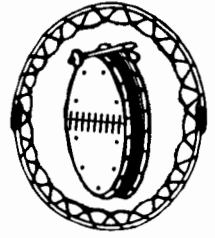


G.C.C.E.I.

MEMORANDUM



C.R.A.
A.R.C.

To: Council/Board Members
GCCEI/CRA

From: Bill Namagoose, Executive Director

Date: November 26, 2004

Subject: “Employment Effects of Electricity Provision in Quebec: The Great Whale Hydroelectric Project and Electricity Efficiency Alternative”

I am sending you, under separate cover, two studies commissioned by the Grand Council of the Crees entitled “Employment Effects of Electricity Provision in Quebec: The Great Whale Hydroelectric Project and Electricity Efficiency Alternative” completed in June 1992.

The second study entitled “The Potential for Cogeneration in the Quebec Pulp and Paper Industry” completed in 1993.

These are part of the Great Whale files accumulated during the successful campaign to stop the Great Whale hydro electric project. The Grand Council of the Crees was forced to look at alternatives to the massive hydro project in order to use public pressure to opt for these alternatives as a part of our strategy. We did not rely wholly on the courts and as you may remember it was a combination of legal and public relations strategies combined with the review process that eventually won the day. At the time the alternatives available were nuclear reactors, coal, oil, natural gas, wind, and energy conservation.

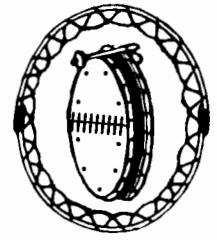
Nuclear power was ruled out because of the public fear of reactors and the disposal issue. Coal fired power plants created the most air pollution.

Oil powered generators were ruled out because of the price of oil and gas at the time. These prices are even higher today.

Natural gas was a strong alternative at the time because new reserves were being delivered to the eastern United States by a new Alberta to US pipeline. Since that time natural gas has increased enormously in price and reserves are at a new low. It is much more expensive today to produce electricity with natural gas than it was in the mid 1990’s. Therefore, it is no longer a serious



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economic alternative to hydroelectricity even at the Great Whale price of \$.045 per kilowatt hour. However, even in the 1990's there was a somewhat illogical bias against natural gas in Quebec because it came from Alberta. The idea that Hydro Quebec buy vast quantities of natural gas in the ground in Alberta did not resolve this bias.

It was this bias against natural gas and the reluctance of Hydro Quebec at the time to put energy production into private hands that went against co-generation project in the pulp and paper industry. As you will see in our study on cogeneration, this would have pumped millions of dollars into the pulp and paper industry and would have allowed them to modernize. At the time the Quebec industry used old equipment and was inefficient. The cogeneration study was commissioned to demonstrate that waste heat or wood chips produced by the pulp and paper industry could be harnessed to produce electricity. This was the formula that allowed this industry to modernize and become profitable in Maine during President Jimmy Carter's time. We hoped to convince this Quebec industry to lobby the Government for this option. This was to some extent successful and some small projects were built such as the one in Chapais. However, if this idea had been fully implemented, it could also have put 8000 MW of electricity onto the grid at competitive prices. There may still be some potential for this in Quebec today and Hydro Quebec may be more receptive to private power today. However, the increased price of natural gas will likely mean that less power can be economically produced in this way today. This may however need looking into.

Wind power was not economically viable in the 1990's as it cost about twice the \$.045 of Great Whale electricity. Also, most bird watching societies claimed wind mills killed too many birds and as a result of this they were opposed to them. There were also some issues at the time of incompatibility issues between wind power and the power on the grid due to frequency fluctuations. This should be carefully examined.

One of the Cree allies in the fight against Great Whale were those people and groups who were opposed to coal, oil and natural gas due to the emissions. They led a strong and successful campaign against acid rain in Québec at that time. Those groups, when they were not in favour of the proposed hydroelectric developments tended to favour of energy conservation.

Energy conservation, and in particular electricity conservation can be a variety of things. It can mean changing the heating of buildings from electricity to oil or gas heating. It can also mean installing more insulation, more efficient lighting or reducing the amount of lighting when it is not needed – such as turning off some of the street lights or lights in empty buildings at night. The rule for selecting such options was usually that the cost of making the changes had to be covered by the money saved by installing the new equipment. If new windows for example



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If new windows for example could be paid for in 5 or 10 years by the \$10, \$20 or more dollars that you might save per month on your electricity bill, it would be worthwhile installing them. If however it took so long to pay for them that they would have to be replaced before the costs were recuperated then it would not be worth it.

As you will see in our study, for Quebec it would have been worthwhile in the 1990's to invest in energy conservation. First of all, it did not create jobs just in the construction phase; as does a dam, it in fact created more jobs and for a greater number of years. Instead of pouring money into cement, energy conservation poured it into jobs primarily in the urban centers, instead of forcing urban workers to go away from home to build a hydro dam in a remote area.

Secondly, an equivalent investment as the proposed investment in Great Whale would have freed up a similar amount of electricity as Great Whale would have produced and for the same price. The energy conservation option was also supported by the CSN labor union in Quebec. In fact, labor leaders Mr. Larose and Monique Simard made numerous declarations that they were opposed to the Great Whale project.

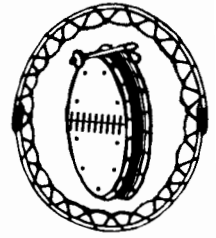
At the time the energy conservation proposal developed met or beat the cost of the electricity to be produced by the proposed Great Whale project.

Today, in the cost of the EM1A-Rupert Diversion Project the costs of an energy conservation program, just compared on an economic basis would have to be compared against the reputed cost of the EM1A power of under 2 cents per kWh instead of the 4.5 cents of the Great Whale Power in the 1990's. Whether equivalent amounts of electricity (about 12 terawatt hours of energy) could be freed up and equivalent employment created through energy conservation by spending up to 2 cents per kWh is the new question.

Of course the issue is not only economic. It is also a question of whether rivers should be diverted, lands should be flooded and people's lives impacted when there are alternatives of whatever price available. There are those among us who will say no price is too much to avoid these impacts. There are others who will say that there are reasonable limits on the cost of avoiding these impacts.



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The Cree campaign in the 1990's was based on the environmental and social-cultural arguments and energy conservation was promoted as the alternative. This eventually brought many groups on side: the labor unions, the acid rain people, bird watchers and the anti nuclear lobby. However, there were many in Quebec and the USA who thought that Great Whale was a clean and cheap electricity.

There were many Quebecers who were pro-hydroelectric development and who were upset with the fact that the Crees were convincing American interests that other alternative investments were better. At the time the great Whale Project was to be paid for by loans taken out in the USA to be paid for by contracts signed in the USA. They saw the American money as building dams for future use by Quebec.

Today long term American contracts no longer support the proposed projects. Today there is an open energy exchange into which HQ sells electricity when the price is high and buys it when it is low. HQ's figures show that it no longer exports large amount of electricity because it also buys it and the net flow is apparently not high either way. It makes huge profits on the difference. They can store water while is buys American electricity, usually during the night when the demand in the USA is low and then HQ uses that water to make electricity during the day when USA prices are high and demand is high.

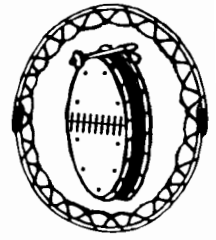
Strategically, are there alternatives to EM1A that others in Quebec would also support? The more an alternative source of energy is economically competitive with the proposed EM1A the easier it will be for our arguments based on environmental and social-cultural impacts to be accepted by decision makers in Quebec. In order for another source of energy to be seen by all audiences as an alternative to EM1A it must be economically competitive with the diversion and dam.

In the review process for the EM1A-Rupert Diversion Project we have to get an understanding of the energy situation not just based on HQ's claims in its report, but based on our own independent studies that we commission. These should also help us to decide to what extent we would support any wind power proposals.

This brief summary is meant to assist you in your deliberations on energy in the present context. The economic conditions that existed in the 1990's, where natural gas generation replaced the HQ contract in the USA, no longer exists. The price of natural gas has tripled in some markets since that time, oil is near an all time high and the price of wind power has come down to 7 or 8 cents per kilowatt hour. Promoting energy conservation does not effect the environment as land is not set aside for development and it uses existing facilities, but how much can be done in a



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manner competitive to other alternatives to EM1A? What are the alternatives that could be reasonably accepted? These are questions that we must answer in the coming months.

The energy situation of today will be examined and the studies will be updated and the results will be sent to you for use in the EM1A-Rupert Diversion review process for your use in considering the wind power issues and in other energy matters.

cc: Jean Paul Murdoch, Corporate Secretary
 Eddie Diamond, Director General CRA
 Matthew Swallow Treasurer CRA
 Willie Iserhoff Director TPA CRA
 Andrew Neeposh Director CNYC CRA
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 Henry Mianscum Director CHRD CRA
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