



Presentation to the Joint Panel reviewing the Environmental Impact Statement for the Lower Churchill Generation Project:

March 18, 2011

Outline Only:

Presentation will discuss the following:

Review of Wetland Protection Agreements, National and International:

Ramsar Convention on Wetlands, North American Waterfowl Management Plan, North American Wetlands Conservation Council. Canada, Federal Policy on Wetland Conservation, 1991:

Valuing Wetlands: "Wetlands of Canada" published 1988:

Values economic returns from wetlands in excess of \$10Billion annually in Canada. (In 1988 dollars)

Riparian/Wetland Habitat losses from the Project:

EIS does not accurately reflect the probable effects on wetland habitats. Marshes and shrubby thickets along the whole length of the river are important for species of birds and wildlife.

Over 60% of wetland sparrow habitat will be lost.

Reservoirs above Churchill Falls generating station have shorelines that have been severely changed and do not reflect natural shores.

Nalcor says they can mitigate these effects. We have no confidence that this will happen. If effects like these can be mitigated, why haven't they done anything along the hundreds of miles of shorelines in the reservoirs in the upper part of the Grand (a.k.a. Churchill) river that are already in such bad shape.

This project will only add to the already significant loss of river wetlands in the whole region.

Red Wine and George River Caribou:

Cumulative effects not properly assessed for either herd. Transmission lines not included. Future developments not considered. Winter habitats not totally included. Range of both herds only partially included. Impact of taking or causing death of even 2 or 3 animals in the Red Wine Herd are "Significant" since the herd numbers only about 75.

ASHKUI

Again, ashkui are discussed by the Proponent as though future tributaries and elsewhere will suffice. Also Proponent says there will be fewer and smaller ashkui in Churchill River. Not clear what effects on waterfowl that depend on these areas in early spring will be but biologists say overcrowding at smaller ashkui could have adverse effects.

Plants :

Temperature in Grand River valley is as much as 10 degrees warmer than the surrounding plateaus at any given time. Many plants which survive in the Valley may do so because of the temperature difference. Even though these plants may exist elsewhere, the river valley may be the only place they survive in Labrador. Some species may be extirpated from the River Valley. What species are in this category and will the Proponent

Mercury levels in wildlife:

Proponent states mercury levels will increase but not affect health. This is speculation. Show documentation that this is the case. GRK will show documentation where there is concern about the mercury levels in wildlife and its effect on the animals and on humans.

Habitat-Proponent states distribution affected by the project footprint:

However, George River Herd and Red Wine Herd habitat far beyond the project footprint and adverse indirect effects could be more damaging than direct effects.

Mitigation/Creation, Avoidance tactics, Adaptive Management:

Proponent asked to compile complete list of mitigation measures already agreed upon, any others that come up as the result of further presentations by Government Departments; avoidance tactics requested by different Gov. Departments; and Adaptive management measures that will be put in place, plus creation of wetlands, creation of ashkui, creation of fish habitat, etc. etc. and cost out these measures over the time scale for each one so the Panel and the Public can review what those costs are and how they will affect the overall economics of the project.

Proponent should also be asked to provide documentation (literature review) for all mitigation measures, and creation measures to show where these measures have been done in the past, how successful they were, what the extra costs to the projects might have been.



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Review of Wetland Protection Agreements, National and International:

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The Mission of the Convention is “the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”. Of 1600 sites currently protected totalling 120.6 million hectares, Canada has 37 sites, Newfoundland has 1 site, 925 ha. In contrast, the North West Territories has 6 sites totalling over 8 million hectares.

An interesting note on the Government of Canada’s web site is that Canada is estimated to have 24% of all the wetlands on the Planet, which provide more than \$20 billion in economic benefits to Canadians each year... and as of May 2004, the 36 sites then protected within Canada constituted 10.8% of these wetlands protected under the Convention.

We have been told by experts that there are sites within the Grand River valley and out into Lake Melville that could qualify as Ramsar Sites. This idea should be investigated. There are benefits from all the wetlands on the Grand river and in Lake Melville that could and should be quantified and counted against the questionable benefits from the Project, instead, we plan to flood them and hope that Nalcor can “re-create” sites to replace them.

The World Conservation Strategy: has identified wetlands as one of the key life support systems on this planet, in concert with agricultural lands and forests.

North American Wetlands Conservation Council. Canada, Federal Policy on Wetland Conservation, 1991: The objective of the federal government of Canada with respect to wetland conservation is to:

“promote the conservation of Canada’s wetlands to sustain their ecological and socio-economic functions, now and in the future.”

To that end, the ***“Sustainable Wetlands Forum”*** held in 1990 to develop Canadian wetland conservation recommendations brought forward a very important key recommendation.. and that was that “no net loss of wetland functions” should be established as a national goal in Canada. The strategy, ***“The Federal Policy on Wetland Conservation,(1991) ”***, commits all federal departments to the goal of “no net loss of wetland FUNCTIONS”. This is very different from the simple “no net loss” strategy that was considered before the Forum.

So, now, we must ask the Proponent whether they have considered, not just “no net loss” of wetlands in their plans to re-create wetlands, but if they are able to re-create or create wetlands that will satisfy ALL the functions of those wetlands that will be inundated?

Valuing Wetlands: “Wetlands of Canada” published 1988:

This report values economic returns from wetlands in excess of \$10Billion annually in Canada. (In 1988 dollars) The Government of Canada’s web site, stated above, values economic returns from Canada’s wetlands at \$20Billion annually.

The point is, that the wetlands in the Grand River Valley are being treated as though they have NO VALUE... as are all the other ecosystem services within the River valley. No mechanism has been put in place to quantify the services the

river, the animals, the fish, the wetlands etc. etc. provide to the community, the Territory, the Province nor to Canada. This is truly a shortcoming in the way Projects are assessed. To quote a section from a report by Pavan Sukhdev, the Study Leader for The Economics of Ecosystems and Biodiversity, TEEB,

The familiar ‘mantras’ of market supremacy, efficiencies of privatization and globalization, trickle-down theory, GDP growth and so on, were the economic toolkit of the 20th century. They worked for a limited time and purpose and have indeed improved the standard of living in many societies, but at the same time, they have created massive negative externalities (i.e. climate change risks and ecological scarcities) which hang over the whole of humanity like the sword of Damocles. The development paradigm of the second half of the 20th century is not a great success story from a humanitarian perspective either: the number of the world’s poor increased, not decreased, if ‘poverty’ is considered in terms of ‘well-being’, not just being welloff’, and defined to include the various constituents and determinants of human well-being.” ...“Why did this happen so?” In theory, markets should have enabled human choices to be felt by adjusting prices,but of course, there are no ‘markets’ for the largely public goods and services that flow from ecosystems and biodiversity, and no prices. The traditional term for this is ‘market failure’.“Valuation, (he goes on to say) can serve as a tool for self-reflection, helping us rethink our relationship with the natural world, and alerting us to the consequences of our choices and behaviours...”

No mechanism has been put in place with regards to this huge Project to reflect on what the River and the biodiversity contained within it provide to our Community and our Territory in comparison to what our Community and our Territory will receive from the damming and building of Nalcor’s Generation Project. This is truly a failure of the Environmental Assessment Process in Canada and Grand Riverkeeper believes that with out question, if such a mechanism were to be put in place, to value these ‘currently un-valued” natural things... that Nalcor’s proposed benefits would be dwarfed!

Riparian/Wetland Habitat losses from the Project:

The EIS does not accurately reflect the probable effects on wetland habitats. Marshes and shrubby thickets along the whole length of the river are important for species of birds and wildlife.

One Biologist told us yesterday that over 60% of wetland sparrow habitat will be lost.

Reservoirs above Churchill Falls generating station have shorelines that have been severely changed and do not reflect natural shores.

Nalcor says they can mitigate these effects. We have no confidence that this will happen. If effects like these can be mitigated, why haven't they done anything along the hundreds of miles of shorelines in the reservoirs in the upper Churchill structures that all look like wastelands with no vegetation growing anywhere.

When we reviewed JRP .101 we saw two photos where proposed mitigation of wetlands supposedly has proven successful. Photos 1 and 2 which is called "man-made Pond Shoreline at the North End-1 km east of Lobstick Control Structure at High Water level, August 2006, shows an area that appears to be a natural riparian zone. However, some of us have paddled the reservoirs and fished along the banks of the reservoirs up around Lobstick and I, for one, can guarantee you that I saw nothing that looked anything like a natural riparian zone. The banks of the reservoirs were rocky with very little vegetation for as far as the eye could see just a few years ago. (35 years after impoundment) If these two photos were taken near Lobstick reservoir, they were certainly taken somewhere that I would be unable to see from walking the dykes and fishing in the areas around the structures.

We have no confidence that creating wetlands and expecting all aspects of those important areas to function exactly like natural wetlands. And we feel this project will only add to the already significant loss of river wetlands in the whole region.

Red Wine and George River Caribou:

Cumulative effects are not properly assessed for either herd. For example, transmission lines for the Labrador-Island Link were not included. Nor were the future transmission lines that would have to be built to take the balance of the power from Gull Island to some future market. Future developments are not considered. None of the possible scenario's for future industry that Nalcor so adamantly touts as Labrador's future "benefits" from this project are counted as effects on these caribou herds, and effect they will certainly have, should any of the proposed projects proceed. Also while Nalcor uses a list of 6 or 7 likely industries that the Community will benefit from because of the availability of "power" in Labrador, it is curious to note that in their answer to the Panel's IR JRP .97 (d) where the Panel is trying to ascertain cumulative effects of future projects, they are quick to state, "The likelihood of such induced development cannot be predicted with any certainty. If and when such development may occur is not known. However, any such development that occurs will be subject to applicable governmental approvals, including environmental assessment and an evaluation of their cumulative effects as applicable." Nalcor can't have it both ways, either they get to count these industries as benefits for the future or they don't. This is just another example of the word-smithing that has been done through out this EIS to baffle us and confuse the issues. As well, their statement that any such developments will be subject to environmental assessment and an evaluation of their cumulative effects as applicable gives us no comfort as we see that in this environmental assessment they have totally ignored cumulative effects wherever and whenever possible.

We heard yesterday that only portions of the range of both caribou herds was included in the assessment. Why?

It is the opinion of Grand Riverkeeper that the impact of taking or causing death of even 2 or 3 animals in the Red Wine Herd is "Significant" since the herd numbers only about 75. The Proponent cannot prove beyond a reasonable doubt that the Project will not have a taking of caribou from either of the herds, or cause a reduction in total numbers, and the numbers of the George River herd

too, are dropping quite drastically. Nor can they say that the Project will in any way improve the fortunes for the caribou, and no substantial proof exists to support the belief that the caribou will be managed any better in the future than now, or in the past, despite Nalcor's statement that they will remain a member of the Recovery Team. In fact, remaining on the Recovery Team for the Red Wine Herd, while effectively orchestrating their share of the demise of this Herd, is viewed by Grand Riverkeeper as hypocritical.

ASHKUI

Again, ashkui were discussed by the Proponent yesterday as though future tributaries and elsewhere will suffice. Also Proponent says there will be fewer and smaller ashkui in Churchill River. It is not clear what effects on waterfowl there will be should these ashkui not form as predicted by the Proponent, but biologists say overcrowding at smaller ashkui could have adverse effects. Grand Riverkeeper does not agree that Nalcor energy can or will create productive ashkui once the River is dammed.

Mercury levels in wildlife:

Proponent states mercury levels will increase but not affect health. This is speculation. Show us the documentation that this is the case.

GRK can show documentation where there is concern about the mercury levels in wildlife and its effect on the animals and on humans. The effects on wildlife can be reviewed in a summary of the UNEP Global Mercury Assessment report, section 70, 71, 72, and 73: Quoted below>

70. At the top levels of the aquatic food web are fish-eating species, such as humans, seabirds, seals and otters. The larger wildlife species (such as eagles, seals) prey on fish that are also predators, such as trout and salmon, whereas smaller fish-eating wildlife (such as kingfishers) tend to feed on the smaller forage fish. In a study of fur-bearing animals in Wisconsin, the species with the highest tissue levels of mercury were otter and mink, which are top mammalian predators in the aquatic food chain. Top avian predators of aquatic food chains include raptors such as the osprey and bald eagle. Thus, mercury is transferred and accumulated through several food web levels (US EPA, 1997). Aquatic food webs tend to have more levels than terrestrial webs, where wildlife predators rarely feed on each other, and therefore the aquatic biomagnification typically reaches higher values.

Mercury compounds toxic to wildlife

71. Methylmercury is a central nervous system toxin, and the kidneys are the organs most vulnerable to damage from inorganic mercury. Severe neurological effects were already seen in animals in the notorious case from Minamata, Japan, prior to the recognition of the human poisonings, where birds experienced severe difficulty in flying, and exhibited other grossly abnormal behaviour. Significant effects on reproduction are also attributed to mercury, and methylmercury poses a particular risk to the developing fetus since it readily crosses the placental barrier and can damage the developing nervous system.

72. In birds, adverse effects of mercury on reproduction can occur at egg concentrations as low as 0.05 to 2.0 mg/kg (wet weight). Eggs of certain Canadian species are already in this range, and concentrations in the eggs of several other Canadian species continue to increase and are approaching these levels.

73. The levels of mercury in Arctic ringed seals and beluga whales have increased by 2 to 4 times over the last 25 years in some areas of the Canadian Arctic and Greenland. In warmer waters as well, predatory marine mammals may also be at risk. In a study of Hong Kong's population of hump-backed dolphins, mercury was identified as a particular health hazard, more than other heavy metals.

Requests for more research:

Requests for further research seem rampant during the aquatic reviews and now during these terrestrial reviews. The Proponent has been inundated with requests from various departments for further information, further research; some of which could take a year or more to accomplish.

It's almost futile to put together a presentation based on the reams of documents already in hand because with each and every new presentation from the Regulators, more information is requested of the Proponent.

The Proponent has on various occasions proudly exclaimed that their working relationship with these various Regulators has been exemplary, if that was the case, how come these same Regulators are still asking for more information? Why hasn't Nalcor already done the research required by these Regulators? Obviously, the working relationship with the Regulator's wasn't nearly as exemplary as Nalcor led us and the Panel to believe.

All this extra research may or may not be done until after the Hearings process is complete, and if so, we at Grand Riverkeeper wonder who will review their research? The Regulatory agencies appear to have already signed off on the

Project. The Panel's mandate is to continue with these hearings until April 15th at which time they will accept no more documentation and will deliberate and write their report within the next 45 days. This gives Grand Riverkeeper no comfort that new information from these studies will get the proper review once the Panel's mandate is completed, especially since Nalcor has had the arrogance to already run ads in our local newspaper and others in the Province for the last two weeks, in an effort to hire employees for the Project, effectively thumbing their nose at the Panel and the Environmental Assessment Process.

Downstream effects:

Again, with regards to the terrestrial environment, no downstream effects have been assessed. With no baseline information on important wetlands in the Goose Bay Estuary, or out into Lake Melville, how can any assessment or mitigation of the effects of the project on those wetlands be accomplished? No work has been done on the interaction with coastal salt marshes. No studies done on the effects of reduced sedimentation loads on these wetlands nor the resultant effects on fish, waterfowl and wildlife. Grand Riverkeeper insists that wetlands along the shores of Lake Melville and Goose Bay must be counted and studied as part of the downstream effects of the Project.

Plants/Trees/Rich habitat/Biodiversity in the Grand River valley:

Review of the audio tapes from March 17th reveals Mr. Perry Trimper, a member of Nalcor's Panel and the lead consultant on various studies for the Project answering a question posed by Co-Chair, Leslie Griffiths. Ms. Griffiths asked what the difference in sensitivity would be between the Muskrat reservoir, terrestrial area and the Gull Island reservoir area. Mr. Trimper stated (unable to get exact quote as transcripts were not available yet) anyway, he stated what has been obvious to Grand Riverkeeper for years; namely, that due to the micro climates in the river valley, the richer habitat and the abundance of species is in the eastern end of the river (we presume he meant east of Gull Island?) and as you go up the river valley, it becomes less and less rich. He says, the interesting thing about the Churchill River valley is it is a deep valley and for the areas to the north and south of the valley the ecosystem tends to be not as diverse and "therein lies the

importance of this valley.” Mr. Trimper didn’t say the following words, but it’s almost as if he described the valley as a type of “oasis” in the midst of the surrounding landscape. Grand Riverkeeper Labrador concurs with these observations.

We would also point out that although the NL Forestry Department painted the entire region as old-growth boreal forest, we strongly disagree that the old-growth forest cover in the river valley is comparable to old-growth forest in the rest of the region of the District 19a forestry plan. Due to the “richness” and “micro-climatic conditions” mentioned above in the deep river valley, a white spruce tree in the valley can grow to 40 or 50 centimetres in 40 years while the same tree on the plateau above might grow to 10 centimetres in 80 to 120 years. These trees are truly magnificent specimens, some of which I personally was unable to wrap my arms around during walks in the woods on several canoe trips down the Grand. These sizes of trees do not exist on the plateau. The old-growth in the River valley is special and the loss will be “Significant”.

Grand Riverkeeper Labrador is adamant that considering the biodiversity and uniqueness of the River valley, even as portrayed by Mr. Trimper of Nalcor’s Panel, that the loss of this treasure will be VERY SIGNIFICANT to everyone in Labrador.

Thank you for listening.