating that 99 percent of Hydro Québec’s generation is hydroelectric power, <http://www.hydroquebec.com/about/our-energy/>. The Government of Québec has long sought to promote hydroelectricity exports as a centerpiece of its domestic economic development plan. In its 2006 – 2015 energy strategy document, “Using Energy to Build the Québec of Tomorrow,” the Government of Québec announced a policy to rapidly expand hydroelectric power generation in the province, not only to meet growing domestic demand, but also to support increased exports. New York, New England and Ontario were targeted as prime export markets. That government strategy document included as a key strategic goal: “Resume and Accelerate the Pace of Hydroelectric Development,” and the first two priority actions under that strategy were:

- 1) Launch new major hydroelectric projects totaling 4,500 MW
- 2) Increase electricity exports, once our own needs have been met

See, e.g., http://www.regie-energie.qc.ca/audiences/3724-10_2/RepDDRDem_3724-10/B-11_GI-31Doc2-2_R-3724-2_27mai10.pdf at 10.

Consistent with its role as the crown corporation that operates the electric utility of Québec, Hydro-Québec was tasked to implement this government strategy. Its strategic plan for 2006 – 2010 established as a key financial objective “electricity sales outside Québec.” <http://www.hydroquebec.com/publications/en/docs/strategic-plan/plan-strategique-2006-2010.pdf> at 47. The report noted that sales would increase in 2010 and continue to grow thereafter as the result of accelerated hydroelectric development during 2006 through 2010.

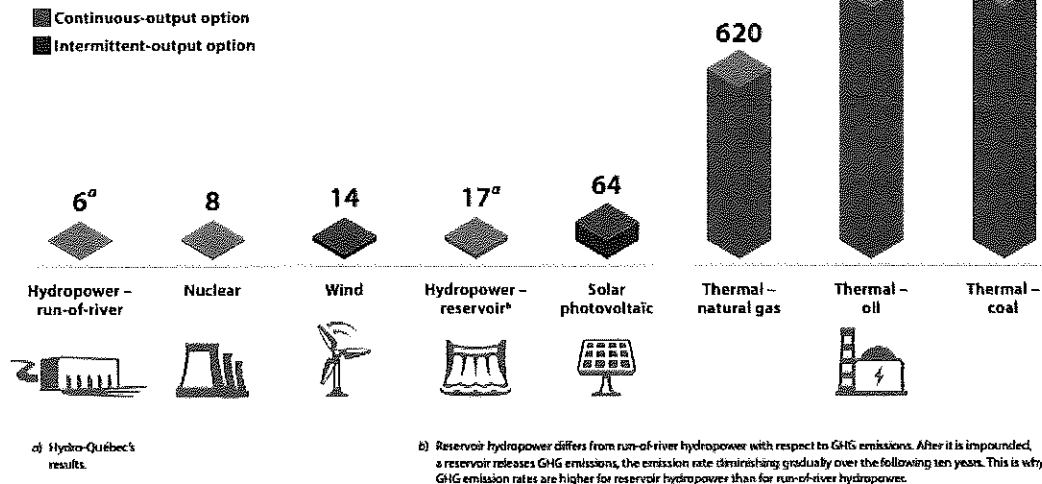
In its 2009 – 2013 Strategic Plan, Hydro- Québec reaffirmed that its top two “production” objectives were to increase hydroelectric generating capacity and “step up exports.” <http://www.hydroquebec.com/publications/en/corporate-documents/strategic-plan.html> at 16. Ontario, New York and New England remained target markets, but Hydro-Québec also identified western New York State and the U.S. Midwest as additional potential export markets. *Id.* at 26.

In short, Northern Pass is not the cause of the development of Canadian hydropower resources. Rather, that development is the result of a long-standing policy of the Government of Québec. It has proceeded without regard to whether Northern Pass is built. The only construction project currently ongoing in Québec is the Romaine Complex, which was in its planning stages before the Northern Pass Project was launched. Hydro-Québec currently has energy surpluses that are more than sufficient to supply the necessary power over the new transmission line.

More fundamentally, while it is true that reservoir greenhouse gas emissions increase in the first years after a reservoir is created, accurate appraisal of these emissions must be made using a life-cycle analysis. The International Reference Centre for the Life Cycle of Products, Processes and Services (“CIRAIG”), an internationally renowned research organization on life-cycle analysis, has already completed such a study and it shows that greenhouse gas emissions from Québec hydropower are equivalent to those of wind power, 5 times less than solar and a full 50 times less than emissions from gas fired power plants. Its findings are reflected in the following chart:

 **GHG EMISSION RATE**

**GHG EMISSIONS – POWER GENERATION OPTIONS
BASED ON LCA (g CO₂ eq./kWh)**



(Source : <http://www.hydroquebec.com/developpement-durable/centre-documentation/pdf/15094A.pdf>.)

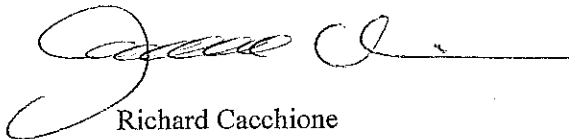
CIRAIG's full report (in French only) can be found at <http://www.hydroquebec.com/developpement-durable/centre-documentation/pdf/comparaison-filieres-et-bouquets.pdf>;

As for suggestions that there could be greenhouse gas “leakage” in Canada, such assertions fail to recognize that all sources of emissions in Québec, including those associated with power generated outside of the province and purchased by Hydro-Québec, are accounted for under the strict guidelines of the Western Climate Initiative, of which Québec is a member. Hydro-Québec's generation mix is published annually in its sustainability report, available at www.hydroquebec.com.

Hydro-Québec develops its hydropower resource in an environmentally acceptable way and only after it “undergoes rigorous environmental assessment.” http://www.hydroquebec.com/publications/en/sd_action_plan/pdf/plan_actiondd.pdf at 4. The company is renowned around the world for its environmental approach to developing projects and avoiding, mitigating or compensating a project's impacts. In its 12th global inventory of electricity generation from renewable sources, Observ'ER – a world reference in the fields of renewable energy and sustainable development – cited a recent Hydro-Québec generation project, the Eastmain-1-A/Sarcelle/Rupert project, as “a prime example of how to incorporate environmental constraints.”

We hope that, in completing its environmental review, DOE will rely on these fully documented and independent sources of analysis of the greenhouse gas emissions effects of Northern Pass.

Thank you for your consideration.



Richard Cacchione

cc : James A. Muntz, President – Transmission, Eversource Energy

Additional references on greenhouse gas emissions:

Expert View: Alain Tremblay on low reservoir GHG emissions:

<https://www.youtube.com/watch?v=NMHRY9xiawk&list=PL0A9DEBC33A59B9DA&index=3>

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- Tremblay, A. & al. 2011. Measuring Net Emissions from Eastmain 1 Reservoir. *Hydro-Review (The Magazine of North American Hydroelectric Industry)*, July 2011, p. 90-99.
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