



For a thriving New England

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**BY ELECTRONIC MAIL**

August 12, 2013

Heather Hunt  
Executive Director  
New England States Committee on Electricity  
655 Longmeadow St.  
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HeatherHunt@nescoe.com

**Re: Environmental Information Relevant to NESCOE Hydro Study**

Dear Ms. Hunt:

We write on behalf of Conservation Law Foundation (“CLF”) to provide environmental information relevant to the New England States Committee on Electricity’s (“NESCOE”) pending study “to analyze the economic and environmental costs and benefits of incremental levels of imported Canadian hydroelectricity” (the “NESCOE Hydro Study”).

By way of background, CLF is a nonprofit, member-supported organization that works to solve the environmental problems threatening the people, natural resources, and communities of New England. For several years, CLF’s Clean Energy and Climate Change program has engaged in legal advocacy, technical analysis, and policy development efforts at the state and regional levels to address the proper role for new imports of Canadian hydropower in New England’s energy future.

CLF is optimistic that the efforts of New England states around increasing imports of Canadian hydropower could advance clean energy outcomes and serve the public interest, but only if undertaken with appropriate attention to realizing meaningful environmental and economic benefits, to avoiding damage to the region’s growing renewable energy industry, and to addressing legitimate public concerns with the burdens of new transmission infrastructure. To the extent that any efforts include state-initiated procurement, any such procurement must be competitive, open and transparent with due consideration to public policy / impact attributes, including each of the foregoing, in addition to ratepayer impacts. Although beyond the scope of this letter, any bias towards a particular project or developer would constitute a misuse of state ministerial authority.

A searching and neutral assessment of the potential environmental impacts of new imports is critical. CLF has preliminarily studied the potential for such imports to result in reductions in New England’s carbon emissions by reducing the region’s use of existing fossil generation resources. In that work, we have identified a number of important considerations that should inform the NESCOE Hydro Study, the interpretation of its results, and any regional initiative to expand imports of Canadian hydropower.

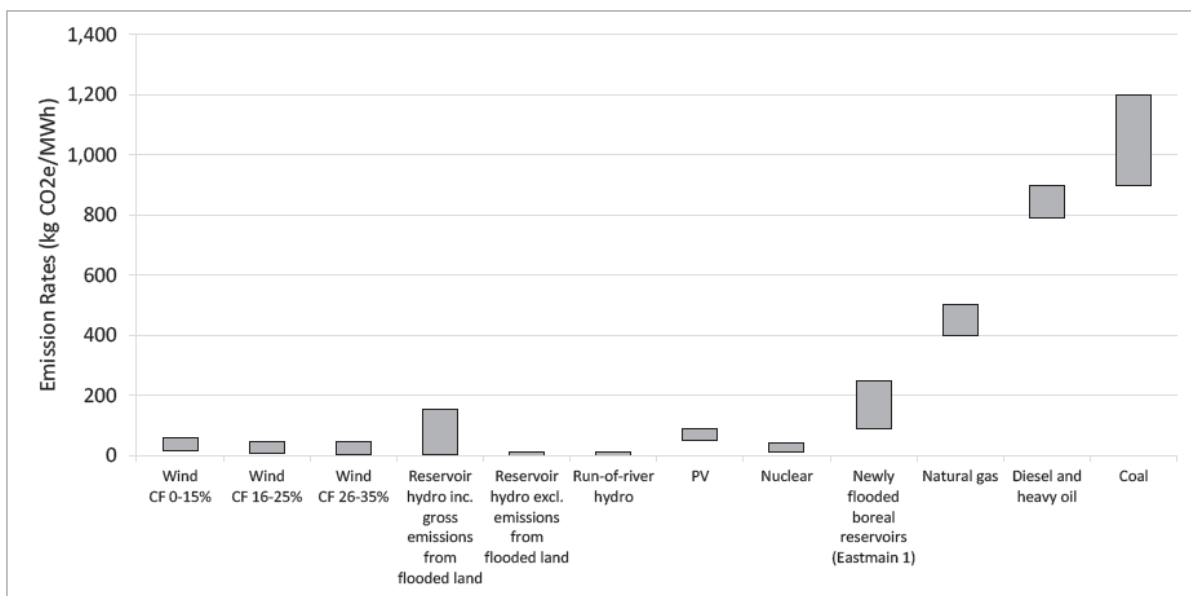
*Canadian Hydropower Greenhouse Gas Emissions*

A credible analysis of environmental benefits from new hydropower imports must recognize that large-scale hydropower facilities in Canada result in net greenhouse gas emissions and that the emissions from newly developed facilities are especially significant.

Scientific research, including uniquely rigorous research regarding Hydro-Québec’s recently developed Eastmain facility, demonstrates that new hydropower facilities and the vast reservoirs they create are responsible for significant greenhouse gas emissions, including from the slow decomposition of flooded biological material, the elimination of forest carbon “sinks,” and other sources. According to this research, new hydropower facilities’ greenhouse gas emissions may initially exceed those of modern natural gas power plants and that, despite declining and producing fewer net greenhouse gas emissions than natural gas over time, may continue at meaningful levels even over the long term. The state of the research is summarized in a 2012 technical report, “Hydropower Greenhouse Gas Emissions,” which was prepared for CLF by Synapse Energy Economics and is attached here as **Exhibit A**.

A peer-reviewed article that post-dates the Synapse report (Teodoru et al., “The net carbon footprint of a newly created boreal hydroelectric reservoir,” in *Global Geophysical Cycles*) explains the recent research regarding the Eastmain facility and is attached as **Exhibit B**.

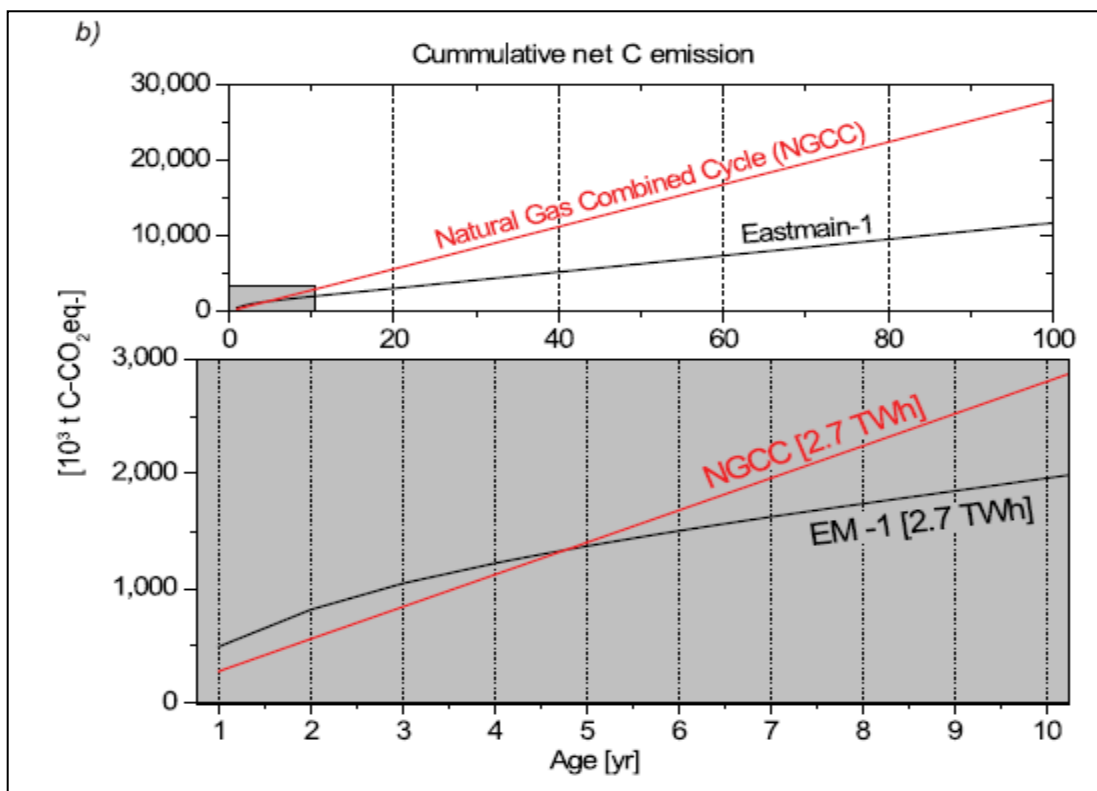
Over the 100-year time horizon utilized in lifecycle analysis of emissions, large-scale hydropower facilities may result in emissions that are between one-fifth and two-thirds of the emissions of a modern natural gas plant. Figure 1 of the Synapse report graphically compares the emission rates of various generation sources and is reproduced below.



In general, policymakers and utilities have not reckoned with this issue.<sup>1</sup> Nevertheless, addressing how hydropower emissions may partially offset any emissions reductions expected from expanding imports of hydropower is crucial to evaluating and quantifying imports' potential environmental benefits.

### *New Hydropower Facility Emissions*

In light of the scientific conclusion that nascent or newly developed (including in the future) hydropower facilities in Canada have relatively high short-term greenhouse gas emissions, incremental energy deliveries to New England from those facilities may not result in the substantial greenhouse gas emissions reductions that many policymakers and industry stakeholders expect, especially if the energy displaces energy that would otherwise be supplied by the region's marginal fuel source, natural gas. According to the Teodoru paper, emissions from the Eastmain facility initially were *higher* than a combined-cycle natural gas plant of comparable power and did not reach parity with natural gas for five years after reservoir development, as depicted in this figure:



<sup>1</sup> For example, Northeast Utilities has thus far ignored CLF's request that the utility correct its flawed marketing claims regarding the potential emissions reductions associated with the Northern Pass transmission project, which are based on the erroneous assumption that Canadian hydropower has no greenhouse gas emissions. NESCOE itself has failed to recognize these emissions in at least one presentation to energy industry stakeholders. See NESCOE, *Are We There Yet? Emerging Government Energy Policies*, slide 8 (May 21, 2013 presentation to NECA & CPES), at [http://www.nescoe.com/uploads/NESCOE\\_NECA\\_Annual\\_May\\_2013\\_final.pdf](http://www.nescoe.com/uploads/NESCOE_NECA_Annual_May_2013_final.pdf).

Given the significant differences in prospective emissions from hydropower facilities of various ages, any analysis of the environmental benefits of new imports should recognize that those benefits will vary substantially depending on the specific facilities that will be dispatched to provide additional energy to New England.<sup>2</sup> It is worth noting that the potential for additional exports is, in large measure, driving Hydro-Québec's development of new facilities, including the new projects under construction on the Romaine River; new imports substantially comprised of energy from these new projects have a much less attractive prospective environmental profile than the energy from older hydropower facilities. (Of course, Hydro-Québec and other Canadian power portfolios are not exclusively comprised of hydropower facilities, and the dispatching of non-hydropower facilities will also affect the environmental characteristics of any new imports.)

In this context, it is clear that treating Canadian hydropower as one power source with a single set of blended environmental attributes (as Hydro-Québec has repeatedly urged) will not reflect the real environmental impacts of new imports. Identifying the specific facilities dispatched for export deliveries through geographic tagging, both in predictive modeling of the effects of new imports and in accounting for the environmental attributes of all current and future imports, seems to be a feasible mechanism to address this issue.

#### *Emissions Effects in Neighboring Regions*

The putative environmental benefits of new imports, especially reductions in regional emissions of greenhouse gases and of conventional and toxic pollutants subject to long-range transport, also hinge on the effects of expanded New England imports in neighboring regions. According to the Synapse report, research suggests that increasing power flows from Québec to the United States may increase the need for fossil generation sources in other regions in Canada, such as Ontario. See Exhibit A at 17-18. There is a similar risk that new imports to New England would reduce Hydro-Québec's hydropower exports to New York.<sup>3</sup>

Any assessment of the environmental benefits of new imports must acknowledge and quantify the potential for these effects and identify the approaches that may be available to minimize them.

\* \* \*

CLF appreciates NESCOE's consideration of this information and looks forward to working with NESCOE, state policy-makers, and other stakeholders as the region works to identify a proper role for additional imports of Canadian hydropower in New England's energy future.

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<sup>2</sup> These differences also mean that new imports supplied by new hydropower facilities will not necessarily help achieve the short-term climate goals of states like Massachusetts and Connecticut.

<sup>3</sup> In a 2010 report commissioned by Northeast Utilities, Charles River Associates projected that the new imports to New England associated with the Northern Pass transmission project would have this very effect.

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August 12, 2013  
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Sincerely,

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