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Vanesa Enskaitis
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Dear Ms. Enskaitis:

**Re: Class Environmental Assessment Report for the
Proposed Frederick House River - Wanatango Falls GS**

The Ontario Rivers Alliance (ORA) is an organization with a focus on healthy river ecosystems throughout the Province, and represents some 30 organizations across Ontario. We are responding to Xeneca's Class Environmental Report and its supporting documentation, for the proposed Wanatango Falls, on the Frederick House River.

It is the position of the ORA that hydro-electric generation, in the form Xeneca is suggesting at Wanatango Falls, will have unacceptable environmental impacts, and does not contribute in any way to *"the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment."*¹

Below you will find ORA's comments on several key areas of concern:

1. Cumulative Effects

When considering the cumulative effects, all past, present and future impacts must be considered, including:

- I. Existing effects of Frederick House Lake Dam (FHLD) – Lake control dam operated by Ontario Power Generation (OPG)
 - For instance, "Historically no releases were made from the Frederick House reservoir approximately 10% of the time"², so what are the existing effects and what will be the added effects of the Wanatango GS and its operating strategy to this situation?

¹ Environmental Assessment Act (EAA), R.S.O. 1990, c E.18

² A Annex, Hydrology, P-11, Long Term Flow in the Frederick House River

- II. The river flows through the Northern Clay Belt which results in muddy, turbid water conditions as a result of suspended particulate³;
- III. In 2010, two water quality sampling events were conducted (spring and summer) at three locations on the Frederick House (Wanatango Falls) site. “For the May event, aluminum, chromium and iron exceeded their PWQOs at SW1, while aluminum, chromium, iron and total phosphorus exceeded their PWQOs at SW2. For the July event, aluminum, chromium, iron and total phosphorus exceeded their PWQOs for SW1, while aluminum chromium and iron exceeded their PWQOs for SW3. The source of the elevated metal and phosphorus concentrations is unknown.”⁴
- IV. There will be additional impacts on fish movements/migrations due to the barrier, and this will lead to further fragmentation of populations of such species as sturgeon, walleye and sauger – on top of those impacts that the existing OPG facility has had on fish populations and fish habitat. This has not been addressed in the analysis, nor is it even mentioned in Table 6.
- V. The numerous environmental effects listed below, and any accumulation of these effects among the existing facility and the new facility need to be addressed in the cumulative effects analysis. This means a full analysis is required, of potential new effects that may have occurred since the OPG facility was constructed.

ORA Comments:

Table 6 of the ER is inadequate as it does not adequately consider impacts on water quality, aquatic species at risk, or fish habitat.

2. Environmental Effects**a) Modified Peaking Operating Strategy – Pulsing Effect**

“This operating strategy will result in significant fluctuations of water levels within the inundation area (Annex II, of the main EA document, Xeneca 2011a). This fluctuation is expected to lead to a 1 m fluctuation in depth. This depth will range from the normal operating level of 257.5m ASL and be drawn down to 256.5m ASL. This fluctuation is expected to occur from one to several times daily.”⁵ This is a clear indication that Xeneca plans to peak at this site several times a day.

ORA was very concerned to read that water levels and flows would be so variable, and that peaking operations would occur more than once a day: “Uwe- The downstream area has flow fluctuation - which means downstream flow variability causes significant variations in downstream habitat due to flow. There are proposals to change the water levels upstream on a daily basis of – 1m range. Chris C- Given enough water, is there a possibility to do peaking more than once a day? Uwe – Yes.”⁶

³ Wanatango Falls ER, P-35, Existing Infrastructure

⁴ Wanatango Falls ER, P-37, 2.8.2 – Surface Water Quality

⁵ Annex III – P 71 – Water Level Fluctuations

⁶ Appendix C – P 175 – 15 June 2011 – NRSI & Agencies Scoping Meeting

Variable and rapid flow changes present obvious problems with turbulence, sedimentation, erosion, and drying of shoreline. "Modified run of river will also produce downstream variability in water depth, flow velocity and wetted perimeter until the river reaches a lake or a confluence with a major tributary."⁷

ORA Comments:

1. What are the predicted ecological and social impacts of these water level and flow fluctuations, and please provide a rationale for your predictions?
 2. How many times daily will Xeneca peak this dam – at the most?
 3. Peaking these rivers several times a day will create a pulsing effect, and this will probably happen most frequently at times when the river is most vulnerable during seasons when moderate to low water level and flows commonly occur. This has the potential to be extremely destructive to habitat and aquatic life if flows and levels are too low to sustain existing ecological conditions.
 4. It is disturbing to read in these Agency Minutes that neither Xeneca nor any of the experts know what effect this operating strategy will have on the riverine ecosystem. This "Grande Experiment" must not move forward until more information is available on potential effects – currently the public and First Nations are expected to accept this operating regime without any understanding of potential effects. This is unacceptable in an ER report.
 5. ORA requests that no approvals be granted until an in-depth study has been completed to identify the full extent of negative environmental and ecological impacts resulting from this type of peaking operation on the upstream and downstream riverine ecosystem.
 6. There is a need to clearly define what the operating strategy will be in terms of LRIA guidelines. Clearly this facility will not even come close to run of river, so what is the legal definition of this type of facility, and what will be the operating conditions on the LRIA permit? This is critical and must be carefully and transparently explained to the public for comment.
- b. Elevated Methyl mercury Levels**
- i. With Plan A, the impoundment is hoped to be 9.4 km or 9.8 km long, however information is lacking to indicate how many hectares the inundation area would cover – a vital piece of information that is missing.
 - ii. Xeneca asked Agency staff if there was a database of mercury impacts of past facilities, and was informed, "there is no central database" and "small scale hydro projects have not been analyzed as much as large projects. Also added that a prior project where MOE was on record saying mercury would not be an issue and it became a problem. One objective of the program is due diligence to be able to answer to groups coming forward later on that mercury levels increasing."⁸

⁷ Four Slide Falls ER, P-16, Negative Impacts

⁸ Appendix C – P-147 – 28 April 2011 – Notes of Meeting between Xeneca and Agency Staff

- iii. According to Environment Canada, increased methylation of mercury⁹ is a well-known problem caused by water held in holding ponds for peaking purposes.
- iv. Methylmercury production is a well-documented by-product of hydroelectric impoundments, and is known to radically increase in fish populations – i.e.
 - Newly formed reservoirs are at a greater risk of organic methylmercury production than natural lakes. Studies of new reservoirs show significant increases in organic methylmercury in fish inhabiting reservoirs as compared to fish in the surrounding area.¹⁰ It is not clear that enough information is available to determine sound background levels in fish flesh, thereby enabling an evaluation of mercury levels in the post impoundment period.
 - In studies of the James Bay region of northern Québec, organic methylmercury in all species of fish increased six times after impoundment (damming of river or lake water in reservoirs).¹¹
 - The disproportionate presence of mercury in reservoirs is attributed to two factors. First, the percentage of biological activity increases five to ten times in reservoir systems due to the biochemical and physical changes in the soil caused by the flooding, and this accelerated activity increases the number of organisms that can produce organic methylmercury.¹²
 - Second, carbon levels increase due to newly submerged and decaying vegetation. This in turn increases microbial activity. Though carbon levels decline over time, thereby lowering methylmercury production, any adjustment of the reservoir's water level can increase the percentage of carbon once again.¹³
 - Hydro-Québec claims that the methylmercury concentrations in fish will return to natural levels in 30 years, but some scientists estimate that the decline in certain species could take up to 100 years.
 - In Quebec, reservoirs constructed on La Grande River were studied over the period 1978-82.¹⁴ These authors compared mercury in fish for pre-impoundment with post-impoundment conditions. At all sites, mercury was consistently higher in the piscivorous pike and walleye. For all fish species there was a correlation between

⁹ Environment Canada. 2001. Threats to Sources of Drinking Water and Aquatic Ecosystem Health in Canada, National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 1. 72p – P-69

¹⁰ Hopkins, S. (June 14, 1999). "A White Paper on Mercury," in New Mexico Environmental Department. Retrieved April 7, 2000

¹¹ Noel, F., Rondecui, E., & Sbeghen, J. (1998). "Communication of Risks: Organization of a Methylmercury Campaign in the Cree Communities of James Bay, Northern Québec, Canada," in R. Fortune & G. Coaway, Eds. Circumpolar Health 96. Anchorage: American Society for Circumpolar Health.

¹² Tremblay, A. (1999). "Bioaccumulation of Methylmercury in Invertebrates from Boreal Hydroelectric Reservoirs," in M. Lucotte, Ed. Mercury on the Biogeochemical Cycle. Berlin: Springer.

¹³ Hopkins, S. (June 14, 1999) – see above.

¹⁴ Boucher, R. & Schetagne, R. (1983) Repercussions de la Mise en Eau des Reservoirs de La Grande 2 et Opinaca sur la Concentration de Mercure dans les Poissons. Societe d'Énergie de la Baie James, Montreal.

- age and mercury, or between length and mercury, but a great deal of variability existed in the data. After impoundment, mercury in fish increased: for example, walleye year 2 (2 X) and year 4 (3.5 X), and for whitefish in year 2 (3 X) and in year 4 (5.5 x).
- Environment Canada states, “Levels of mercury, unlike PCBs and DDT, have increased in the past 20 years in fish eating birds and mammals. A striking example is the twofold increase from 1975 to 1995 observed in mercury in the thick billed murre eggs in the Canadian high artic.”¹⁵
 - Increased mercury levels in fish tissue are a known health hazard, particularly to pregnant women and their unborn children.
- v. The ER states, “Surface Water - Inundation area at Wanatango Falls site may alter water quality (methylmercury) in reservoir” - Residual Effect: “No”.¹⁶ What is the rationale for this statement?
 - vi. In meeting notes, it was reported that methyl mercury resulting from the impoundment of water was of concern to the MOE.¹⁷
 - vii. First Nation communities depend upon the protein of fish in their diet, and any increased mercury will be a future health hazard to these communities, other local stakeholders, and anglers.
 - viii. The ER states, “woody debris will be removed”, but “roots of trees will remain”. This report makes no mention of soils being removed from the inundation area.

ORA Comments:

1. Xeneca and government must not use the people of Ontario as guinea pigs in what is really a grand experiment. Methylmercury production on these small scale hydro projects must be known before this proposal is approved and background levels must be well studied.
2. Why does Xeneca place no significance on methyl mercury production?
3. Xeneca has not indicated in this report how local stakeholders and First Nation communities who rely on fish from the Frederick House River for their sustenance will be protected from potentially elevated mercury levels in fish flesh as a result.
4. What monitoring of mercury levels will occur during the operational period of this facility?
5. Xeneca must do base core sampling to identify mercury levels that exist today in the inundation zone, so a baseline is established.
6. Xeneca must undertake a scientific study, based on probable mercury loading at the site, to
 - a. Extrapolate the future mercury methylation rates, and their potential effects on the local fish community; and

¹⁵ Environment Canada, Braune et al. 2001

¹⁶ Wanatango Falls ER, P-115 – Table 5 – Residual Environmental Effects & Significance

¹⁷ Appendix C – P-142 – EA Coordination Meeting, April 20, 2011

- b. Determine the anticipated long-term health threats to First Nation and local stakeholders over the 40 year contract of this proposed facility.

c) Warming of water in the Head Pond

A modified Peaking run-of-river operation means water flow will be held back for up to 48 hours, and exposed to from 16 to 30 hours of solar absorption during the low flow winter and summer months, resulting in numerous negative effects.

- I. Xeneca claims, "Changes to thermal regime of waterway within headpond as a result of inundation and temporary storage," Residual Effect: "No".¹⁸ A better description of the rationale for this statement is required. We would expect that this should be thoroughly modelled under several scenarios before this bold statement would be made, and the same with downstream temperatures.
- II. "The proposed headpond will be relatively shallow with a proposed head of 9m."¹⁹ ORA submits that a shallow head pond, especially containing suspended sediment, with storage for up to 48 hours, will increase thermal warming.
- III. During the summer season when water levels and flow rates are at their lowest, is when water will sit the longest in the headpond, and because flow rates are slower it will take longer to fill, which would mean a greater potential for warming from solar absorption for from 16 to 30 hours out of a possible 48 hours. Xeneca dismisses this residual effect totally, by stating, Residual effect: "No". A rationale for this statement is required as no apparent modelling of conditions has been undertaken.
- IV. It is well known that many impoundments cause warmer waters, concentrate nutrients leading to overproduction of algae and general stagnation in summer months. In addition, there can be potential concentrations of waterborne pathogens and algal toxins. Ontario lakes and rivers have been experiencing increased incidences of cyanobacteria outbreaks, which can pose a life threatening danger to people and animals, either ingesting or coming in contact with it. Cyanobacteria flourish in warm and nutrient rich waters. Given that there are already elevated phosphorous levels in the water, the situation seems ripe for blooms or overproduction of algae. This possibility has not been mentioned in the ER, and is unacceptable. This potential effect must be clearly considered within the ER.

ORA Comments:

1. Xeneca must undertake a study to
 - a. Determine the effects this shallow inundation area, combined with high phosphorus levels and heavily silted water, will have on water quality, including the overproduction of cyanobacteria blooms; and

¹⁸ Wanatango Falls ER – P-120 – Table 5 – Residual Environmental Effects and Significance

¹⁹ Wanatango Falls ER – P-105 – Water Temperature in Head Pond

- b. Identify the expected impacts to local stakeholders and aboriginal communities should overproduction of nuisance alga and possible increases in pathogens and algal toxins become a reality?

d) Lowering of Dissolved Oxygen Levels

The potential of decreased oxygen levels in the reservoir and in downstream areas has not even been mentioned in the Environmental Report, and yet has been mentioned in Xeneca's other proposals brought to Notice of Completion to date, and is a known negative impact resulting from impoundments.²⁰ There exists the potential of creating an anoxic layer if overproduction of algae occurs, and decomposition of dead and decaying algae only perpetuates the problem. This possibility has not been addressed in the Xeneca report. This ER is unacceptable until it has been addressed.

ORA Comments:

It is critical that lowering of dissolved oxygen levels be considered in this ER.

e) Increased Phosphorus Levels

The potential of concentration of elevated nutrients (e.g. Phosphorous which has been identified as being elevated) and their effects has not been addressed nor even mentioned in the Environmental Report, and yet has been mentioned in Xeneca's other proposals brought to Notice of Completion to date, and is a known negative impact resulting from impoundments.²¹ This Environmental Report is again lacking in this respect.

ORA Comments:

It is critical that these increased phosphorus levels be considered in the ER.

f) Erosion & Sedimentation

"The impact of fluctuating water levels in the inundation area during intermittent operations is that emergent vegetation is not expected to re-establish along the shoreline. This is due to the fact that riparian and emergent plant species will not tolerate water level fluctuations of 1.0m on a one to several times daily. As a result, much of the shoreline and nearshore area will remain as bare substrate."²² Yet, under Residual Environmental Effects, Xeneca noted, "Operation – Increased shoreline erosion and sediment deposition due to inundation area and variable flow reach water level fluctuations," Residual Effects: "No".²³ A rationale for this statement is required given the foregoing.

In another part of the ER, Xeneca reports that "In order to minimize erosion effects, the maximum daily fluctuations of upstream water levels will be limited. The operating plan parameters proposed in Annex 1-C for daily fluctuation have been selected to be less than the amounts of seasonal and inter-annual fluctuation that has been occurring naturally over time in the upstream river

²⁰ Environment Canada. 2001. Threats to Sources of Drinking Water and Aquatic Ecosystem Health in Canada, National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 1. 72p – P-69

²¹ Environment Canada. 2001. Threats to Sources of Drinking Water and Aquatic Ecosystem Health in Canada, National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 1. 72p – P-69

²² Annex III – P-71 – 6.2.1.1.1 Terrestrial Impacts

²³ Wanatango Falls ER – P-120 – Table 5, Residual Environmental Effects and Significance

reach. By limiting the daily fluctuation, vegetation will be able to naturally re-establish along the shoreline, thereby limited the erosion potential. Rapid changes in shoreline water levels can increase erosion..... By limiting the rate of change upstream water levels, this erosion mechanism is avoided.”²⁴ Annex 1-C mentioned no detail, but referred to the 2.0 km Downstream Reach - “It was recognized that variable flows associated with intermittent flows will affect a long river reach”; under Summer Operation, it only refers to “possible intermittent operation can occur”; and there is no reference to intermittent flows under Winter Operation.

ORA Comments:

1. These two sections of the ER are very contradictory. Which is correct?
2. How does Xeneca plan to protect the exposed and denuded shoreline from erosion and sedimentation?
3. There is also no mention anywhere in Xeneca’s reports about what the anticipated effects might be of the pulsing action of intermittent flows, levels and velocity of flows on river banks and river bottom sediment.
4. It is ORA’s position that this lack of vegetation along the shoreline will make the river banks vulnerable to erosion and sedimentation from the several times daily pulsing of fluctuating water levels and extreme changes in flow rates.

g) Climate Change

In regards to climate change and other weather related affects, Xeneca mentions “among the many predictions offered, there includes a doubling in the frequency of extreme rain events and increasing costs to providing community services in Canada during the 21st Century”²⁵, but Xeneca fails to mention that extreme drought conditions can also be expected.

Hydropower is highly dependent upon precipitation (rain and snow), and droughts will effect generating capacity. Scientists agree that we are in climate change, and the world will experience more extreme weather, such as drought and flooding, and this will continue into the next century.

Xeneca has not taken into account the fact that our river water levels over these past years have seen record lows, and that this will likely continue and worsen in the coming years.

ORA Comments:

Please provide details of how you would make these hydroelectric dams economically and environmentally sustainable throughout prolonged drought conditions.

h) Clearing for new Transmission Lines and Access Road/s

Clearing for transmission lines and access roads creates corridors for run-off of rain-water and snow melt, and brings more sedimentation and debris into the ecosystem.

²⁴ Wanatango Falls ER – P-104 - Erosion

²⁵ Wanatango Falls ER, P-112, 5.4.7 – Climate Changes and Other Weather Related Effects

The ER presents numerous options for transmission routes, however, the proponent has only undertaken a desktop study, and this is yet another uncertain detail where it is difficult to comment when not even the developer knows what he is doing.

ORA Comments:

1. What are the expected impacts of each route and how will they be mitigated?
2. ORA requests that Xeneca provide detailed information on all aspects (including more detailed accounts of current ecological conditions) within the various potential transmission routes and access roads before any approvals are granted.

i) Ice Scouring

Xeneca reports that “Ice scour can occur where water levels fluctuate during the winter months and where soft river bottom sediments exist.” The report goes on to say, that “In most sections of the Variable Flow Reach, the river bed consists of hard bedrock that is not sensitive to ice scour. Soft sediments exist primarily at the higher lying shorelines and in deeper sections of the river and in pools where slow moving water has allowed local deposition of soft sediments. The dispersed nature of the soft sediments suggests that ice scour is limited to certain areas or sections of the Variable Flow Reach.”²⁶ It was earlier established that the Frederick House River is very muddied from its course through the Northern Clay Belt, so it only stands to reason there will be deposits of this sediment collecting in many areas of the riverbed.

The ER also notes: “Where the potential for shoreline erosion or ice scour is observed, inspect and monitor for signs of erosion in year one and year five of operation to document degree of erosion and develop and implement additional mitigation measures as required. Residual Effect “Yes”.²⁷

ORA Comments:

Why is ice scouring not even mentioned in Table 5, Residual Environmental Effects and Significance, or Table 6 for Cumulative Effects?

j) Operational Flows - Insufficient

The Lakes and Rivers Improvement Act (LRIA) specifies “generally two-thirds of the stream-flow at any time should be maintained downstream, unless conditions warrant otherwise.”²⁸, and MNR has stated they are abiding by the LRIA guidelines of a minimum of Q80 – which is the minimum environmental flow demonstrated to not have major negative downstream impacts.

“During intermittent operation, the turbine flow was set to not exceed an upper limit to minimize the amount of flow variability that occurs on a daily basis.”²⁹

²⁶ C Annex – P-14, Ice Scour

²⁷ Wanatango Falls ER – P-90, Table 4 – Identified Issues and Management Strategies

²⁸ Lakes and Rivers Improvement Act, s 4.3.3(1)

²⁹ C Annex – P-13, Proposed Operating Flows and Levels

ORA Comments:

1. What is that “upper limit” – and from 0 to what, in how many minutes? Please be more specific?
2. An environmental flow of 2 cms in summer and 5 cms during the winter is not acceptable to ORA, to the river, or its ecosystem. There is no ecological justification provided for these flows. Please provide a scientific, ecologically based rationale for these minimum flows. What depth of water is predicted at these flows?
3. Compensatory flow (between tailrace and dam) of 2 cms in Spring and 1 cms for the rest of the year is of no value to any aquatic life in that stretch of river, since no fish could actually swim in it. What depth of water is predicted in this reach and what is the ecological justification for such low flows.
4. ORA requests that Xeneca adhere to the LRIA guidelines of leaving a minimum of two-thirds of the stream-flow in the river at all times. A strong ecological rationale must be required for any deviation from this before such miniscule flows are approved, given the purposes of the LRIA for the perpetuation of fish.

3. Contempt of Process**a) Lack of Preparation – Not ready to proceed**

This Wanatango Falls ER has a weak foundation which is based on numerous hopes and wishes:

- i. Xeneca has Plan A-High Dam; or Plan B-Low Dam.
 - **Plan A – High Dam:** 9 m head; 9.4 km, or 9.8 km, extending to the base of Frederick House Dam,³⁰ Inundation Limits. This Plan hinges on negotiating with a private landowner – this is the preferred scenario, but if this fails, then;
 - **Plan B – Low Dam:** 7.5 m head; 0.5 km or 750 to 780m³¹. Inundation Limits – contained within Crown lands.
- ii. Xeneca also hopes to be able to negotiate with OPG to release more water from the Frederick House Control Dam.
- iii. Throughout this Environmental Report, but especially when addressing Residual Environmental Effects and Significance, there is no mention of whether considerations were being made on the basis of Plan A and/or Plan B. “Based on the dynamic modelling (HEC-RAS) of the river channel completed to date, the Wanatango Falls facility may result in inundation and back-water effects up to 0.5 or 9.4 km upstream of the dam, depending on which project option is chosen.”³²

ORA Comments

More detail is required in the ER as to which Plan is being considered when addressing environmental and cumulative effects and their significance.

³⁰ Annex B-1, P-13 – Inundation Limits

³¹ Annex 1-B, P-13 – Inundation Limits

³² Wanatango Falls ER – P-63 Site Operation Strategy

b) Site Release Not Yet Issued

In previous Environmental Reports, there was evidence that MNR and MOE representatives both made clear recommendations in writing to Xeneca, on several occasions, asked to wait until the Site Release process was completed before formally commencing with the Waterpower Class EA process. MNR and MOE staff made a valiant attempt to follow their policy and procedure, and their legal obligations to the public, by protesting Xeneca commencing the EA process, and attempting to protect the environment and natural resources; however, Xeneca pressed on in spite of their warnings.

- i. Xeneca has not yet been awarded Site Release at Wanatango Falls, and as previously communicated to Xeneca, any environmental assessment work undertaken before Site Release is completely at the proponent's risk".³³
- ii. Xeneca mentions time and again in Appendix C that their timelines under the FIT Contracts are tight and they must press forward to meet their deadlines. But over and over, Agency staff and concerned citizens have raised concerns that field studies have not been completed, there are gaps, and the process is being rushed.
- iii. Pressure tactics were applied on previous ERs by Xeneca in their letter dated 27 May 2011, from P. Gillette to Richard Linley, MNR, where two MNR staff were reported, "This is most obvious at the Serpent River sites, but Fishery Management Plans seem to be issued in a negative manner at all our FIT sites. The two key individuals raising these issues are and" (names are removed for privacy reasons).³⁴

ORA Comments:

1. Xeneca's timelines and interests must not take precedence over policy, procedure, provincial regulations, the public, and most of all the health and well-being of the community, the environment, and the riverine ecosystem.
2. Agency staff must be left to do their jobs, and not be pressured by upper management or Xeneca to do anything other than act in the best interests of the natural environment and riverine ecosystem.

c) Field Studies Ongoing:

The MOE and MNR expressed concerns with respect to the timing of the completion of the EA since studies and investigations were ongoing, and wouldn't be completed before the Environmental Report (ER) was submitted, and would not be addressed in the document; and thus there would remain a requirement for public consultation to present the findings of these post EA investigations.

ORA Comments:

Xeneca issued their Environmental Report and Notice of Completion while field studies are still ongoing and incomplete – this is unacceptable. No responsible decisions can be made until all information is known and it is unfair to ask the public to comment without knowing all the facts.

³³ Appendix C-P-76 to 81, 2011, May 18 – MNR memo to Xeneca

³⁴ Appendix C, P-91, 2011, May 27 – Patrick Gillette to Richard Linley, MNR

d) Residual Environmental Effects not Properly Considered

It is very important to note that in Xeneca's entire list of "Residual Environmental Effects and Significance", there was not one item that Xeneca deemed "Significant", and Xeneca confirmed that notion upon reporting "No significant negative residual effects are expected as a result of the construction and operation of the facility."³⁵

Depending on circumstances, increased phosphorus levels, potential overproduction of algae, and creation of anoxic layers in the reservoir, do not even appear as potential residual environmental effects in Xeneca's ER, let alone an explanation of why Xeneca feels there will be no residual effects. This is disconcerting, especially given that there are numerous studies which indicate these are negative impacts caused by dams that hold water back in holding ponds for peaking operations.³⁶

The same can be said for fish habitat, fish mortality and fish movement and migrations – the consultant report indicated significant impact yet Xeneca has not committed to any ongoing provision of upstream and downstream passage, except to discuss with agencies. We expect that there will be lasting impacts on all of the foregoing issues. There is no explanation as to why Xeneca feels there will be no residual impact, and it appears that we are expected to accept this comment without question. Habitat will be affected; movement of fish will be affected, and at risk of being killed by turbines. The facility will operate for 40 years and the effects can be expected to accumulate over this period, affecting species for decades, yet the ER states "no significant effects", with no rationale. Pease provide a rationale.

ORA Comments:

1. How will Xeneca mitigate the loss of the fast water habitats identified by the consultant to be effected?
2. Why does Xeneca feel there will be no residual effects from loss of habitat, decreased dissolved oxygen levels, or potential creation of anoxic layers, increased methylmercury production, increased phosphorus levels, or due to fish injury/impingement/turbine mortalities?
3. ORA requests independent and unbiased studies be undertaken to ensure the significance, or non-significance, of all potential negative effects.

e) Installed Capacity and Annual Energy Output

Xeneca reports, "The approximate Installed Capacity of this project will be 4.67 MW and will provide approximately 19,180 MW•h of renewable energy annually."³⁷

³⁵ Wanatango Falls ER- P-16 – Residual Adverse Effects

³⁶ Environment Canada. 2001. Threats to Sources of Drinking Water and Aquatic Ecosystem Health in Canada, National Water Research Institute, Burlington, Ontario. NWRI Scientific Assessment Report Series No. 1. 72p – P-69

³⁷ Wanatango Falls ER, P-52 – 3.3.1 – Installed Capacity and Annual Energy Output

Relatively small Ontario rivers, such as the Frederick House, do not provide the flow capability to run at full Installed Capacity 24 hours a day, 7 days a week, which is what Installed Capacity is based on. Xeneca reports it would produce 19,180 MW•h per year, which means they will actually produce 2.2 MW of power.

The Hydrology Report issued by Hatch, and by which these figures are based on, has an unsettling disclaimer at the beginning of the report “the report is based on information made available to Hatch by the Client or by certain third parties; and unless stated otherwise in the Agreement, Hatch has not verified the accuracy, completeness or validity of such information, makes no representation regarding its accuracy and hereby disclaims any liability in connection herewith.”³⁸

ORA Comments:

So in actual fact Xeneca will produce more like 2.20 MW of power and even that is even in question when Hatch does not stand behind its own Hydrology Report. ORA submits that when using MW to describe Installed Capacity, that it should also use MW to indicate actual power generated. The average person does not know how to convert from MW•h to MW, or even understands the difference.

f) Public Consultation – Incomplete and Not Transparent

Xeneca is still conducting field studies, negotiating for land and water use, and has yet to even decide on a final plan. This Wanatango Falls ER should not have even been released until studies are complete, information is provided, and a Final Plan chosen. Once the Environmental Assessment is complete, then the Public must again be consulted and given an opportunity to comment.

Nowhere in the ER could we find a reference to how large the head ponds would be under either Plan – High or Low Dam. The CEAA Scoping Document provided more information in its Project Summary, although perhaps outdated, than this Wanatango ER. This is not acceptable, and the predicted size of the reservoir under both scenarios must be shown to the public so they can comment effectively.

For the aforementioned reasons, ORA views this Environmental Report as incomplete and inadequate.

Moreover, Xeneca claims its right to make changes down the road with the statement, “The proponent necessarily reserves the right to variances between the conceptual design presented herein and the final detailed engineering design, provided that such variances do not materially and negatively impact the environment beyond the scope of the impacts described herein.”³⁹

ORA was alarmed to find that Appendixes D and E of this Environmental Report were drastically reduced by eliminating all stakeholder, public and First Nation

³⁸ A Annex – P-6, Hydrology Report, by Hatch

³⁹ Wanatango Falls ER, P-50 – 3. Description of Proposed Project

questions, concerns and correspondence, and replacing them with a simple log of events. This makes it very difficult to comment thoroughly, as this information is vital to the preparation of stakeholder comments, and to a fully transparent process. On October 7 2011, ORA made a written request to Xeneca for the full versions of these documents, and Xeneca's response was, "Appendices D and E have a star beside them, indicating that requests for specific documents will be taken under consideration." It is very difficult to know which specific documents to order when we have no knowledge of the documents – and all this takes up valuable time in a short 30 day comment period. ORA made a second request on 27 October 2011 for the full versions; however such documents were never made available to us. And yet, in Xeneca's ER covering letter, it stated that "Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person."

ORA Comments:

1. This is ER is not acceptable – the proponent must slow down and provide the public with a firm and focused plan before proceeding.
2. How many hectares of riparian land would both the low dam and high dam design inundate?
3. How long will the by-pass reach be, and where?
4. The proponent has attempted to embed a very wide range of operating scenarios with the above provision, and to create a free pass for any future changes to project design.
5. Stakeholders must be provided with a clear, firm and accurate ER to comment on – this is not acceptable. We cannot be expected to comment on what ifs and the public must be given the right to comment on any deviations from the expected conditions. Moreover, ORA expect to see very tight conditions on operating strategies in any LRIA permits issued. Please provide a full, complete and firm ER.
6. ORA requests that the Province of Ontario provide an open and transparent Environmental Assessment process.
7. A very careful analysis of proposed minimum flows during winter and summer must be carried out in light of the species present – currently there is no ecological rationale for the minimum flows and we are concerned that the proposed minimum seasonal flows are inadequate to sustain certain species – a rationale is required.

4. Mitigation – Habitat and Fish Passage

The 7.5 or 9 meter head and bypass reach (no indication in this ER of how long the bypass reach will be) presents an impassable barrier for upstream fish passage, and a Compensatory Flow of 2 and 1 cms between the tailrace and dam (whatever height and length), is not enough water for any species of fish to swim up – unless perhaps an agile minnow.

The ER reports, that “Fish Habitat - Permanent alteration or loss of fast water habitats upstream of the facility as a result of inundation”, Residual Effect: “No”.⁴⁰ Yet, “two existing fast water habitats will be permanently altered when inundated”.⁴¹

It is clear that walleye, sauger and saugeye migrate through this area, and there is a significant spawning site at the base of the falls where the tailrace will be located, so sufficient flows must be provided at all times to preserve this habitat. There is no assurance from Xeneca that significant impacts will not occur to this important habitat.

Lake Sturgeon is a Species at Risk both provincially and federally, and inhabit the waters below Zeveloff Rapids, located downstream of Wanatango Falls, also it is possible that they pass through the area of the proposed facility. It is estimated that a population of 117 Lake Sturgeon reside here. There is a potential to negatively impact critical sturgeon habitat (spawning and nursery areas) and for turbine mortalities of sturgeon – a listed species under SARA and ESA. We are given no assurance that sturgeon nor their habitat will be adequately protected except for an indication that it will be discussed with DFO and MNR – there is no indication that the public or First Nations will have an opportunity for input on these serious matters and this situation is entirely unacceptable to ORA. This is a species at risk and we need to be assured that it and other species will have its habitat adequately protected, they will be protected from turbine mortalities and that effective upstream and downstream passage will be provided

The dam has been identified by Xeneca’s consultants to be a barrier for fish and suggests that fish passage be discussed with MNR. ORA submits that blocking migratory routes is a serious issue, leading to further fragmentation of habitat, and very likely compounding the effects of existing structures - this is a well-documented effect and we can provide numerous examples. The consultant and Xeneca, have given no commitment to provide fish passage – just a weak commitment to discuss with MNR.

It is imperative that pressure not be placed on Agencies behind closed doors to suggest that no passage is necessary. We want to make it clear that this is a serious issue of concern for ORA and we want an opportunity to comment on whatever mitigation and compensation options are discussed. Non-jumping fish are notoriously difficult to provide artificial passage for - walleye and sturgeon are very difficult. Compensation for these effects should not even be considered until a clear commitment is made to provide effective safe passage throughout the life of the facility. As there will be residual effects, compensation will also be necessary. As there is a high probability of turbine mortalities, a Section 32 authorization should be required with clear and publically transparent conditions forming part of the authorization

If the project goes ahead the proponent must be required, through conditions of approval and authorization, to build, monitor and improve fish passage provisions. There should be no question of the necessity for passage, regardless of situations elsewhere,

⁴⁰ Wanatango Falls ER – P-118 – Residual Environmental Effects and Significance

⁴¹ Annex III – P-71 – 6.2.1.1 Aquatic Impacts

the technology exists to provide effective passage. The current ER leaves this important issue wide open, with no commitment to provide any form of passage, and unclear opportunity for public input on whatever is arranged with agencies. This is unacceptable, and it is unfair to expect the public to comment when issues such as these are outstanding.

We cannot fathom how Xeneca can say there will be no significant residual effects without considerably more analyses. ORA expects there will be lasting effects on fish passage, mortality and habitat.

The headpond by the looks of it will be 27 feet deep in spots, and there are elevated phosphorous concentrations already. Xeneca states there will be no warming because water will be withdrawn at all levels so temperatures should be uniform. ORA questions this, as it is just an opinion, and needs careful modelling. Regardless, water will be retained and exposed to sunlight for up to 30 hours, so some degree of warming is likely. This, combined with an accumulation of phosphorous enriched water in the headpond leads ORA to believe that there is the potential of both cumulative and standalone effects that could lead to an overproduction of algae – this was not addressed in the ER and is a very important issue that ORA requests through evaluation before approval.

The consultant has stated there will be clear impacts on fish habitat, and ORA submits that this will include significant effects on sturgeon habitat and walleye habitat based on what information was provided. Xeneca states that some of these impacts will be offset by economic and green energy benefits, but you cannot ecologically offset or compensate for lost or declining species, or important habitat (especially for species at risk) with economic benefits. ORA believes that a full analysis of the benefits from this facility to offset climate change is required before such statements of offsetting benefits can be made. Xeneca's statements are too nebulous in this regard, using only cursory statements that have no rigour.

It is not clear yet what the ecological costs of this proposal will be, but they appear to be significant enough to invoke the precautionary principle.

Xeneca obviously wants the security of stable, long-term conditions of approval, but has not provided clear answers to potential effects and in many instances has committed to mitigate effects, and in others has not provided clear indications of how they intend to mitigate. This makes public consultation a farce as there is no information or commitment to address some of the key issues of concern to ORA and others. This is unacceptable.

ORA Comments:

1. Mitigation measures for fish passage have not been adequately addressed in this ER. ORA requests Xeneca fulfill their requirement for a detailed description of mitigation measures to be carried out, such as:
 - a) Fish ladders and resting areas for safe upstream and downstream passage for all species of fish, as well as

- b) Fish friendly turbines that cause the least amount of damage to fish.
2. The effects of this project on Lake Sturgeon, a species at risk, are not properly assessed and addressed. What mitigation measures will Xeneca provide to protect Lake Sturgeon and their habitat?
3. It is critical that all spawning sites have adequate flow at all times, as recommended in the LRIA - recommends a minimum of 2/3rd river flow.
4. ORA requests a clear analysis of the benefits from this facility to ameliorate climate change.
5. ORA requests full public disclosure, and a comment period, for any mitigation or compensation agreements, and the ER includes effectiveness monitoring, and a commitment to rectify unforeseen impacts and any ineffective mitigation.
6. ORA requests a study to determine the effects of warming in the headponds to ensure that warming is not an issue.
7. ORA requests access to the Macritchie Reports to look at fish and habitat issues in more detail.

5. Public Safety Measures – Insufficient Consideration

Xeneca has identified hikers, snowmobilers, ATV traffic, angler, and ice fishing activities, and has also reported the Frederick House River as a recognized canoe route. Public safety issues could arise due to variability in flows and the rate of change in flow levels in the Variable Flow Reach, and beyond.

Xeneca reports, “It should be recognized that intermittent operation would occur only during low flows, most of which occur during the winter months when the river is frozen and not navigable.”⁴² Xeneca has fully discounted the low flow summer months from mid-July through to mid to late October, when the preferred operating strategy would increase river flows from 1 cms to 50 cms, within a very short period of time which has not been specified. Comments such as these in the ER make us wary of Xeneca’s sense of thoroughness and accuracy in the entire Environmental Report.

Xeneca has not provided any studies or information on how ice stability will be affected by peaking operations which would pulse the river multiple times a day.

Xeneca admits that “Public safety considerations could arise due to variability in flows and the rate of change in flows and levels in the Variable Flow Reach. Possibly affected could be recreational uses such as camping, fishing or hiking at the edge of the river in this area. The effect on uses is being assessed as part of the public stakeholder consultation associated with the environmental assessment process.”⁴³

ORA Comments:

1. ORA wants to know how you plan to protect the public from the above conditions?

⁴² Annex 1-C – P-13 – Navigation

⁴³ Annex 1-C – P- 14 – Public Safety & Civil Structures

2. Xeneca must not fast track the ER and Notice of Completion when public safety has not yet been properly addressed, researched and approved.
3. What effect will the constant pulsing of the river during winter months have on ice stability and safety?
4. Xeneca must clearly set out what provisions it will make to protect local stakeholders from poor ice conditions above and below the dam.
5. This dam is slated for either a 7.4 or 9 meter head. Xeneca must provide detailed information as to what safety protocol it will put into place to protect stakeholders in case of dam failure or collapse.
6. A portage for canoers must be provided.

6. Sustainability

The Government of Canada adopted the Brundtland Commission's definition of *sustainable development* in its 1995 report, *A Guide to Green Government*, in which the government stated its commitment to achieving *sustainable development* and outlined its action plan for reaching this goal. Additionally in 1995, Parliament passed amendments to the *Auditor General Act* that included the creation of a legal requirement for certain departments and agencies to prepare and table *sustainable development* strategies in Parliament every three years.

"Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The broader environmental impacts and regional policy issues must be addressed and reviewed before this experiment is allowed to proceed. All Agencies must re-examine their roles and responsibilities in processing and approving these highly questionable proposals.

In the spirit of sustainable development, the facility must take into account other water uses, both existing and planned. The sharing of the water must be done fairly, and on the basis of criteria that all stakeholders agree to.

The Canadian and Ontario governments have adopted the *precautionary principle*, as referenced in the Summary below; and the Ontario government has adopted an *ecosystem approach* through its Statements of Environmental Values (SEV). There is inadequate information provided in the ER to enable approving agencies to ensure the SEVs are met, such as cumulative effects, and effects on sturgeon, walleye, and habitat. In such instances the agencies will need to strongly invoke the *precautionary principle*

Variations in the several times daily cyclical flow, or pulsing effect, caused by the operation of the facility, may have unpredictable consequences on small and often fragile river ecosystems which often contain species at risk, such as the Fredrick House River. No provisions appear to have been made for further mitigation if this should occur.

The current ER is inadequate in identifying and addressing such issues as the impacts on

fish passage, fish habitat, variable flows and levels, and instead leaves this critical aspect to discussion with DFO and other agencies, with unclear opportunity for stakeholders and FN to comment on these very important issues. This is absolutely unacceptable unless all stakeholders and FN agree. It is also critical that the issue of species at risk, turbine mortality and fish passage be incorporated in a revised water management plan.

ORA Comments:

1. There must be clarity in the ER, and within conditions of approvals, as to how impacts on fish passage, fish habitat and turbine mortality events will be addressed.
2. ORA is requesting additional studies be completed before this project is allowed to proceed, including
 - a. A thorough examination of the cumulative and stand-alone impacts of this proposal on sturgeon and walleye populations and habitat, and
 - b. Impacts on migratory routes and on spawning and rearing habitats.
 - c. ORA requests an environmental, ecological and economic cost benefit analysis which uses a real ecosystem services approach to environmental valuation. This would explicitly recognize and value the broad range of benefits that we and future generations receive from this environment, and in particular, the Frederick House River.

7. Decommissioning of Dam

Both MNR and MOE have requested that the ER address what will be planned for this facility at the time of decommissioning, or in the case of abandonment, but no plans have been set out in this ER.

Ontario is littered with old and derelict hydroelectric dams that are no longer in use, and yet must be monitored and maintained (at a cost, usually to the taxpayer), and ultimately removed for safety and/or ecological reasons. This all takes dollars which taxpayers must not have to pay. Developers reap the rewards for at least the 40 year life of their contract, and portions of these funds must be secured for dam decommissioning.

If the FIT Program were to be terminated, peaking profits reduced, or costly repairs were needed due to damage caused by ice or flooding, or climate change reduced the amount of water available for energy production, the payback from these small rivers could make facilities like Wanatango unprofitable, which could result in bankruptcy and/or abandonment. There is no clear commitment in this ER as to what provisions will be made to decommission the facility and its infrastructure if events such as the foregoing should occur. Provisions for dam decommissioning are essential.

ORA Comments:

ORA requests that Xeneca be required to lodge funds in escrow for dam decommissioning, so that if for some reason the generating station is no longer viable and must be removed, the funds will be there to take care of it.

Summary:

The CEEA, 4.(2) states, “*In the administration of this Act, the Government of Canada, the Minister, the Agency and all bodies to the provisions of this Act, including federal authorities and responsible authorities, shall exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.*”

For the many reasons listed above, this type of “modified peaking run-of-river” hydro-electric dam has the potential to be very harmful to a riverine ecosystem. The Wanatango Falls Environmental Report is incomplete and inadequate, as there are still field studies to be completed, numerous information gaps to be filled, and public consultations that must take place once the final plan is chosen and approved.

In summary, ORA has a wide range of concerns in several extremely important areas, such as:

- 1. Cumulative Effects**
- 2. Environmental Effects**
 - a. Modified Run-of-River Operation Creates a Pulsing Effect
 - b. Elevated Methylmercury
 - c. Warming of water in Head Pond
 - d. Lowering of Dissolved Oxygen Levels
 - e. Increased Phosphorus Levels
 - f. Erosion and Sedimentation
 - g. Climate Change
 - h. Clearing for Transmission Lines and Roads
 - i. Ice Scouring
 - j. Operational Flows – Not Sufficient for Aquatic Life and Habitat
- 2. Contempt of Process**
 - a. Lack of Preparation – Not Ready to Proceed
 - b. Site Release Not Yet Issued
 - c. Field Studies Not Yet Completed
 - d. Residual Environmental Effects Not Properly Considered
 - e. Installed Capacity and Annual Energy Output
 - f. Public Consultation and Information Incomplete
- 3. Mitigation – Habitat and Fish Passage – Not Enough Detail**
- 4. Public Safety Measures – Insufficient Consideration**
- 5. Sustainability – Not Sustainable with Climate Change Upon Us**
- 6. Decommissioning – No Provisions Made**

The *cumulative effects* of all facilities, water management practices, roads, transmission lines, diversions, as well as all resulting environmental effects, must be considered with a *precautionary approach* in order to protect any downstream communities, the environment, and the riverine ecosystem; and to comply with the EAA and the CEEA. These types of proposals must not be fast tracked, information left out, or policy and procedure skipped. These facilities would have at least a 40 year impact, and accumulating every year if impacts are not adequately mitigated. The effects of waterpower facilities can be highly significant and are

notoriously hard to mitigate after the facility has been constructed. This project cannot be taken lightly - there is too much at stake!

The very short comment period that has been allowed the public and stakeholders has made it difficult to review the ER and all its supporting documentation and still have time for a meaningful exchange of dialogue; however, ORA is committed to working with Xeneca to resolve the above issues and concerns. If insufficient answers are forthcoming by 4:00 pm on Friday, 4 November 2011, then ORA will make a Part II Order request to the Minister of Environment for an elevation to an Individual Environmental Assessment.

ORA looks forward to your response!

Respectfully,



Linda Heron
Chair, Ontario Rivers Alliance

Cc: The Honourable Jim Bradley, Minister of Environment - Minister.moe@ontario.ca
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