



23 December 2016

Expert Panel
Environmental Assessment Processes Review
By email: EAreview_participation@canada.ca

Re: Review of Canada Environmental Assessment Process

Dear Sirs:

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for several stewardships, organizations, and private and First Nation citizens, who have come together to protect, conserve and restore healthy river ecosystems.

ORA would like to thank the government for conducting this important review of the Canada Environmental Assessment (EA) process. Large infrastructure development has been greatly hampered due to a lack of trust and confidence in a very broken EA Act and process.

ORA is very pleased to offer our comments on key improvements that should be made to the current EA process, along with some recommendations of what is necessary to build trust and confidence.

What follows are a number of values and goals that would help lay a foundation of trust and confidence in a new and improved EA process:

ORA recommends the EA Process aligns with the following values and goals:

1. A healthy environment must be an inherent right, where we are assured that clean air, clean water, subsistence food security; and environmental and socio-economic interests are protected.
2. Ensure a project provides net benefits to local communities.
3. No region or community should bear an unreasonable share of the risks or costs.
4. Sustainability and protecting biodiversity must be keystones.
5. Effective cumulative environmental effects assessment.
6. A cultural way of life is not placed at risk.
7. Includes the possibility of a “no” outcome.
8. A hard line is taken on those that pollute.
9. The UN Declaration on the Rights of Indigenous Peoples has been endorsed by this government, so it must abide by its requirement and promise of free prior and informed consent.
10. Open, transparent and accountable in all aspects of planning, development, monitoring and compliance is assured.



11. Ministers are held accountable for ignoring science, evidence, best practices, and Indigenous and basic human rights.
12. Governments and industry are held accountable for their action or inaction.

ORA recommends the EA Process include the following considerations:

1. Address all energy projects that would have an impact on water:
 - a. Hydroelectric;
 - b. Transmission lines;
 - c. Pipelines; and
 - d. Rail transport of petroleum products.
2. An EA must be credible and accountable, instilling trust and respect.
3. Hydroelectric must undergo the highest level of review as it is very site specific, is not routine or predictable, and can result in numerous negative impacts.
4. GHG emissions coming from hydroelectric reservoirs must be acknowledged and accounted for in the EA process, as well as any Carbon Tax/Cap and Trade programs.
5. Ensure meaningful open and transparent consultation that embraces input, questions, and the best interests of communities.
6. Ensure user friendly and accessible documentation is made available online.
7. Comment periods should be increased to a minimum of 60 to 90 days.
8. Intervenor funding must be provided for fair and inclusive participation in the review and hearing process.
9. Conserving and protecting natural infrastructure must be a priority.
10. Projects are assessed and weighed using arms-length independent 3rd party science-based evidence, managed by the regulator and paid for by the proponent.
11. Application must be complete, including an Emergency Response Plan, before it proceeds to regulatory and public review.
12. Net environmental, social and economic impacts, benefits, risks and uncertainties to local communities must be weighed using a science-based ecosystem approach.
13. Application must include options with minimal risk to local communities and the environment.
14. Robust monitoring, adaptive management, reporting, compliance and enforcement by an arms-length independent 3rd party, and paid for by the proponent, for the life and eventual decommissioning of a project.
15. Sufficient up-front funds secured in the event of a failure that impacts on public safety, the environment, or food or water security.
16. Indigenous Traditional Knowledge is included as a key component of an EA.
17. Federal regulatory oversight over provincial regulators to ensure the health of its citizens and the environment are protected, and our indigenous and human rights are upheld.
18. The National Energy Board should be abandoned, and all environmental assessments and approvals fall under the Ministry of Environment and Climate Change.
19. Must include a Right to Appeal that is accessible and affordable.
20. Effective upstream and downstream fish passage must be a requirement of approval.
21. Up-front decommissioning provisions of hydroelectric dams must be a requirement of approval.



Background Information

What is Working:

This Environmental Assessment (EA) Review is the best we can point to in this regard, as well as the important fact that funding is being provided to stakeholders to facilitate participation.

What is not Working:

There are many aspects of the current EA process that are not working, as follows:

1. Trust and confidence is undermined when
 - a. Industry and government use unscrupulous lobbying practices (i.e., National Energy Board regulators were recently caught facilitating and even promoting the Energy East Pipeline project);
 - b. Sample results, spill reports, and other key information is withheld from stakeholders;
2. Corporate initiatives are given priority over local public and First Nation interests (i.e., Muskrat Falls and Site C);
3. The well-being and livelihoods of entire communities are often sacrificed for government and/or corporate gain;
4. Cumulative effects are not meaningfully addressed;
5. Negative environmental effects are ignored or downplayed;
6. Science and best practices are often ignored;
7. Narrowly focused studies offer tailored and often misleading results;
8. Jobs and profits often trump environmental protection;
9. First Nation land, food and water security and rights are often pushed aside to advance a project; and
10. No fish passage or dam decommissioning provisions have been required here in Ontario.

It sounds like I'm talking about a 3rd World Country, but, sadly no, it is Canada that is guilty of these infractions against our environment, and the public interest.

Trust and Confidence Undermined:

When the Canadian Environmental Assessment Act was repealed in 2012, over 3,000 EAs were immediately dropped, online access to numerous project documents was lost, and we were left with a very streamlined, fast-tracked and weakened process. The scope of an EA was narrowed so that:

- Many environmental protections for water were lost;
- An EA was no longer triggered by interference with waterways;
- An EA was no longer required for pipelines or transmission lines; and
- Most significant was the loss of mitigation of the serious impacts on water.

The Navigable Waters Protection Act and the Fisheries Act are other important protective pieces of legislation that were also gutted at that time. As a result, 90% of our lakes and rivers, and fish habitat, are no longer protected by federal legislation.



One of the reasons given for these draconian measures was to remove the regulatory hurdles to more easily and quickly get the shovels in the ground. However, streamlining and fast-tracking of policy and process only undermines trust and confidence in the entire process, and ultimately opposition brought large infrastructure development to a grinding halt on many proposed projects.

Most importantly, trust and confidence is undermined when governments misrepresent the facts. For example, Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy¹, includes hydroelectric in all scenarios of its Pan-Canadian framework as a clean energy technology utilized to help reduce GHG emissions. As a matter of fact, the document goes so far as to state, "*Canada already has one of the cleanest electricity systems in the world, with more than 80% of electricity generated from sources that do not produce greenhouse gas emissions such as hydro, wind, solar, and nuclear power. Canadian rivers provide immense hydroelectric generating capability, and Canada is second largest producer of hydroelectricity globally.*"² This is blatantly untrue! Trust and confidence are undermined with such a misleading and disappointing claim.

The truth is that hydroelectric facilities harm the environment³ and, when headponds or reservoirs are flooded, can produce significant amounts of carbon dioxide and methane for decades, and possibly centuries.^{4,5} This important and well-studied fact has not even been acknowledged, let alone accounted for, in your Pan-Canadian Framework, even though a 2004 Environment Canada document reports,

In contrast to the widespread assumption (e.g., in Intergovernmental Panel on Climate Change scenarios) that GHGs emitted from reservoirs are negligible, measurements made in boreal and tropical regions indicate they can be substantial^{6,7,8}

This is the type of approach that undermines trust and confidence in an entire government, not to mention the process, or the projects it has been assigned to assess and approve.

It's important to note that generally hydroelectric that produces power for peak demand relies heavily on reservoirs to store water. Flooding landscapes to create reservoirs causes flooded vegetation and soils to decompose, and for sediment to accumulate behind the dam, resulting in significant net emissions of methane into the atmosphere for decades and possibly centuries following flooding.^{9,10}

Methane is a potent greenhouse gas with a heat trapping capacity 34 times greater than that of carbon dioxide on a 100 year time scale.¹¹ Methane is generated in reservoirs from bacteria living in oxygen-starved environments. "*These microbes eat organic carbon from plants for energy, just like people and other animals, but instead of breathing out carbon dioxide, they breathe out methane.*"¹² River networks with high nutrient and sediment loading from agricultural or wastewater effluent provides microbial communities with a large source of carbon that can deplete sediment oxygen and fuel methane production. Algal blooms from excessive nutrient loading can further enrich reservoir sediments.¹³

The effect of damming on emissions conducted in a central European impounded river revealed that the reservoir reaches are a major source of methane emissions and that areal emission rates far exceed previous estimates for temperate reservoirs or rivers. It showed that sediment accumulation correlates with methane production and subsequent ebullitive release rates.



Results suggested that sedimentation-driven methane emissions from dammed river hot spot sites can potentially increase global freshwater emissions by up to 7%.¹⁴

A very recent study from Washington State University looked at over 100 studies on more than 250 reservoirs and reported that they contribute approximately 1.3% of world GHG emissions annually – more than all the emissions from Canada alone in one year. A number of these papers compare reservoir GHG emissions to those of the natural gas combined cycle.¹⁵

It isn't surprising that there is no appetite for recognizing hydroelectric reservoirs as a source of GHG emissions because it is a leading source of power generation in this country, and Canada is the 2nd largest producer of hydroelectric power in the world. Cap and Trade purports to cut GHG emissions, but a lot is at stake for provinces like Quebec, Ontario and BC that have a lot of hydropower in their energy mix.

ORA questions what will happen when eventually hydroelectric with reservoirs are held accountable for the methane they emit. It is irresponsible for governments to forge ahead with increased hydroelectric when it is well known that their reservoirs are producing significant amounts of methane and fueling climate change. This is unacceptable - it is crucial that the government acknowledges and accounts for the methane emissions coming from reservoirs.

The EA process, and all pertinent federal government programs and reports must acknowledge and account for the GHG emissions coming from hydroelectric reservoirs.

Methylmercury Contamination:

New reservoir flooding also accelerates the bioaccumulation of methylmercury, and these effects can persist for 20 to 30 years or more.^{16,17}

For instance, a 2016 Harvard University study found that.

Microbial production of the bioaccumulative neurotoxin methylmercury (MeHg) is stimulated in newly flooded soils by degradation of labile organic carbon and associated changes in geochemical conditions. We find all 22 Canadian hydroelectric facilities being considered for near-term development are located within 100 km of indigenous communities. For a facility in Labrador, Canada (Muskrat Falls) with planned completion in 2017, we probabilistically modeled peak MeHg enrichment relative to measured baseline conditions in the river to be impounded, downstream estuary, locally harvested fish, birds and seals, and three Inuit communities. Results show a projected 10-fold increase in riverine MeHg levels and a 2.6-fold increase in estuarine surface waters. MeHg concentrations in locally caught species increase 1.3 to 10-fold depending on time spent foraging in different environments. Mean Inuit MeHg exposure is forecasted to double following flooding and over half of the women of childbearing age and young children in the most northern community are projected to exceed the U.S. EPA's reference dose. Equal or greater aqueous MeHg concentrations relative to Muskrat Falls are forecasted for 11 sites across Canada, suggesting the need for mitigation measures prior to flooding.”¹⁸

Creating new reservoirs without removing all vegetation and soil can result in a dramatic tenfold increase in methylmercury contamination of aquatic life and this effect is widely acknowledged



to last for a generation or more. This can have devastating health consequences for northern and remote communities relying on fish, seals, etc., as a main staple in their diets.

The negative impacts of MeHg exposure on neurodevelopment are well-established, and exposure has also been significantly associated with cardiovascular risk factors. Acute MeHg toxicity is associated with widespread neurological disorders, paresthesia and ataxia, as well as attention deficit/hyperactivity disorder.

It is suggested that reducing environmental methylmercury concentrations associated with hydroelectric flooding should be prioritized as a mitigation measure. For example, soil organic carbon content could be used as a screening criterion for site selection, or reservoirs could be designed to minimize flooded area, or removal of organic carbon (soil, vegetation and trees) from the planned reservoir regions prior to flooding.¹⁹

In attempts to mitigate these effects, ORA is not aware of a project where all of the vegetation and soil have ever been removed from a reservoir before it was filled. It is essential that this is a requirement in any new EA process.

Other Impacts of Hydroelectric:

Dams and their associated reservoirs are also the leading cause for fish species decline, degraded water quality, and numerous other negative impacts. They also impact on many kilometers of a riverine ecosystem, both upstream and downstream, and are literally privatized and under the control of hydroelectric operators. Another Environment Canada report describes the impact of dams, diversions and climate change:

Most of our current knowledge of the impacts of hydrological changes on water quality is based on studies of the effects of Canada's more than 600 dams and 60 large inter-basin diversions, which makes the nation a world leader in water diversion²⁰. Most Canadian dams store water during peak flow periods and release flow to generate power during winter, low-flow periods. Such changes to water quantity also modify various water quality parameters within the reservoir and downstream, the effects decreasing with distance from the impoundment. Major examples include: thermal stratification within the reservoir and modification of downstream water temperatures; eutrophication; promotion of anoxic conditions in hypolimnetic water and related changes in metal concentrations in outflow; increased methylation of mercury; sediment retention; associated changes in total dissolved solids, turbidity and nutrients in the reservoir and discharged water; increased erosion/deposition of downstream sediments and associated contaminants. For impoundments used for drinking water, intra-storage processes also have serious implications for the quality of drinking water.²¹

Sustainability:

The hydro lobby is very powerful and deep pocketed, and has gone to great lengths to undermine and debunk studies that clearly demonstrate the significant contribution that reservoirs make to total world GHG emissions.²² Shifts in water temperature, or the availability of fresh water due to climate change could lead to reductions in electricity production capacity in more than two thirds of the world's power plants between 2040 and 2069, said a study from an Austrian research centre. In fact, Keywan Riahi, Director of the Energy Program at the



International Institute for Applied Systems Analysis says, “*power plants are not only causing climate change, but they might also be affected in major ways by climate*”.²³

According to a new NASA and National Science Foundation funded study of more than half of the world’s freshwater supply, climate change is rapidly warming lakes around the world, threatening freshwater supplies and ecosystems. The rate of warming is faster than either the ocean or the atmosphere²⁴, with even greater warming in northern Canada²⁵. As warming rates increase over the next century, algal blooms, which can rob water of oxygen, are projected to increase 20 percent in lakes, and emissions of methane will increase by 4 percent over the next decade.²⁶ Additionally, new studies are reporting on the increased evaporation rates from reservoirs²⁷, and there are increasing reports from around the globe of rivers and lakes drying up. Consequently, a rapidly changing climate may not support the hydro facilities we already have,²⁸ let alone support the notion that more hydroelectric dams and reservoirs are a good idea.

In fact, the World Economic Forum in its "Global Risks 2015" report lists "water crises" as its number one global risk in terms of impact – beating out the rapid spread of infectious disease, weapons of mass destruction, and failure of climate-change adaptation.²⁹

In addition, hydroelectric projects often overestimate economic benefits, and underestimate the far-reaching effects on biodiversity and critically important fisheries. Current site-specific assessments largely ignore cumulative impacts on hydrology and ecosystem services, in favour of profits, and to the detriment of the environment and stakeholders.

The obvious need for provision of safe and effective fish passage and fish friendly turbines at waterpower facilities has also been largely ignored in Ontario, by both the federal and provincial governments³⁰, where there are currently only 2 or 3 fish bypasses installed at hydroelectric facilities across the province. There are also no up-front dam decommissioning provisions required when a new or upgraded waterpower facility is approved – unlike in the mining industry where a mining company cannot commence or recommence mining operations until a certified Closure Plan and the associated Financial Assurance are in place.³¹

ORA questions the label of “renewable” for hydroelectric that uses reservoirs when water quality, habitat and fisheries are degraded, and when water in its reservoirs is lost through evaporation.³²

Although storage of water in reservoirs increases evaporation, the total effect cannot be estimated because information about reservoir areas and water depths is lacking. Greatest losses occur in shallow reservoirs and where dams have been constructed in hydro-climatic zones characterized by naturally high rates of lake evaporation (den Hartog and Ferguson, 1978), such as Lake Diefenbaker in the central Prairies (e.g., Canada-Saskatchewan, 1991).³³

Hydroelectric facilities should not be an “*eligible renewable energy resource if it will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow*”.³⁴ Hydroelectric can cause major damage to fish and wildlife, water quality, communities and businesses that rely on healthy rivers, and it is the only “renewable” energy source that can drive species toward extinction.



It would be prudent to look to the US where the attitude towards dams is very different, and obsolete dams are being removed at a rapid pace. In 2014 alone, 72 dams were removed and, to date, 1,185 dams have been removed across the US. "*Dam removal brings a variety of benefits to local communities, including restoring river health and clean water, revitalizing fish and wildlife, improving public safety and recreation, and enhancing local economies.*"³⁵ This is happening now, because there is a growing awareness that our future is reliant on the life and health of our rivers.

It is imperative that a renewed EA process recognize the dirty side of hydroelectric, and stop calling it a "clean" renewable energy.

Transmission Lines:

The effect of a new transmission line on an area may depend on the topography, land cover, and existing land uses; but can impact on many kilometers of natural forest and habitat, as well as agricultural land and water resources, and opens up access to remote areas, archaeological sites, and endangered species. In forested areas for example, the entire right-of-way (ROW) width is cleared and maintained free of tall-growing trees for the life of the transmission line. The result is a permanent change to the ROW land cover. Where transmission lines are routed through areas that are valued for their scenic qualities, the visual impacts of the line (the area affected) may extend well beyond the right of way.

It is important that transmission lines are considered through a comprehensive EA process.

Indigenous Rights Trampled Upon:

The Muskrat Falls Hydroelectric Project is proposed to have a reservoir 59 km long and flood 101 km², upstream from 2,000 Inuit who rely heavily on fish and seal meat. Methylmercury levels will increase up to 4.8 times, and the effects could last for 15 to 35 years or more – not to mention the methane they will emit.

A Joint Review Panel recommended the full clearing of all vegetation and soils, but the recommendations have been ignored by the proponent and the regulators. It's a travesty that a hunger strike and protests are necessary to defend their culture, their way of life or their right to food security. We are talking about unceded land, and those governments that are allowing this to happen, or are facilitating it, are committing an act of aggression.

Then there is the Site-C Hydro Project, which will have a reservoir 83 km long and flood 93 km². It is the 3rd of 4 major dams on the Peace River; and there is currently a legal challenge by Treaty 8 First Nations and landowners to try to stop its construction. Yet the project continues to march forward.

The cold reality is that there are many new hydroelectric projects underway, and governments are trampling on Indigenous and human rights in the process. The sad truth is that communities have to pursue justice through the courts for:

- Mercury poisoning;
- Loss of clean and healthy water; and the
- Loss of control over traditional territory.



A good example of this is the Grassy Narrows First Nation, where a pulp & paper mill dumped 10 tons of mercury into Wabigoon-English River between 1962 and 1970. It contaminated lakes and rivers for over 250 km downstream, and it's still contaminated, with no clean-up or plan to do so – only more monitoring.

The Grassy Narrows people have had serious ongoing health impacts since the 70's because of this tragedy, and it looks like it will go on for many more generations unless action is taken now. Any new EA must ensure monitoring, reporting, compliance and enforcement which would continue for the life and eventual decommissioning of any project.

If the government wants to build trust and confidence in the EA process it must be congruent with Canadian values. Citizens want to know that our government regulators have our backs, and are protecting our interests from corporate irresponsibility and greed.

Oil Transport by Pipeline and Rail:

Whether crude oil is released through a train derailment or a pipeline breach, it is a very destructive pollutant that can persist in the environment and impact on a community's drinking water, fisheries, and economies for many years. After a breach, especially when freshwater is impacted, clean-up and recovery of oil has a very poor track record.

It is also essential that when a spill does occur that all spill, on-site tests and inspection reports are fully open and accessible to the public and stakeholders. This is not the case with the recent massive Husky Energy pipeline oil spill near the Battlefords, Saskatchewan, where the government has refused to release the spill reports, even against the insistence of the privacy commissioner. This is just another instance where trust and confidence is undermined and massive resistance to pipelines is seeded.

ORA has been awarded Intervenor Status on the Energy East Pipeline review; however, it has been very disappointing on many levels, particularly when the review process was initiated before the application was complete. ORA considers the application to still be incomplete when there is no Emergency Response Plan available for the public to review. This is unacceptable as it is a key consideration for stakeholders concerned about the safety and protection of fresh water resources, and their environment.

Additionally, oil sands extraction projects are still receiving approvals to operate for 40 or 50 years into the future, and to build pipelines that will facilitate an increase in production and the resulting GHG emissions. This is at the same time as this government was signing the Paris Climate Deal to limit the increase of GHG emissions to 1.5°C above pre-industrial levels.

Confidence and trust is undermined when the government is purporting to reduce GHG emissions, at taxpayers' expense, when there are no authentic and meaningful mitigation efforts reflected in its Pan-Canadian Climate Action Plan for a Clean Energy Future.

Rebuilding trust and confidence is simple, and at the same time challenging, because it is necessary to walk your talk and make decisions that are congruent with what you say you are trying to achieve. Decisions must be based on science and facts, instead of other political or economic motivations and priorities. As long as the public has no trust in the integrity of the process there will be a great deal of mistrust and opposition.



Consultation:

Consultation has to be more than just a Public Information Centre (PIC), where everyone stands around looking at panels of information, and questions are asked and answers given in isolation of others in attendance.

Consultation should mean rolling up your sleeves and sitting down in a forum style meeting where issues and concerns are aired and discussed, and answers formulated with the intent of satisfying those concerns. PICs are not consultation sessions, they are designed to inform of the inevitable, with at most a few slight modifications.

Additionally, the public is often expected to review hundreds of pages of technical documents within a 30-day comment period; however, this is an unreasonably short time for citizens to properly review a complex environmental report or application, and to formulate an informed position. ORA suggests that a minimum 60 to 90-day comment period would be much more reasonable.

Conclusion

Our experience in Ontario is that the Department of Oceans and Fisheries defer to the will of the provincial regulators, which should be the other way around. We need our federal government to set a high standard that will be followed by the provincial players. Both the federal and provincial governments have gone through an intensive streamlining process which has undermined confidence in their ability to effectively review applications and Environmental Reports, let alone adequately monitor and enforce the conditions of approvals. Consequently, environmental protections have become very lacking in these streamlined and broken processes.

It is essential that the federal government provide regulatory oversight of the various provincial governments to ensure that the health of its citizens and the environment are protected, and our indigenous and human rights are upheld.

Climate change is real, but it's time for Canada to make some significant overarching improvements to our environmental and human rights protections. Let's put politics aside and tackle the issues with integrity and authenticity. These measures would lead to a win-win for everyone, and create a cleaner and healthier world for all life!

A new and revised Environmental Assessment process should ensure a citizens' right to a healthy environment. ORA respectfully requests that our recommendations be incorporated into a new and more robust EA process. We would be pleased to meet with your Panel to discuss our recommendations further.

Respectfully,

Linda Heron
Chair, Ontario Rivers Alliance



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³² *Hydro Power's Dirty Side*, Montreal Gazette, by William Marsden, Postmedia News April 15, 2011.

³³ Environment Canada. 2004. *Threats to Water Availability in Canada*. National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 3 and ACSD Science Assessment Series No. 1. 128 p.

³⁴ *California Public Utilities Code Section 399.12, Section (1)(A)*.

³⁵ *American Rivers – Comprehensive List of Dams Removed, 1998-2014*