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The Honourable Michael Gravelle
Minister of Natural Resources
Suite 6630, 6th Floor, Whitney Block
99 Wellesley Street West
Toronto, ON M7A1W3
Email: Minister.mnr@ontario.ca

Dear Minister Gravelle:

**Re: Economic Impact of Waterpower Projects on Crown Lands in Ontario
Report by AECOM**

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization with a focus on healthy river ecosystems all across Ontario. ORA members represent numerous organizations such as the French River Delta Association, Vermilion River Stewardship, CPAWS-Ottawa Valley, Friends of Temagami, Paddle Canada, Whitewater Ontario, along with many other stewardships, associations, and private and First Nations citizens, who have come together to support healthy river ecosystems in Ontario and to ensure that development affecting Ontario rivers is environmentally, ecologically and socially sustainable.

ORA wishes to comment on the report, Economic Impact of Waterpower Projects on Crown Lands in Ontario (Report), commissioned by Ontario Ministry of Natural Resources (MNR) and prepared by AECOM Canada Ltd.

1. Incomplete Information:

At the beginning of the Report, the consultant absolves himself of responsibility for its accuracy, based on the "*accuracy and completeness of information that was provided to it and shall have no obligation to update such information.*"¹ Our research of available public sources indicates that the consultant may have been working with incorrect and incomplete information to reach his conclusions in this Report.

¹ Economic Impact of Waterpower Projects on Crown Lands in Ontario, Statement of Qualifications & Limitations

2. Actual Capacity Factors:

In this Report, it states that “*efficiency relative to nameplate capacity – has been set at 55% for all projects.*”² It also states this figure was derived from, “*OPA estimates that the operating efficiency of small waterpower projects is in a range of 50% to 60%.*”³ The only example given in the Report is that of the Pic River First Nation’s run of river projects, and so it seems the assumption is made that these 41 waterpower projects are all run of river with a 55% efficiency rating. However, of the several waterpower proposals ORA has reviewed, all but a very few have proven to be run of river, as most have storage capacity, which denotes a peaking facility. The truth of the matter is that small waterpower projects can vary widely in operating strategies, ranging from run of river to cycling and peaking plants – therefore it is very difficult to set a blanket efficiency rating for all. An IESO report states, “*hydroelectric facilities with water storage capability are considered "peaking" plants. They are designed to run to meet electrical demand when it is at its highest. These plants would typically have "Actual Capacity Factors" of 10% - 30%.*”⁴

Run of river projects with no storage capacity uses river flow to constantly generate electricity even when it is not required. This will result in an increase in Ontario’s surplus of base load generation which is then sold at a price well below the contract price paid to suppliers. ORA submits that an increase in run of river projects does not make business sense in any way. Purchasing power at high prices and selling at low prices is not economically sustainable.

Based on the IESO statement that peaking facilities would typically have an actual capacity factor of 10% to 30%, we will be generous and use a 30% capacity figure to calculate the output of all 41 projects, which would amount to 448,074 MWh – or \$58,697,694 in revenue. The Report, using its 55% capacity factor, estimates 821,806 MWh, producing \$107,656,586 in revenue.⁵ This indicates a 46% drop in revenue and associated provincial charges after the 10 year GRC tax holiday. Obviously some of these smaller proposals don’t make any economic sense with a 46% drop in capacity and revenues.

Using a 55% efficiency rating for all 41 projects significantly inflates results.

3. Tourism and Recreation:

This Report has also ignored the impacts on local tourism in northern Ontario. Ontario’s Smart Growth - Northeastern Ontario’s Tourism Report (OSG), indicates, “*In 2000, tourism was the fourth largest sector in northeastern Ontario, accounting for over 20,000 direct and 17,000 indirect and induced jobs. Over one-quarter of all businesses in the northeast are tourism related, and the Ministry of Tourism and Recreation estimates that visitor expenditures in northeastern Ontario reached \$1.3 billion in 2000.*”⁶ That’s a lot of revenue and a lot of jobs at risk.

² Economic Impact of Waterpower Projects on Crown Lands in Ontario, P-4

³ Economic Impact of Waterpower Projects on Crown Lands in Ontario, P-12

⁴ IESO Monthly Generator Disclosure Report, (May 2002-June 2008)

⁵ Economic Impact of Waterpower Projects on Crown Lands in Ontario, P 12-13

⁶ Ontario Smart Growth – Northeastern Ontario Smart Growth Panel, Final Report, Spring 2003, P-17

There are a large number of small tourist outfitters throughout Ontario that are dependent on our undisturbed natural resources and healthy river ecosystems. Tourists don't travel for hundreds and sometimes thousands of miles to visit where the fish, wildlife, and pristine beauty used to be.

The loss of these water recreation areas would have a major impact on tourism and local economies and the benefits derived. For instance, recreational fisheries contribute \$2.5 billion annually to Ontario's economy and commercial fisheries another \$250 million. There was no attempt to address these costs, so the report is sadly deficient and biased in this regard.

4. Job Creation – Grossly Exaggerated:

The Report boasts, "*Approximately 9,900 full time equivalent (FTE) jobs are created by all 41 projects from initial development through to the end of operations.*"⁷ Our research reveals that this number is grossly exaggerated.

Two major projects are presently under construction in northeastern Ontario:

- OPG Lower Mattagami River Project – expanding capacity from 486 MW to 924 MW, an increase of 440 MW – reports "*approximately 600 people will work on the project annually, with a peak of over 800, during the five years of construction*"⁸ or 1.84 jobs per MW.
- Hydromega Services Inc. – Four new hydroelectric generating stations on the Kapuskasing River - equaling a total of 22 MW – creating "*between 50 and 70 jobs*"⁹. Using an average of 60 jobs, this works out to 2.72 jobs per MW created.

Using Hydromega data, the 41 projects would create 464 jobs during the construction phase, and using a multiplier of 1.5¹⁰ for induced and indirect jobs, they would create a total of 696 jobs, rather than the 9,900 reported in this Report.

Based on this information, it appears that the total jobs created after construction in northern Ontario would equal .01 jobs per MW. So that would mean we could expect a total of 17 full time jobs throughout northern Ontario per year, or over 23 years a total of 391 full time equivalent jobs. This reinforces the typical boom and bust cycle for northern Ontario communities.

Hydromega's job posting¹¹, was for 2 generating station operators, and similarly, according to the Report, "2 jobs are created for operations"¹² after construction in the local and regional area. Several of the 41 projects listed are actually cascading facilities of 2, 3 or 4 hydroelectric dams grouped as one project - so there would only be 2 full time station operator jobs required for each project. It is unclear whether these

⁷ Economic Impact of Waterpower Projects on Crown Lands in Ontario, P-15

⁸ News from Ontario Power Generation – June 7, 2010, P-2

⁹ The Northern Voice, Volume 13, Issue #36, March 9, 2012 - Dam Big Project, Hydromega work underway on all four dams, P-3

¹⁰ Xeneca used this multiplier on their Big Eddy, Petawawa River PIC Panels – Direct job creation (construction only) is 10,000 person hours per MW. Indirect jobs multiply by 1.5.

¹¹ Hydromega's Job Posting no. 2012-04

¹² Economic Impact of Waterpower Projects on Crown Lands in Ontario, P-21

cascading projects were taken into account when estimating the number of long-term full time jobs.

5. Subsidized Electricity Rates and Projected Job Losses:

Tourism, our fourth largest economic driver, will also be affected as consumers have less and less disposable income due to the high costs of electricity. The Fraser Institute reports, that the “feed-in tariffs” (FITs) program that guarantee electricity producers attractive prices, and other incentives and subsidies that are being pursued without regard to cost, could create some new jobs, but would be offset. *“The huge loss consumers will take on account of higher electricity costs resulting from the FIT program means that less of their income will be available for spending on other goods and services. This direct loss of income available for discretionary spending will have a substantial impact for employment in Ontario.”*¹³

*“According to our assessment of the results of this analysis, a drop in consumer spending of \$285 million in a given year would lower Ontario’s Gross Domestic Product (GDP) by \$207 million (at basic prices) and, at the same time result in the loss of 2,197 full-time-equivalent (FTE) jobs in Ontario (Statistics Canada, 2011). The loss of employment in Ontario and the reduction in spending that it produces will have a negative impact on employment in other parts of the country that produce goods and services (including tourism) that Ontarions typically purchase. Consequently, as many as 2,556 full-time-equivalent job positions could be lost in Canada as a whole in a given year.”*¹⁴ This applies to all FIT contracts.

These 41 hydroelectric projects represent 8% of the total FIT contracts, which would indicate they would be responsible for the loss of 176 jobs in Ontario per year, or 4,048 jobs over the 23 year period in Ontario. As our northern Ontario economic base is mining and forestry, which are high users of electricity, we anticipate *“higher electricity costs will impinge on the ability of Ontario manufacturers to compete and some, whose energy costs represents a large portion of production costs, may be forced to shut down or to relocate to regions such as Quebec and Manitoba, where there are appreciable lower electricity costs.”*¹⁵ We have already seen this outmigration happening in the north, with pulp mills closing and moving to other provinces where power is cheaper – this has resulted in numerous job losses in the north.

Jobs Created:

| | |
|------------------------------|---------------------|
| Temporary Construction Jobs: | 696 |
| Full time | 391 |
| Total jobs created | 1,087 |
| Full Time Job Losses: | 4,048 |
| <u>Net job loss</u> | <u>2,961</u> |

The forestry sector during the initial construction phase may well see a temporary increase in jobs as they assist in road building and clearing of headponds; however, the long term effect on forestry may be a different story. The implications of Ontario’s

¹³ A Sensible Strategy for Renewable Energy, Fraser Institute, P-65

¹⁴ A Sensible Strategy for Renewable Energy, Fraser Institute, P-66

¹⁵ A Sensible Strategy for Renewable Energy, Fraser Institute, P-65

heavily subsidized electrical rates on the forestry industry over the 23 year term of the Report could have a negative impact on forestry and employment levels. To truly represent the costs to our Ontario economy and taxpayers, electricity subsidies must be figured into this Report. As Jan Carr, former CEO of Ontario Power Authority (OPA) points out, *“While job creation is a major goal of the FIT program, with 50,000 jobs projected over six years, those jobs would be heavily subsidized by electricity users paying premiums for renewable energy. Taking the province-wide cost estimates above, and the government’s job creation estimates at face value, we estimate the subsidy to be \$179,000 per job per year. These estimates of the number of jobs – in construction, manufacturing and spinoffs – do not take into account two countervailing effects. First, many of the people who would be employed by these projects would have had jobs anyway, meaning that jobs created from subsidies will have crowded out other jobs. Second, the higher electricity costs will raise business costs, resulting in fewer jobs than would otherwise have been created in the broader economy. The net number of jobs created therefore may be negative.”*¹⁶

This Report and computer model do not consider these factors therefore the final figures are distorted - GDP, job creation and job loss - resulting in a report that is grossly inaccurate and misleading.

6. Surplus Generation:

It is well documented that Ontario has surplus generation. In a report by George Vegh, Chair of the Electricity market Forum, he stated, *“The supply-side challenge now is therefore not driven by the need to procure new generation capacity, but to manage supply to meet the needs of electricity customers”*, and *“under the Medium Growth scenario, the forecast for demand is flat and it is not until 2027 that peak demand is expected to grow by 1,000 MW. Even under the High Growth scenario, peak demand does not grow by 1,000 MW until 2022. Under the Low Growth scenario – which appears to be higher than where demand is trending – peak demand does not increase by 1000 MW prior to the end of the Plan term (2030).”*¹⁷ Based on the economic principle of the law of supply and demand, clearly these proposed projects could be underutilized, inefficient, and heavily subsidized, and could potentially damage Ontario’s economy as a whole.

Upon review of the second quarter Financial and Operational Highlights ending in June 2012 for Ontario Power Generation (OPG), the average sales price for regulated and unregulated hydroelectric on OPG assets has dropped from 3.7 cents/kw in 2010¹⁸ to 3.5 cents/kw for regulated and 2 cents/kw¹⁹ for unregulated in the first 6 months of 2012. *“The decrease in net income of \$65 million during the six months ended June 30, 2012 compared to the same period in 2011 was primarily due to lower electricity spot market prices and lower unregulated hydroelectric production.”*²⁰ This is a direct loss to provincial revenue, in response to a surplus supply.

¹⁶ Zapped: The High Cost of Ontario's Renewable Electricity Subsidies, P-4

¹⁷ Reconnecting Supply and Demand, How Improving Electricity Pricing can Help Integrate a Changing Supply Mix, Increase Efficiency and Empower Customers, Report of the Chair of the Electricity Market Forum, George Vegh, December 2011, P-3 and 4.

¹⁸ OPG Reports –March 2011, Financial and Operational Highlights – P-5

¹⁹ OPG Reports –August 2012, Financial and Operational Highlights Results – P-4

²⁰ OPG Reports – August 2012, Financial and Operational Highlights - Overview of Results, P-2

It is also interesting to note that the average revenue for all other electricity generators from 2010 to 2012 has increased from 6.5 cents/kwh²¹ to 9.2 cents/kwh²². It appears that OPG is taking the hit to cover the ever-increasing payments made to other private electricity generators.

The Report does not factor in the economic effect of surplus generation, nor does it factor in the material damage to OPG, a public asset, due to increasing subsidized payments and reducing OPG's revenue stream.

7. Public Health and Safety:

Most of these 41 hydroelectric facilities will use peaking and cycling operating strategies, resulting in frequent and extreme surges in water flow velocity and levels, leaving many kilometers of the downstream zone of influence and beyond unsafe for public water recreation activities such as swimming, fishing, and canoeing, and the constantly changing water levels and pulsing/surges will result in unstable ice conditions, and have negative impacts on winter recreation such as ice fishing, cross country skiing, and snowmobiling. Therefore, many of these facilities could negatively impact visitor expenditures on tourism, outfitters, and other owner/operated businesses, and threaten thousands of local jobs per year.

Cycling and peaking facilities use holding ponds to store water for release during peak demand hours. These newly inundated areas can be expected to result in an increase in methylmercury production for the first 5 to 10 years, creating increased mercury levels in fish tissue of upwards to 7 times the baseline, and these impacts can be felt for 100 km or more downstream of the facility. Most of these dams will be built upstream of public water intakes, First Nations communities, and shoreline residents who rely on fish as a main staple in their diets. This would also be a loss that is difficult to assess, and certainly was not addressed in this Report.

It is also important to consider the threat to public drinking water. Most of these rivers run through communities where effluent is released into the rivers, as in Sudbury, where there are nine wastewater treatment facilities releasing treated, untreated and undertreated water into the watershed, as well as a thriving mining and smelting industry. Water exposed to solar absorption and warming in headponds for hours and, sometimes for days during the low flow summer and fall months, combined with wastewater effluent, is the perfect environment for blue-green algae and contaminated water. Blue-green algae are known to cause respiratory illness, skin irritation and diarrhea and tend to flourish when water is warm and polluted with excess nutrients. These algal blooms can be highly toxic and threaten health, harm fish and wildlife and increase drinking water treatment costs for our communities.

8. Environmental Costs:

The negative impacts of these types of hydroelectric projects are substantial and well documented. The costs associated with declining fish populations, habitat loss and fragmentation, pressures on endangered species and other aquatic life, diminished

²¹ OPG Reports –March 2011, Financial and Operational Highlights – P-5

²² OPG Reports –August 2012, Financial and Operational Highlights Results – P-4

water quality and quantity, increased mercury levels in fish tissue, changes in thermal regimes, and fish mortality due to turbines.

Many of these serious, ongoing and highly cumulative effects have not been mitigated in the past by the waterpower industry, and we doubt that they will be required to effectively mitigate them in the future.

The Report also does not take into account the other uses of a river system, such as wastewater/mining/industrial effluent being released into the riverine ecosystem, or the *cumulative effects* of all facilities, water management practices, roads, transmission lines, and diversions. All environmental costs should be identified and factored into a report such as this, and must be assessed and calculated on a site by site basis and the cumulative costs factored in.

The natural ecosystem benefits also generate many jobs which could be lost as a direct result of waterpower, yet there was no attempt to factor in these costs that will be borne by our future generations in one form or another. The collateral cumulative costs of waterpower must be considered before decisions are made to install more dams. We object to these serious deficiencies. The Report is fundamentally flawed and biased.

*“The Millennium Ecosystem Assessment (MA) was called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being.”*²³ This approach places a value on our natural environment, both for the public now and for our future generations.

9. Dam Decommissioning:

No provisions are provided up front by the developers for future dam decommissioning. This is a cost that will have to be borne by the public at some time in the future, and with climate change upon us, there is a strong likelihood that many of these hydroelectric dams on smaller rivers will no longer be economically, environmentally or socially viable. The cost of future dam decommissioning must be reflected in this Report.

Conclusion:

Upon studying this Report, it is evident that it does not meet MNR’s objectives of estimating “*the overall economic impact to Ontario and local/regional communities.*” In fact, the resulting estimates are grossly exaggerated, narrowly focused, do not address the negative impacts of these 41 projects, and does not meet their responsibility of due diligence. Our analysis and research indicates that the cumulative effects of these projects on the environment and local, regional, and provincial economies will be negative.

1. Job creation is exaggerated, and appears to actually be a negative job creation plan for Northern Ontario over the 23 years.

²³ Millennium Ecosystem Assessment

2. The FIT Program's subsidized pricing negatively affects commercial and industrial users' ability to compete and reduces consumer discretionary income, and places a heavy burden on taxpayers and future generations.
3. These 41 projects may very well negatively affect OPG's ability to generate revenue for Ontario, and reduce its ability to be self-sustaining.
4. The economic diversification in northern Ontario could well be threatened in the areas where these projects are built.

Jan Carr also argues, *"these types of policies might be publicly popular as constituents voice concerns over climate change and environmental issues but are economically unsound and jeopardize the prosperity of the province (Carr, 2010)."*²⁴

Justice Douglas asserted, *"The river, for example, is the living symbol of all the life it sustains or nourishes – fish, aquatic insects, water ouzels, otter, fisher, deer, elk, bear, and all other animals, including man, who are dependent on it or who enjoy it for its sight, its sound, or its life. The river as plaintiff speaks for the ecological unit of life that is part of it. Those people who have a meaningful relation to that body of water – whether it be a fisherman, a canoeist, a zoologist, or a logger – must be able to speak for the values which the river represents and which are threatened with destruction....."*²⁵ These values are all priceless, however, must be considered in any socio-economic analysis.

ORA asks, why would MNR Renewable Energy Sector commission this very narrowly focused and tailored Report that is obviously very flawed? This Report has the effect of demonstrating that these waterpower projects would create jobs and boost the Ontario economy. The Report in its present form would also justify the billions about to be spent on damming Ontario rivers, the destruction of numerous riverine ecosystems, and placing public health and safety at risk.

ORA requests that MNR withdraw this flawed Report, and issue a Press Release to inform the public and stakeholders of their error.

ORA looks forward to your response.

Respectfully,



Linda Heron
Chair, Ontario Rivers Alliance

And



Jim Rook
Vice Chair, Ontario Rivers Alliance

²⁴ *A Sensible Strategy for Renewable Electrical Energy*, The Fraser Institute, P69

²⁵ *Sierra Club v. Morton*, 405 U.S. 727 (1972) Justice Douglas

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