



13 May 2022

IESO

By email to: Engagement@IESO.ca

Re: Hydroelectric Program Development and Assessment
Small Hydro Program, April 20, 2022

Dear Sirs:

The Ontario Rivers Alliance (ORA) is a not-for-profit grassroots organization with a mission to protect, conserve and restore riverine ecosystems all across the province. ORA advocates for effective policy and legislation to ensure that development affecting Ontario rivers is environmentally and socially sustainable.

We are pleased to provide comments on your online webinar that took place on 20 April 2022.

First, it was enlightening to be provided with a clear definition of small and large hydro facilities in the Hydroelectric Program Development and Assessment webinar, as well as a total amount of power generated by these categories. You informed that the definition of small hydro would have a scope of installed capacity of 10 MW and under, with 30 companies representing 50 facilities generating a total of 120 to 150 MW, and large hydro having a scope of installed capacity of over 10 MW, with 3 companies representing 22 facilities producing a total of 1,000 MW.

The increased number of small hydro facilities making such a small contribution to our electricity grid impacts on multiple Ontario riverine ecosystems, whereas the 22 facilities producing 1,000 MW of power on presumably fewer rivers has a much lower trade-off value. Additionally, larger rivers have a greater capacity to buffer some of the worse effects of hydroelectric.

In fact, both small and large hydroelectric facilities have resulted in significant and ongoing impacts on water quality, water quantity, ecological processes, fish and wildlife populations and habitat, and to aboriginal communities. Hydroelectric also makes a significant daily contribution to the earth's accumulation of greenhouse gases (GHG) in our atmosphere.

A very high environmental and socio-economic price has been paid in terms of losses to other valued natural resources due to the installation of dams and waterpower facilities. However, the socio-economic costs of these losses are generally ignored^{1,2} and rarely reported to the public. It is crucial that we consider the trade-offs these facilities impart in the process of generating "clean energy".

Dispatchability:

¹ Wang, G., Fang, Q., Zhang, L., Chen, W., Chen, Z., Hong, H. 2010. *Valuing the effects of hydropower development on watershed ecosystem services: Case studies in the Jiulong River Watershed, Fujian Province, China*. *Estuarine Coastal and Shelf Science*. 86:3

² Institute for Fisheries Resources. 1996. *Cost of Doing Nothing: The economic burden of salmon declines in the Columbia River basin*. Report No. 1 of 3. Online: <https://pcffa.org/wp-content/uploads/2016/10/CDNReport-Columbia.pdf>



The problem with small hydro is it produces intermittent and unreliable power, especially if it is a true run-of-river facility. In fact, run-of-river hydroelectric power generation has no storage capacity and according to the IESO, produces as low as 15 to 30% of installed capacity because of low and unreliable flows³. These low and unreliable flows will only increase in duration and intensity as we progress further into a warming climate with the predicted increase into extreme drought conditions.

The daily, seasonal and annual variations of small hydro operations are not a new problem, as the IESO knows, generation peaks during the high flows of spring when power is in low demand and produces at its lowest during the hot summer months when consumption and demand are highest. During the low flow season of summer or during drought conditions, many true run-of-river and even some peaking (storage) facilities, especially on smaller rivers, cannot operate efficiently and must be shut down.

To further highlight this point, in 2014 an analysis was conducted by the IESO to determine the best means of electricity connection to remote First Nation communities and to enable forecasted growth in the Ring of Fire. The analysis concluded that "northern hydroelectric generation is an energy limited resource known to have significantly reduced output and availability during drought conditions of the river system supplying these generating units."⁴ In fact, the recommendation of this report was to not build any new hydroelectric facilities, but primarily build new transmission lines. A cost/benefit analysis should be required to determine whether these types of projects are environmentally and/or economically viable.

Not all small hydro facilities are dispatchable and should be placed in a tranche that does not incentivise something it cannot provide or something that will place an unnecessary environmental burden on these smaller rivers.

Payment Structure:

Payment structure is based on energy production or \$1/MW hour which is paying for capacity, a service valued by the IESO. In the webinar it was stated that we "*will likely use an Installed Capacity payment structure on a monthly or seasonal basis*". As mentioned previously, small hydro produces unreliable and intermittent power generation, and rarely meets anywhere close to its Installed Capacity. A small hydro project may only reach its Installed Capacity during spring freshet when there is more electricity available and less demand; therefore, its payment structure should not be based on installed capacity, but on the amount of power generated. The public should not be paying for installed capacity when a facility it is only generating at 15 to 30% of its Installed Capacity. It would be an exorbitant waste of hard-earned ratepayers' dollars.

Basing payment structure on a capacity structure with intermittent and unreliable power generation is not looking after the ratepayer, but instead it becomes a lucrative venture for the power producer. Instead, keep it simple and pay small hydro producers for the amount of energy produced. It is important that the IESO consider its own advice in the context of incentivising small hydro in this program.

³ *North of Dryden Integrated Regional Resource Plan – January 27, 2015, by OPA/IESO. P-56 & 124. Online: <http://www.noma.on.ca/upload/documents/north-of-dryden-report-2015-01-27.pdf>*

⁴ *North of Dryden Integrated Regional Resource Plan – January 27, 2015, by OPA/IESO. P-56 & 124. Online: <http://www.noma.on.ca/upload/documents/north-of-dryden-report-2015-01-27.pdf>*



Thank you for this opportunity to comment. Please include the ORA in any future webinars concerning Small and Large Hydro Programs.

Respectfully,

Linda Heron
Chair, Ontario Rivers Alliance
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