

## **North American Megadams Resistance Alliance**

[www.northeastmegadamsresistance.org](http://www.northeastmegadamsresistance.org)

June 7, 2019

Low Impact Hydropower Institute  
329 Massachusetts Avenue  
Suite 6  
Lexington MA 02420  
By email to: [comments@lowimpacthydro.org](mailto:comments@lowimpacthydro.org)

Re: Comments on New Construction Eligibility

This is to provide comments on the Proposal to Expand Eligibility for New Construction for newer dams and diversions as outlined in LIHI's March 25, 2019 request for comments. LIHI requested comments on six questions, which are addressed at the end of this letter.

### **Background**

North American Megadams Resistance Alliance (NAMRA) is an international network of groups and individuals working to protect rivers and their communities by resisting megadams and their transmission corridors. One of NAMRA's top priorities is exposing the myth that large dams are clean energy. It is our position that dams should not qualify for "green energy" ratepayer and taxpayer subsidies, green bonds or other financing mechanisms intended to address the climate crisis via controlling greenhouse gas emissions. On this fundamental level, the LIHI proposal that seeks to expand the projects eligible for clean energy financing is wholly at odds with NAMRA's mission, which is based on current science and documentary evidence of the negative impacts of dams on human and biological communities.

NAMRA works internationally with groups and individuals in communities across North America gravely concerned about the current push to promote large dams as an antidote to the climate crisis. It is clear that the main reason for the LIHI change is to allow LIHI-certified projects to remain eligible for Green-E and the EPA Green Power Program, both of which restrict eligibility to projects built within the last 15 years. If no change is made, no LIHI-certified projects will be eligible for these green power certifications. NAMRA and groups like International Rivers take the position that additional financial taxpayer and ratepayer subsidies for hydropower, nor is warranted in any event, given the destructive impacts of large dams. See, e.g. "10 Reasons why climate initiatives should not include large hydropower projects" signed by over 500 civil society groups worldwide. [www.internationalrivers.org/node/9204](http://www.internationalrivers.org/node/9204); Updated at Attachment 1 to this letter.

LIHI's March 25, 2019 request for comments contains a troubling premise stating that "[a]dvancements are being made in the design of new dams and diversions" implying that somehow these technological "improvements" justifying destroying rivers, ecosystems, carbon sequestering forests and communities in order to provide "green" subsidies for hydropower. NAMRA is unaware of any peer-reviewed science that shows that "new technology" mitigates the destructive impact of hydropower dams. LIHI should provide evidence of credible science and case studies before it advances the discussion about expanding eligibility any further. NAMRA suspects that such credible science is non-existent. There are numerous peer reviewed scientific resources documenting the irreversible negative environmental, cultural and economic harms of large dams.

For its comments, NAMRA incorporates by reference the comments of the Centre Helios of Canada and the Grand Riverkeeper Labrador, Inc. being submitted to LIHI.

### **General comments**

#### **Greenhouse gas emissions from dams and reservoirs, greenwashing of hydropower and extinction**

The underlying premise for expanding LIHI eligibility is to provide more green financing incentives to hydropower. This premise flies in the face of current science that shows that dams and their reservoirs are major contributors to climate change and that most of their greenhouse gas emissions are methane. Unequivocally, hydropower should not qualify for green financing, especially given the recent Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), May, 2019 report that, in the most comprehensive assessment of its kind, found that 1,000,000 species are threatened with extinction. [Bit.ly/IPBESReport](https://bit.ly/IPBESReport) Freshwater ecosystems are specifically addressed in the report, which contains policy options and actions for avoiding extinction. The report specifically calls out dams and reservoirs as part of the land use changes contributing to the extinction threat. ("±50,000: number of large dams (>than 15m high); ±17 million reservoirs (>0.01ha)."

The May 9, 2019 published in the journal Nature finds that only a third of the world's great rivers remain free flowing. *Mapping the world's free-flowing rivers*, "<https://doi.org/10.1038/s441586-019-111-9>. Anything that LIHI does to promote more dams and reservoirs contributes to extinction and the loss of river connectivity as well as promoting land use change that eliminates carbon-sequestering forests, peatlands, and wetlands.

Much has been written about the contribution of dams and reservoirs to the climate crisis as a result of emissions of methane, nitrous oxide and CO<sub>2</sub>. See, e.g. Bridget R. Deemer, John A. Harrison, Siyue Li, Jake J. Beaulieu, Tonya DelSontro, Nathan Barros, José F. Bezerra-Neto, Stephen M. Powers, Marco A. dos Santos, J. Arie Vonk, *BioScience*,

Methane accounts for up to 79% of CO<sub>2</sub>e emissions from reservoirs and methane emissions from dams and reservoirs are about 25% higher than estimated. *Hydroelectric dams emit a billion tonnes of greenhouse gases a year, study finds*. The Guardian, Nov. 14, 2016. <https://www.theguardian.com/global-development/2016/nov/14/hydroelectric-dams-emit-billion-tonnes-greenhouse-gas-methane-study-climate-change>

According to the Waterkeeper Alliance, dams and their reservoirs are major drivers of climate change, and hydropower should be treated like fossil fuels. See, e.g. [www.waterkeeper.org/hydropower-is-not-clean-energy](http://www.waterkeeper.org/hydropower-is-not-clean-energy). In an outdated report that does not consider the more recent science on methane emissions from dams and reservoirs, in 2012 Synapse in a report for Conservation Law Foundation found that Hydro-Quebec's Romaine River dam was essentially a carbon bomb: its newly flooded boreal reservoir would have CO<sub>2</sub> emissions at 32-63% of a natural gas plant. Given the new science on methane, cited above, the contribution to the climate crisis would be even worse. Would LIHI be incentivizing natural gas fired power stations? If not, then it should not incentivize hydropower.

See also, *What Hydro-Quebec Gets Wrong*, [www.centralmaine.com/2019/01/12](http://www.centralmaine.com/2019/01/12), where Dr. Bradford Hager from MIT writes, that about 10 years ago, "Hydro-Quebec built dams to divert the Rupert River to the Eastmain hydroelectric facility, flooding 175 square miles of virgin forest and wetlands. As a result, the first year after flooding as much CO<sub>2</sub> was released as would have been released by a coal-fired power plant generating the same amount of electricity...While the release of CO<sub>2</sub> slows with time but never becomes insignificant. After 5 years the total emissions from Hydro-Quebec dams and a natural gas plant is about equal..." after 10 years, the total release from hydropower is 2/3 of that of the natural gas plant, so that for a century, Hydro-Quebec is about as half as dirty as gas-something of an improvement but in no way carbon free. *Id.* Given that we are in a climate crisis and need to reduce emissions now not 10 years from now, promoting hydropower that causes a new burst of methane when reservoirs are flooding, and which keeps on emitting methane during raising and lowering of reservoirs and running turbines, LIHI should not be doing anything that promotes hydropower.

No carbon accounting system at the IPCC or U.S. or Canadian state, federal or provincial level requires a life cycle analysis of greenhouse gas emissions from hydropower. Fearnside, P.M. *Emissions from tropical hydropower and the IPCC*, Environmental Science and Policy. LIHI should not allow the industry to profit from this loophole by expanding the qualifications for certification.

## Canadian Dams

As explained in the Centre Helios comments, the LIHI proposed changes may act as an economic incentive to the expansion of hydropower dams in Canada including the ongoing construction of megadams and new dams such as Nalcor Energy's Gull Island dam on the Churchill River in Labrador. The reservoir at Hydro-Quebec's Romaine 4 dams is about to be flooded, as construction comes to completion. The same is true for Muskrat Falls, where Nalcor Energy will be flooding the reservoir. As an international alliance working to stop Canadian hydropower from being greenwashed as clean energy and sold in U.S. markets and claiming ratepayer and taxpayer subsidies for clean energy under RPS and other mechanisms, we share the Centre Helios concerns. "Selling exports has become a necessity for Hydro-Quebec, as indicated by Hydro-Quebec's Eric Martel's recent comment, "Without exports, our profits are in trouble."

<http://business.financialpost.com/commodities/energy/without-exports-our-profits-are-in-trouble-hydro-quebec-plugs-into-u-s-markets-for-growth> Cited in *Greenwashing and Carbon Emissions: Understanding the True Impacts of NECEC*, prepared by Energyzt Advisors LLC for Maine Renewable Energy Association, Natural Resources Council of Maine, and Sierra Club, October 2018.

## Massachusetts Concerns

Just as troubling as the LIHI's consideration of expanding eligibility to Canada, is the trend in the U.S. to expand eligibility under RPS programs, including in Massachusetts. Under the Baker Administration, the Massachusetts Department of Energy Resources (DOER) put forward numerous proposals that would have the effect of bringing dirty energy projects into the Renewable Portfolio and/or Alternative Portfolio standards. These dirty energy sources such as large hydropower, wood burning biomass and waste incineration were excluded from the RPS and APS originally for a reason. See, e.g., [/www.pfpi.net/rps-biomass-overview](http://www.pfpi.net/rps-biomass-overview) ("Baker Administration plans to gut MA's science based biomass-rules"). Now, despite the climate crisis and scientific evidence that these dirty projects will make the climate crisis worse, DOER is pushing for taxpayer and ratepayer subsidies for them. This includes large hydropower, as evidenced by the Massachusetts 2016 Energy Diversity Act.

DOER has a pending proposal to change the Massachusetts RPS regulations so that hydropower generators would have to undergo just *one review to receive a lifetime certification as a river-friendly facility*. This certification would entitle them to a lifetime of benefits from the state as providers of "environmentally sustainable energy." DOER has proposed to remove the requirement that generators obtain a recertification from the Low Impact Hydropower Institute (LIHI) in order to retain their status as a Renewable Portfolio Standard (RPS) eligible facility.

DOER's proposal is unacceptable for the following reasons. 1. Removing a requirement for recertification from LIHI would effectively undermine a project operator's motivation to improve their systems and minimize their environmental impact over time. A qualified project would effectively receive a lifetime qualification regardless of any environmental changes or technological advances that would prompt updated conditions to protect river systems. 2. Eliminating the certification removes the assurance that negative environmental impacts continue to be minimized in the manner consistent with the Green Communities Act.

The Massachusetts Rivers Alliance and others are adamantly opposed to this change, as is NAMRA. See, e.g., <http://massriversalliance.org/action-alert-help-us-keep-environmental-standards-strong-for-hydropower/>

It does not appear to be a coincidence that LIHI is seeking to expand the projects that qualify for subsidies and certification at the same time that the Baker Administration is doing the same thing via loosening the RPS and APS standards. While we have not completed a thorough analysis of the interaction between the loosening of the Massachusetts RPS with regard to hydropower and the LIHI proposal and the move to expand the RPS and APS to include dirty energy like large hydropower, wood burning biomass and waste incineration, the trend is disturbing.

### Answers to 6 questions

1. Should LIHI change the cutoff date for new dams or diversions?  
NAMRA's response: No, there should be no change.
2. Is five years an appropriate timeframe to understand a new dam or diversion's impacts? The LIHI criteria fail to take into account lost habitat and other impacts and therefore the proposed five-year waiting period is inadequate to address the problems that would be caused by opening the LIHI program to new dams and diversions.
3. Should the new date be a specific date or rolling as suggested in the proposal?  
The new date should be a specific date.
4. Should other eligibility requirements be adjusted? Not at this time.
5. How should an applicant demonstrate net benefit to resource values? The term "net benefit to resource values" is vague and undefined in any meaningful way and fails to take into account current science and the climate crisis, including the recent U.N. report on extinction. There is no indication as to how this term will be further defined and applied. This term is not sufficiently meaningful or well defined to constitute a basis for judging the eligibility of new hydropower facilities. *This is particularly concerning because the LIHI makes no a priori distinction based on project size. The massive ecological and cultural destruction caused by large dams that would be eligible is documented to be totally*

*unacceptable*. See, e.g. *Sustainable hydropower in the 21<sup>st</sup> century*, Moran, E. et al., Michigan State University, PNAS, [www.pnas.org/cgi/doi/10.1073/pnas.180942615](http://www.pnas.org/cgi/doi/10.1073/pnas.180942615) At a minimum, LIHI should adopt the recommendations in this article.

6. Does the definition of Net Benefit (page 42 of 2d Edition Handbook) need to be adjusted? In the Handbook, the term “Net Benefit” is used only in relation to the “A-Plus” standard for ecological flows. Given that limited usage, this is not the appropriate forum to discuss the adequacy of the definition. If the question is meant in relation to the proposed modifications to Section 2.1.1 of the Handbook, our response to Question 5 applies.

NAMRA requests the opportunity to meet with LIHI’s staff in person to further discuss the concerns with the Proposal. Please contact Meg Sheehan at [coordinator.namra@gmail.com](mailto:coordinator.namra@gmail.com) or 508-259-9154 to arrange a convenient time to meet.

Very truly yours,



Margaret E. Sheehan, Esq.  
Coordinator, NAMRA

Enc.: 10 Reasons Why Climate Initiatives Should Not Include Large Hydropower

## **10 Reasons Why Climate Initiatives Should Not Include Large Hydropower Projects**

Courtesy of International Rivers updated by North American Megadams Resistance Alliance 6/2019

In 2015, 500 organizations from 85 countries issued *A Civil Society Manifesto for the Support of Real Climate Solutions*. <https://www.internationalrivers.org/node/9204> The Manifesto asserts that all climate and energy solutions must respect the rights and livelihoods of local communities. The 10 points are below, updated with new information in boldface.

1. According to a peer-reviewed study, methane from reservoirs accounts for [more than 4% of all human-caused climate change](#)— comparable to the climate impact of the aviation sector. In some cases, hydropower projects are producing [higher emissions than coal-fired power plants](#) generating the same amount of electricity. **Reservoir methane emissions are 25% higher than previously estimated and make up 75% of CO2e emissions.** Bridget R. Deemer, John A. Harrison, et al., *BioScience*, Vol. 66, Issue 11, 1 November 2016, Pages 949–964, <https://doi.org/10.1093/biosci/biw117>
2. Rivers take [about 200 million tons of carbon out of the atmosphere](#) every year. In addition, the silt that rivers like the Amazon, Congo, Ganges and Mekong carry to the sea feeds plankton and absorbs large amounts of carbon. Hydropower projects and other dams impair the role of rivers to act as global carbon sinks by disrupting the transport of silt and nutrients.
3. Hydropower dams make water and energy systems more vulnerable to climate change. Unprecedented floods are threatening the safety of dams: In the US alone, floods have caused [more than 100 dams to fail since 2010](#). Dam building has also exacerbated flood disasters in fragile mountain areas such as Uttarakhand in India. At the same time, the increasing frequency of extreme droughts makes hydropower economically risky and has greatly affected countries from Africa to Brazil that depend on hydropower dams for most of their electricity. **Since 2018, dam collapses in Laos and Brazil have killed hundreds of people and displaced thousands more.**
4. In contrast to most wind, solar and micro-hydropower projects, dams cause severe and often irreversible damage to critical ecosystems. Due to dam building and other factors, freshwater ecosystems have on average lost [76% of their populations since 1970](#) – more than marine and land-based ecosystems. **The May 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) reports 1 million species are threatened with extinction, including river and wetland species.** <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/> Canadian dams modify “the natural seasonal runoff by storing water for power production during the winter [which] interferes with the timing of the physical and dynamic balance of the coastal region” impacting marine life and climate. <https://www.sciencedirect.com/science/article/pii/S0025326X82904398>”. See also, 2016 report *Recent trends and variability in river discharge across northern Canada* ([www.hydrol-earth-syst-sci.net/20/4801/2016/](http://www.hydrol-earth-syst-sci.net/20/4801/2016/)) “Flow regulation also suppresses the natural variability of river discharge,

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particularly during cold seasons.” **Building more dams to protect ecosystems from climate change means sacrificing the planet’s arteries to protect her lungs.**

5. Large hydropower projects have serious impacts on local communities and often violate the rights of Indigenous peoples to their lands, territories, resources, governance, cultural integrity and free, prior informed consent. Dams have [displaced at least 40-80 million people](#) and have negatively affected an [estimated 472 million people living downstream](#). **Flooding for dams stimulates the production of the bioaccumulative toxin methylmercury which enters the food chain. Ninety percent of proposed Canadian hydroelectric projects may expose communities to methylmercury.**

<https://pubs.acs.org/doi/abs/10.1021/acs.est.6b04447> **The Three Gorges dam in China places populations at risk of methylmercury poisoning.**

<https://www.ncbi.nlm.nih.gov/m/pubmed/29965175/> The resistance of dam-affected communities has often been met with egregious human rights violations.

6. Large hydropower projects are not always an effective tool to expand energy access for poor people. In contrast to wind, solar and micro-hydropower, large hydropower dams depend on central electric grids, which are [not a cost-effective tool to reach rural populations](#), particularly in Sub-Saharan Africa and the Himalayas. Large hydropower projects are often built to meet the demands of mining and industrial projects, despite developers' claims that the energy is intended for the poor.

7. Even if they were a good solution in other ways, large hydropower projects would be a costly and time-consuming way to address the climate crisis. On average large dams experience [cost overruns of 96% and time overruns of 44%](#). **The cost of Canada’s Muskrat Falls dam has doubled to \$12.7 billion since approved in 2012.** <https://www.theglobeandmail.com/canada/article-audit-finds-muskrat-falls-cost-overruns-were-obvious-soon-after/> In comparison, wind and solar projects can be built more quickly and experience [average cost overruns of less than 10%](#).

8. Unlike wind and solar power, hydropower is no longer an innovative technology, and has not seen major technical breakthroughs in several decades. Unlike with solar power, climate funding for large hydropower projects will not bring about further economies of scale, and does not encourage a transfer of new technologies to Southern countries.

9. Wind and solar power have become [readily available and financially competitive](#), and have overtaken large hydropower in the addition of new capacity. As grids become smarter and the cost of battery storage drops, new hydropower projects are no longer needed to balance intermittent sources of renewable energy.

10. Hydropower projects currently make up [26% of all projects registered with the CDM](#), and absorb significant support from other climate initiatives. Climate finance for large hydropower projects crowds out support for real solutions such as wind, solar and micro hydropower, and creates the illusion of real climate action. Including large hydropower in climate initiatives falsely appears to obliterate the need for additional real climate solutions.