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June 6, 2011

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Ministry of the Environment
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Dear Mr. Sanzo:

**Re: Proponent Responses to
Requests for the Minister of the Environment to Review the
Director of the Environmental Assessment and Approvals Branch's Decision to
Deny the Requests that the Proposed Project to
Build a Hydro-electric Generating Station at the North Bala Falls be
Elevated to Require an Individual Environmental Assessment**

Summary

We have reviewed the above-noted proponent responses and are shocked to see that it appears that the major and unannounced change from a proposed run-of-river operation to a cycling operation has been dealt with by just a 3½-page letter which consists of only speculation and conjecture – **and no science**.

Such a fundamental change should both require at least:

- a) The proponent re-issuing their environmental screening report.
- b) An opportunity for the public to comment.

The proponent's repeated and egregious abuse of the environmental assessment process shows that this project needs to be elevated to require an individual environmental assessment as we again see this would be the only way to get the answers to the questions the public has been asking.

If not for this proponent's blatantly deficient environmental screening report, then why does the *Guide to Environmental Assessment Requirements for Electricity Projects* provide for an elevation to an individual environmental assessment.

Detail

In an April 16, 2011 e-mail sent on behalf of SaveTheBalaFalls, I highlighted many shortcomings of the subject decision and therefore requested a review by the Minister of the Environment. In response to many such requests, the proponent provided the following documents:

- A 4-page letter from C4SE to Karen McGhee, dated May 6, 2011.
- A 5-page letter from Hatch Ltd. to Karen McGhee, dated May 12, 2011.

- A 2-page letter from McCarthy Tetrault to The Honourable John Wilkinson, dated May 13, 2011.
- A 4-page letter from Hatch Ltd. to Karen McGhee, dated May 17, 2011.

Perhaps there will be more substance forthcoming from the proponent for the Ministry of the Environment to assess the mitigation offered by the proponent, but from what we have read, many concerns remain outstanding and unaddressed due to the newly-proposed cycling operation, such as the following.

- 1) Cycling – would it really be a maximum of once per day
 - a) We note the proponent's statement "*Cycling would therefore not be occurring 'every few hours' as suggested by the public.*" Please note that this understanding of cycling every few hours **did not originate with the public – it is directly from the proponent**, as stated in their own minutes from their October 27, 2010 flow distribution committee meeting where they wrote the cycling would be "*likely in the range of 4 to 8 hours*". We have not seen any information from the proponent committing to anything other than this cycling several times per day.
 - b) The proponent's December 16, 2010 agreement with Ontario Power Generation (OPG) requires that the proposed Bala generation station's operation be cycled as required by OPG but **we see no wording that this would be a maximum of once per day**.
 - c) Furthermore the first condition of proponent's OPG agreement allows for the operation of the proposed Bala generating station to be "*optimized*" (that is, cycled according to some other operating regime). There is no limit provided on the future flows, frequency, or timing of this cycling operation other than OPG's approval.
 - d) The proponent states the cycling would be only "*during low flow conditions when daily average flows are less than 26 m³/s*".
 - Firstly, the proponent claims this would be "*mid-July to mid-August in most years*" (that is, 4 weeks). However, the proponent's own information (Figure 2.4 in their environmental screening report, *Average Weekly Historical Flows*) shows that the combined flow over the North and South dams is less than 22 m³/s (to allow for the 4 m³/s allocated to the Burgess Creek station) for weeks 29 through 36 (inclusive) – which corresponds to the third week of July through to the end of the second week in September – **a total of 8 weeks. This conflicting information requires explanation.**
 - And this low-flow period is **exactly during the peak in-water recreational times**, creating the maximum danger to the public. Furthermore, the proponent states that depending on the rainfall, such low-flow periods can be **anytime from mid-June to late November**.
 - Such uncertainty is exactly what creates dangers to the public – there would be no way for the recreating public to know when the proposed station is operating or not, and when it could be starting or stopping – **for fully half the year**.

In summary, we have not seen any commitment or information from the proponent that the proposed generating station would be cycled only once per day, either initially or in the longer term. Nor have we seen any information that the proponent **even has**

control over how often cycling would be required, as the proponent would be required to operate according to OPG's needs. Nor have we seen any information that OPG would schedule the operating regime such that *"the timing could be done to minimize the likelihood of public being present"*, as stated by the proponent.

A complete environmental screening report would need to provide such information and commitments, and we therefore await this.

Concerning the new information that *"it is expected that an upstream camera will be installed to view the area upstream and downstream of the plant prior to starting the project, to ensure no one is in the restricted zone"*, to which we note:

- a) It would not be possible for an upstream camera to view the downstream of the plant.
- b) Cameras would not be of any benefit for Scuba divers or at night.
- c) Cameras would not address the concern that the public just wouldn't know if the proposed generating station is operating or not, as this information would affect their decisions; for example, whether a children's camp portaging would use the suggested alternate of the town docks on the Moon River as a portage point or not (as this would require much more dangerous walking along the highway and over the highway bridge – certainly a concern on a windy day when one is carrying a large canoe or heavy backpack).

Furthermore, the concerns about the negative effects of cycling are just about as bad if such operation was once per day as if it was more often – someone being drowned at the trash rack, a Loon nest's eggs being carried away by daily fluctuating water levels, or the surface ice having a crack dangerous to snowmobilers would still be a concern.

2) Scenic Flow – cycling would prevent it every afternoon

In Section 6.3.5.2 of the proponent's environmental screening report they state *"During the tourist season (May 24th long weekend to the weekend after Thanksgiving) a flow of 2 m³/s is proposed to be passed over the South Dam."* And now the proponent states *"... the upstream water levels in Lake Muskoka would be fluctuating a maximum of 2 cm/d ..."*.

Given that the stop-logs in the south dam would have a fixed height and that the cycling operation would be timed to produce power during the peak electricity demand time of the day (from 11:00 am to 7:00 pm weekdays when the Feed-in Tariff program pays 50% more than at non-peak times) the water level in Lake Muskoka would be nearing its low point in the afternoon. Therefore, all the scenic flow would be in the morning and there would be none in the afternoon and late afternoon.

How does the proponent plan on providing scenic flow throughout the day, as the level of Lake Muskoka would be fluctuating daily.

3) Marine Navigation – how would cycling affect this at the Moon Chutes

Boaters on the Moon River are very familiar with the difficulties of **marine navigation at the Moon Chutes** due to the significant constriction in both channel width and depth there (often resulting in fast water and rapidly changing depth), and the water flow pattern which promotes whirlpools forming. The added unpredictability of when cycling operation would occur and the greater flow than would be natural at that time of the year would create a new danger.

Therefore, the impact of cycling operation on marine navigation at the Moon Chutes needs to be addressed, and the proponent has not done this.

4) Shoreline Habitat

Because it is unnatural, even a 2 cm change in water height could be significant to the shoreline habitat. For example the effect on waterfowl and their nests, or on the disjunct Atlantic Coastal Plain flora in Gaunt Bay (further concerns are provided in Section 7.1 of the Muskoka River Water Management Plan), yet this is not addressed by the proponent.

Furthermore, the proponent's statement that this cycling operation would result in a maximum 2 cm change in the water level of Lake Muskoka's Bala Bay appears to be based on a **simple mathematical calculation** which completely ignores that this water level change would be **multiplied by the effects of wind**, the well-known issue of the constrictions adjacent to Bala Park Island, and other real-world effects.

In summary, the proponent has not fully considered the effect on all affected habitats (such as shoreline nests) of this proposed cycling operation.

5) Public Safety

The impact of this proposed cycling operation to public safety, both for in-water recreation and for rescue procedures has not been addressed.

For example, illegal and ill-advised as it may be, people would discover that the generating station does not run in the morning in the summer and jump off the railway bridge into the north channel, as they have been for over 100 years. Others would see this and jump in during the afternoon when they don't realize that the generating station is operating.

6) Audible and Visual Warning Devices

The proponent notes *"Whatever means were intended to be employed as warning for the previously proposed 'start-up' following low flow shutdown will be applied during cycling start-ups"*.

Industry practice is that strobe lights and sirens are required to be operated at least whenever generating station operation begins, yet the proponent refuses to provide information on what would be installed in this situation. As this information has significant implications for public safety, property values, and tourism, the proponent should be required to provide detail including; type of warning devices, duration and frequency of operation, quantity, location and sound levels.

The proponent notes the cycling would be *"done to minimize the likelihood of public being present"*. If the cycling was therefore started at 6:00 am every day for 8 weeks in the summer, and given how many residences are located nearby and given how well sound travels over water both upstream and downstream, this would be of major concern to the public, is an environmental impact, and therefore this information must be made available as part of this environmental assessment process.

7) Fish Entrainment

The width of the intake trash-rack as proposed by the proponent in a letter dated September 17, 2010 and entitled *"Response to Outstanding Issues Regarding the Development of the North Bala Hydroelectric Project"* from Hatch Ltd. would be 11.6 m.

And, as shown in Figure 5.1 of their environmental screening report, the proposed trash-rack would be 13 m high, resulting in an intake cross-sectional area of 150 m². The cross-sectional area of the water in the north channel just upstream of the railway bridge (at the red line shown in Figure 1) is 162 m² (this was calculated using the channel depth information from Figure 1 and using this to construct Figure 2) – and this is just 7% greater than for the intake. Therefore, the water velocity across the **full width of the north channel would be almost the same as directly at the very dangerous trash-rack**. There are many significant implications of this:

- a) The shoreline at the town docks and at Diver's Point upstream of the safety boom – where, according to the proponent and the Ministry of the Environment, it would be safe for all types of in-water recreation – is just 20 m upstream from this dangerously fast water at the railway bridge. And the current could carry someone 20 m in less than a minute.
- b) Fish using their "*burst swimming capacity*" (as stated in Section 6.2.5.6 of the environmental screening report) to escape entrainment into the proposed turbine would not just be darting to the side of the trash rack, but would need to swim more than 60 m upstream to safer slow water, due to the long narrow channel upstream of the intake.
 - What justification is there that the species of fish expected in the north channel would have the instinct to swim in the required direction away from the intake.
 - The proponent offers no advice on the preferred or technically possible "ramping rate" for the proposed turbine, such as:
 - Fast – so fish can more easily sense the change in water speed (and hopefully therefore quickly begin swimming and escape).
 - Slow – so fish have more time to swim away in slower-moving water (but they may not be able to sense the turbine starting).

And we don't know if the same answer would apply to **all species and ages of fish** in the north channel.

The proponent claims to have environmental expertise, yet all we see is the same unsubstantiated conjecture anyone could offer. **Where's the science and knowledge. This is important; the fish's lives depend on it.**

- The cumulative effects of starting the proposed turbine every day for at least two months could be disastrous.
 - If you kill just 4.4% (or 10.1%, or 15.1%, as in Section 6.2.5.6 of the environmental screening report) of the fish for long enough, soon they'll all be dead.
 - The proponent notes "*Cycling operations ... could potentially result in more fish mortality than originally predicted in the ESR*". Yet, no estimate or justification for such an estimate is provided. The environmental information from the proponent is therefore incomplete. **Where's the experience and expertise. What justification and real-world successful and applicable examples does the proponent have for their suggestions.**
- The proponent says mitigation measures would be determined with MNR (the Ontario Ministry of Natural Resources) and DFO (Fisheries and Oceans Canada) – what experience and expertise do MNR and DFO have with cycled generating station operation, if this is a proponent-driven process, **where is**

the proponent's science proving cycling operation can be benignly implemented in this location and situation.

- The proponent now suggests underwater infrasound to keep fish away from the proposed intake:
 - Is this technology known to work in this particular situation. For example, the literature notes a clear alternative route for fish is required, but we note that due to the north channel being long and narrow, such an alternate route would not be available.
 - Would the fish just be stressed or confused by the proposed infrasound.
 - Is infrasound effective for all the fish species and ranges of ages and distances and water depths in the north channel and do the same infrasound intensities work for all.
 - What long-term, daily-use effect would this infrasound have on fish, and on other waterfowl and wildlife – and scuba divers.
 - The literature specifically mentions infrasound may not be effective in shallow water. For example, due to the reflections the fish may not be able to determine which way to go to escape the infrasound.
 - And due to habituation, infrasound may not be effective for repeated daily exposure (the literature notes infrasound may only have an effect on migratory fish). Or the fish may already be habituated to infrasound due to motor boats.

There are far too many unknowns for this suggestion to be acceptable as a possible mitigation. The proponent must present justified, fact-based, scientifically-rigorous options as part of the environmental assessment, not at some later date when the project couldn't be stopped – this is the purpose of the environmental assessment process, and the proponent must be held to it.

The proponent doesn't know what they are going to do, witness the **plethora of ambiguous statements in a single paragraph**: *“will depend on the final design”, “should be possible”, “anticipated to occur”, and “not anticipated to have any significant effect”*. The proponent is not demonstrating a scientific process.

The proponent has **not provided any factual information that the negative effects of this required cycling operation could be mitigated**. The proponent's proposal to watch on an underwater camera whether there are fish congregating at the intake would be of little use if the proponent has no proven mitigation to offer.

The proponent's repeated attitude of “let's just get started and hope this all works out” is deplorable, cavalier, unscientific, and an insult to the process and people of Ontario.

It is over a year and a half after the proponent filed their Notice of Completion, and they are just now presenting new information and introducing new technology:

- a) An *“underwater camera, sonar or some other technology”* to detect fish.
- b) Infrasound generators to repel fish.
- c) An *“upstream camera will be installed to view the area upstream and downstream”* to see if there are people who would be endangered by this remotely-operated machine.

The proponent seems to be flailing about suggesting everything Google finds.

8) Benthic Habitat

In their November 30, 2010 Letter of Intent to Fisheries and Oceans Canada, the proponent notes the *“Two benthic habitat/spawning shoals are proposed on either side of the tailrace channel”* and these would be *“subject to relatively constant hydraulic conditions”*.

In response to the concerns about their newly-proposed cycling operation, in the proponent’s May 17, 2011 response letter the proponent notes *“drift loss will likely only occur along the inside face of the tailrace shoal structures”*.

- a) Firstly, **this doesn’t make sense**. It is the flow of water that is important to benthic production. The inside face of the proposed shoals would be the most productive surface, and this unnatural cycling operation could therefore make the entire proposed compensation area useless. There is no factual information presented on how long constant hydraulic conditions are required for benthic production to begin.
- b) There is no information on whether the other side of the shoals would be spared the disruptive effect of this unnatural cycling operation flow, or whether it would be productive anyways.
- c) The proponent notes that cycling could occur from mid-June to late November:
 - Firstly, these time periods would be the peak benthic production season, so constant hydraulic flow during other times could be of no benefit.
 - The proponent notes that *“During other time periods of the year when cycling does not occur, the facility will be operated continuously, resulting the relatively constant hydraulic conditions discussed in the Environmental Screening /Review Report, resulting in conditions that will facilitate abundant benthic production”*. So even the proponent admits there would be a reduction in productive habitat, **yet offers no estimate of the reduction** or a solution. And yet the proponent says *“it is not anticipated that cycling ... will have any significant adverse effects on benthic productivity”*. This is conflicting information. The logic doesn’t make sense.

In summary, **where’s the science**.

Conclusion

We are very disappointed at the narrow and unscientific response from the proponent. It is entirely inadequate.

Either the environmental screening report should be re-issued with all impacts of cycling operation addressed and a public comment period provided. Or an individual environmental assessment should be required so that the public can have input into the questions that must be answered by the proponent.

Sincerely,



Mitchell Shnier, P. Eng., on behalf of SaveTheBalaFalls.com

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The Honourable John Wilkinson, Minister of the Environment, JWilkinson.mpp.co@liberal.ola.org

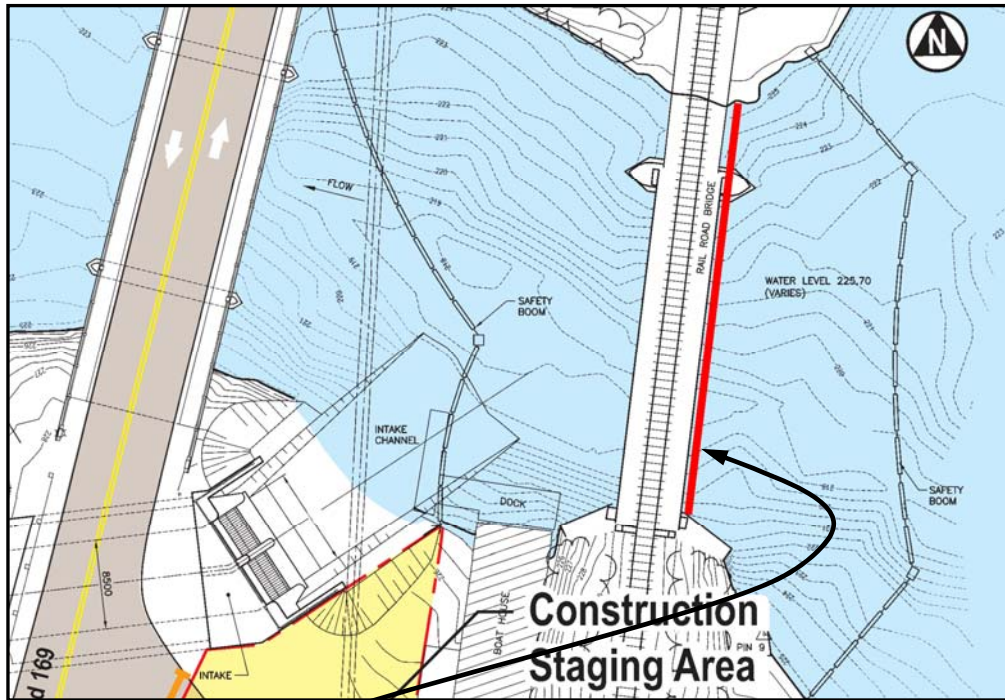


Figure 1 – North Channel Showing Proposed Intake Trash-rack, Depth (as Contour Lines) and Red Line Showing Where Cross-sectional Area Was Calculated

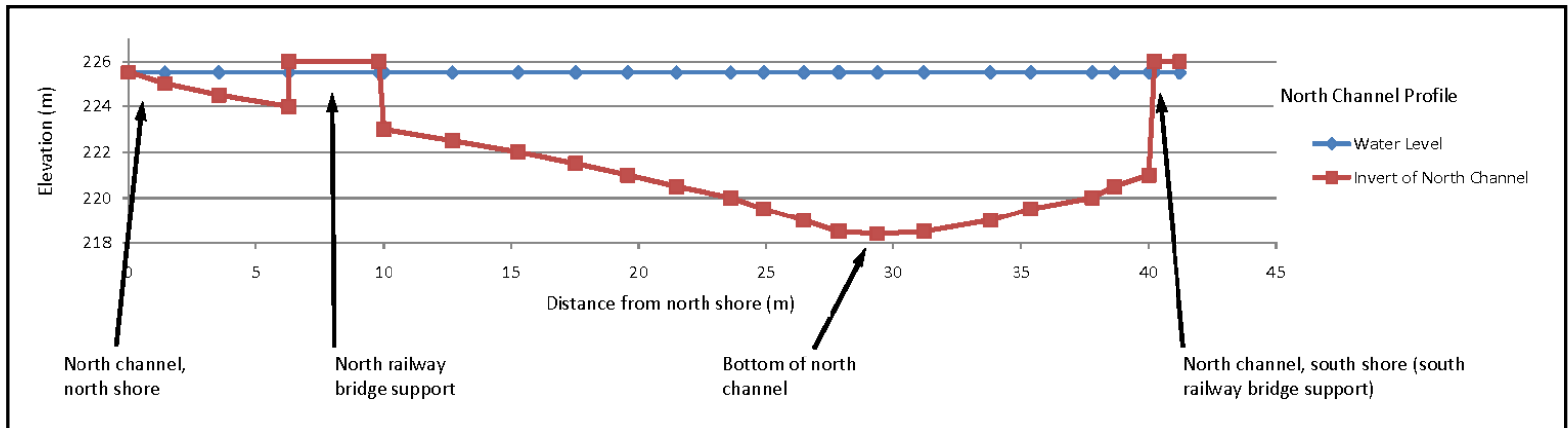


Figure 2 – Cross-section of North Channel at Red Line in Figure 1