LOWER CHURCHILL HYDROELECTRIC GENERATION PROJECT

JOINT REVIEW PANEL

PROJET DE CENTRALE DE PRODUCTION D'ÉNERGIE HYDROÉLECTRIQUE DANS LA PARTIE INFÉRIEURE DU FLEUVE CHURCHILL

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JOINT REVIEW PANEL

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Happy-Valley Goose Bay, NL

--- Upon commencing Wednesday, April 13, 2011 at 8:34 a.m.

--- OPENING REMARKS:

CHAIRPERSON GRIFFITHS: Good morning, ladies and gentlemen.

First I want to say a few words about where we are in the hearing process.

Yesterday, April the 13th, was the close-off for accepting new information, and the panel will not consider any information submitted beyond that date.

This is day one of the closing remarks session. It provides an opportunity for individuals and organizations that have previously presented to summarize their position and to provide a rationale for that position.

Of course, the panel has encouraged and does encourage all participants to reflect on all of the information presented and to indicate to what extent this might have caused you to change your view or your position.

The procedures for today and tomorrow are relatively straightforward. Only

He’s just coming in, okay. We’ll wait a minute or so for him rather than trying to change the schedule.

(SHORT PAUSE)

CHAIRPERSON CLARKE: So good morning, Mr. Raphals, this is just in time presentation.

So take a while to get yourself straightened away and then when you’re ready you can proceed.

--- CLOSING REMARKS BY MR. PHILIP RAPHALS:

MR. RAPHALS: Good morning.

Where to start. It seems to me the first question is the project definition, what is the project that we’re looking at. Clearly from an administrative point of view the project that’s filed consists of both Muskrat Falls and Gull Island.

But from what we’ve learned in the last couple of months it seems clear to me that at this stage the Gull Island project is entirely hypothetical.

Mr. Bennett told us yesterday that there are several transmission requests pending in the TransÉnergie queue and that the plan to

transmit Gull Island power through Quebec is alive and well.

Last night I double-checked -- I checked it earlier, the TransÉnergie impact study list, which includes all of the requests as they're queued, and indeed nothing has changed since my original brief filed on February 28th.

There is one 740 megawatt reservation, which I refer to on page 23, which is the only one -- the only active one in the queue which obviously totally inadequate for the 2,000 -- more than 2,000 megawatt Gull Island project.

Recently the Régis has rejected Nalcor's request for revision with respect to an earlier request. Clearly, Nalcor still has the option of going to court about this but even if it wins there someday, it still won't have transmission access since the refusal was strictly procedural.

In fact -- I think we spoke about this earlier -- the issue is that a letter had to be filed by a certain date in order to keep the file open. Nalcor filed the letter, TransÉnergie considered the letter to be inadequate and, therefore, the file was closed and the Régis

disposed of the matter simply in addressing that simple question of whether or not the letter was valid or not, which means that even it is eventually overturned on appeal we'll still be back at stage one, all of TransÉnergie's reasons for rejecting the application remain.

So one would have to be extremely optimistic, have very deep pockets and be ready to fight for many years, if not decades to really see hope for transmission access based on that first request.

It seems to me that if Nalcor were really serious about proceeding with Gull Island it would have filed new reservations with HQT for the full amount of power that it would eventually need to transmit. Not having done so, I think it's safe to conclude that Muskrat Falls is the only real project that is being proposed here.

Now, what is the justification for this project? Initially it seemed that the justification for the global project was primarily export sales but looking at the Muskrat Falls project and the current configuration, market prices are far too low and it seems that export sales have now become sort of a footnote.

Export sales will use up the power that the island doesn’t need now but gradually the island will eventually need that power and export sales will diminish.

So the real justification for this project is to supply the island with power and in particular to allow it to shut down the Holyrood oil plant, which is a very valid and desirable objective for both economic and environmental reasons.

But then we get to the question, what are the alternatives for this justification for this project, not for the 3,000 megawatts that were initially proposed but for the real project that’s on the table.

The Proponent essentially says that there aren’t any viable alternatives but I don’t find this credible. He’s argued that the realistic CDM potential is small, that small hydro is of no real help because it would need a billion dollars of transmission upgrades and because there’s no storage to allow it to displace Holyrood in the winter and that wind is no real help either because there’s only 80 megawatts of wind capacity that can be effectively integrated.

They say that intermittency is actually not a significant problem but the real problem is storage for the winter and that having a large wind capacity would cause spillage in the summer because they'd have to pay for it anyway.

So what's wrong with this picture?

First with respect to CDM, the Marbek study identified a very significant potential in 2007 I think it was. The avoided costs are significantly higher and one can certainly expect that the potential -- if the same study were done again today would also be significantly higher.

The Newfoundland and Labrador utilities have done practically nothing to realize this potential to date.

There was a five-year plan filed, as my report yesterday showed, they're approximately 50 percent behind on all of the objectives, both for spending and for savings, and I don't see any real indication that there is an urgency here, that the people are struggling to figure out how to desperately catch up with these objectives. It seems to be that's just the way it is.

Instead, we're seeing a downplaying of the potential. We saw a table that showed the achievable potential -- I referred to it yesterday, I don't remember exactly where it is -- oh, it's in the response of April 1st -- which shows the percentage of achievable potential as actually being the will/were achievable potential, again, based on the Marbek study, based on the old avoided costs.

As some of the information that I presented yesterday showed, Newfoundland and Labrador is really extremely far behind the rest of Canada, certainly behind -- which is, in general, pretty far behind many regions of the United States.

Great advances are being made, many utilities are taking conservation and demand management extremely seriously, are looking at zero growth over the medium-term and none of that is happening here; which means that if that change of corporate culture were to take place to enable a very substantial effort in conservation and demand management, it could go a very long way to meeting the objective of this project, to meeting load growth which is largely related to the shift to

electric baseboard heating, which everyone knows is a terrible thing to do when you're burning fossil fuels to make electricity and to reducing the reliance on Holyrood.

Now, what about wind? The energy plan was very clear about wind, that Newfoundland has a world-class wind resource. The Canadian wind atlas map was actually in the energy plan. The map they use is at a 50-metre hub height when 80-metres is the height which is standard in the industry now. And I've included the 80-metre map in the document yesterday.

The map of the Avalon Peninsula and indeed of most of the island is entirely red, this doesn't exist anywhere else in Canada, this is a phenomenal wind resource.

It means you can put up a wind turbine practically anywhere on the island and have better -- more energy per capacity than the wind farms that are being installed in Quebec. I mean, this is a stunning wind resource, so what are we doing about it?

Furthermore, in most of North America, in most parts of the world, wind resources are far away from loads, so, like hydro, if you

want to build wind, you have to worry about transmission in there, or costs in there, or losses.

In this case, the load centre is on the Avalon Peninsula, and the winds right at the load centre are extraordinary. So it's really remarkable that more effort hasn't gone into trying to explore how this wind resource could be mobilized to solve the problem that's before us, which is how to meet island demand and load growth, and to reduce need for and hopefully eliminate the need for the Holyrood oil plant.

In the document that I filed yesterday, on pages 10 to 14 I sketched out the characteristics of a wind farm on the Avalon Peninsula, or nearby, that would produce the same 3.9 terrawatt hours a year as the Muskrat Falls project will deliver to the Island.

It would consist of about 1,000 megawatts installed capacity which would require about 659 square kilometres. That's about 25 kilometres square, spread out in hopefully as many areas as possible to increase the geographical diversity. The locations, obviously, should be chosen to maximize diversity, as well as

transmission access.

This project would structure from the perspective of an IPP that would sell power with a 25-year PPA, at $75.00 a megawatt hour. The escalation was small, just .38 percent per year, and even so the IRR was 11.55 percent, better than Muskrat Falls.

Last night I looked again and re-adjusted the parameters of that and, if we do it the same way as Muskrat Falls, with a 2 percent per year estimation, that is, escalating strictly according to inflation, and with a 7.3 percent interest rate, the power price falls to $65.00 a megawatt hour. And this is without need for long-distance transmission, and with an IRR of over 12 percent.

Now, this basic analysis was performed by a professional in the wind industry, based on the data in the Canadian Wind Atlas. It’s obviously very preliminary and indicative, but it is -- so it is, clearly, a first estimate, but I consider it to be a highly credible first estimate.

In my paper yesterday, I explained how geographic diversity diminishes the intermittency of wind resource, and I presented a

few studies that demonstrate this concept. The degree to which this occurs varies from place to place.

In Manitoba, for instance, wind turbines would have to be much farther apart to produce this effect, than in a place like, say, Newfoundland, because complicated geography leads to complicated meteorology. When the land is flat, and the weather system moves from one end to the other, obviously you don't see as much diversity as you do when you have complicated ridges and mountains and coasts in different directions. Obviously, careful study is needed to understand exactly how this effect would play out on the Island, but it certainly is there.

Now, I understand it's difficult for an environmental assessment panel to start telling Nalcor, or the Government of Newfoundland and Labrador, how it should meet its electric needs. I know that's not your role. You're here to evaluate the project, not to substitute yourself for the planners.

The problem is that the planners are not working within a framework that allows a careful evaluation of the alternatives, which, as I

understand the legislation, is something that you need to, indeed, take into consideration.

We learned yesterday that despite the clear statement by the Public Utilities Board, quoted on page 29 of Nalcor's April 1st response, to the effect that IRP is an important planning tool, and that it should be implemented, in reality nothing is being done.

At the time, 2007, the PUB chose not to require it, in deference to the forthcoming energy plan. That was four years ago. The energy plan is out, and since then nothing has happened.

NLH has not filed another general rate application, which may be why the PUB hasn't returned to that question. It may be -- I'm not familiar enough with their regulatory procedures to know if they need to wait for a general rate application to move on this or not.

But, more important, neither NLH nor Newfoundland Power has of its own initiative moved to initiate such a process, or even initiated reflections on what it might look like. Instead, they continue to produce documents like the 2009-2010 generation planning reviews that we've seen, which seem to be more summaries of what the utility

intends to do than actual planning documents.

For instance, the section on near-term resource options, section 6, each proposed resource has a heading called “Cost Estimate Basis,” which doesn’t even mention the cost of each option.

So this is, in my view, a document that’s prepared to explain the planning choices being made by the utility, but it certainly is not either part of a process or even a report of a process, of a careful evaluation of alternatives.

Now, the best way to understand what integrates recourse planning is, and how greatly it differs from the kind of planning reported in these generation planning reviews, is to look at the results of an IRP. That’s why yesterday I submitted the final report of the Hawaiian Electric Company’s IRP for Oahu, which is the island where Honolulu is located.

The executive summary states the Hawaiian Electric Company’s IRP is designed to develop a comprehensive 20-year plan for meeting Oahu’s energy needs, evaluating and integrating both resources that supply electricity, and resources that are reduced or better manage the

demand for electricity.

As part of its IRP process, Hawaiian Electric works with a community-based advisory group, and the public, to ensure the delivery of a reliable and reasonably-priced electric power for residential and business customers.

This IRP preferred plan represents an aggressive move towards the use of renewable resources and the reduction of fossil fuels, including major changes to the Hawaiian Electric's infrastructure and policies, that will be technically challenging and requires significant investment. The significant implementation of this preferred plan will also depend on government and public support.

In other words, the IRP is the driver. It's an in-depth procedure that allows a careful examination of alternatives, that then become -- that then allows the utility to say, "This is really where we should go. Now, what is needed to get there?" Infrastructure is needed, policy changes are needed. This is diametrically opposed to the passive approach of -- well, it's really traditional utility planning, which is, your

load forecasting department produces a forecast, and then the planners go and figure out what has to be built to meet that forecast. That was already outmoded in the early 1990s.

As I read yesterday, the restructuring movement has meant that where markets have replaced planning in many parts of the continent -- so it took a bit bite out of integrated resource planning's momentum, but in areas, in isolated areas, and even in many areas which are interconnected and do participate in markets, IRP is really -- plays an essential role.

And just to sum up on the Hawaiian Electric IRP, it had two main objectives: First, to transition the system to one that focuses on renewable energy, energy efficiency, and energy conservation; and, two, to keep the current system providing reliable power. Those are objectives that I think should be shared by the utilities here.

So I encourage you to -- not necessarily to read this report cover to cover, but to examine it, to get a sense of its nature, and what kind of a process led to it.

Given the extraordinary wind

resources on the Island, and the as yet unexploited efficiency resource, I have no doubt that an effective planning process could produce a solution for the Island's electricity needs that meet these same two objectives.

And what might such a solution look like? Obviously, we're speculating here, but building 1,000 megawatts installed of wind capacity on Newfoundland Island, relatively near transmission, seems like an extremely feasible possibility.

Obviously, the fact that it's an isolated system imposes challenges. Now, we've been told that 5 terrawatt hours of energy from Muskrat Falls will enable the construction of the transmission line to the Maritimes, which solves the problem and creates enormous benefits. Why wouldn't 5 terrawatt hours of wind power enable exactly the same solution?

But, even if that solution can't be implemented -- well, if that solution can't be implemented -- then, clearly, some kind of thermal back-up is needed. Even with geographic diversity, wind is an intermittent resource.

So the very worst case is keeping

Holyrood, but using it essentially as a reserve, with the number of hours per year in which it functions being very dramatically reduced. Vastly less use means vastly less greenhouse gases, less pollution, and less fuel expense.

Under that scenario, whether installation of $600 million worth of scrubbers is really necessary, at a date fix, or a fixed date, is not obvious. I think that careful thought would be needed to evaluate that, but, more important, careful thought to evaluate what other source of back-up resources could be put in its place.

Again, it doesn't make sense to be looking at enormous infrastructure changes with respect to one project and assume that nothing can change anywhere else.

What are the options for re-firing Holyrood with cleaner fuel? What are the options for bringing in some form of gas, maybe even liquefied gas, to maintain it as a back-up resource?

It seems to me surprising that we haven't seen a thorough study of the Holyrood -- of the options for Holyrood, given that it's at the heart, really, of the justification.

Moving on now to the question of pricing. In my initial comments on February 28th, in section 3, I addressed the question of rate impacts. I stated that to understand the rate impact, we had to know what terms and conditions -- under what terms and conditions energy would be transferred from Muskrat Falls -- I'm sorry, we'd need to know under what terms and conditions the energy from Muskrat Falls would be transferred to the island utilities. On page 8 I wrote:

> "Thus the first question is will the Muskrat Falls project be owned and operated by NLH. If so, the cost of the flow-through into Newfoundland power rates would normally depend on the annual cost related to the facility including interest, appreciation, return on equity, et cetera. If, on the other hand, NLH purchases power from Muskrat Falls from its parent, Nalcor, it would normally be the purchase cost

that would be flow-through. In the second scenario, the rate impact obviously would depend on the contractual arrangement between Nalcor and its subsidiary, NLH."

In the topic-specific hearing, we were told that the nature of the contractual arrangement between the two is not yet known.

In the April 1st response, though, we were told that a) the cost to be passed on to island ratepayers is $143 in 2017 escalating annually at 2 percent and b) that this is exactly the same result as would occur if Muskrat Falls were included in NLH's rate base.

To me, that response answered the question. It says that this project is being treated as a rate-based project, but at the same time, the data that we're provided showed the opposite; for instance, that prices will continue to escalate even after the financing is paid off which clearly couldn't happen in a cost-to-service regulated project.

Indeed, the reason it couldn't happen is very simply it would constitute monopoly

pricing. In a cost-to-service regulated electric utility serving a -- as a monopoly serving a franchised territory, the whole reason that there is regulation is because the utility can charge whatever it wants and people have to pay because it is the only source of electricity and that's why rates are based on costs. If the utilities' costs have diminished because it's no longer paying interest, then the rates that it can charge for that particular facility -- whatever it is, whether it's a transmission line or a generator -- have to diminish as well.

So the treatment that's being proposed -- as I understand from the data that was presented yesterday -- is really that of a PPA, a third party where simply we're making these payments which are based on a real price that continues to escalate forever which, at the end of the day, will produce windfall profits, enormous profits, for the owner. But the source of those profits is the ratepayer, so it really is a machine for taking money out of ratepayers' pockets and putting it in the shareholders' pockets which in most places is not legal.

Now, legislation can be structured

to allow that if that's really what's wanted and I think I mentioned yesterday, the Quebec legislation only goes a very small step in that direction; certainly, not as far as this, but I don't want to waste too much time going into the Quebec structure, but in Quebec there's a block of patrimonial energy that's by law offered to ratepayers at a fixed price and last year they decided to increase that price by a cent. Well, this is the government's way to get out of its budget problem, bring in another billion dollars in electric rates and, you know, that's the way things work in Canada.

But it seems to me -- and again, I haven't examined the legislation, but that given the affiliate relationship between Nalcor and NLH, I wouldn't be surprised if some kind of regulatory -- some kind of legislative exception would be required to allow this kind of treatment.

Around the world, ratepayers did finance capital-intensive projects like hydro projects through their rates; eventually do benefit from them when the financing is paid off. So I think people need to understand that there is no such benefit waiting for them when the Muskrat

Falls project is paid off. As currently structured, economic benefits all go to the government which, of course, will already be quite wealthy after the expiration of the Hydro Quebec contract.

I was hoping to be able to present you with an alternate scenario based on traditional cost-of-service pricing for the Muskrat Falls power. This would have been possible had the data produced yesterday been provided earlier. It is regrettable that the combination of the proponent's reluctance to provide detailed information and the inflexible hearing calendar made it impossible to prepare this relatively straightforward analysis.

I have, however, calculated the values that I sought from Nalcor yesterday which do flow directly from the information already on the record. I was simply trying to confirm my conclusions and I still don't see how they can cause commercial harm, but for the record, in case they're of interest to you, based on a construction cost of $2.5 billion, the borrowings that would be necessary in order for the mortgage payment at 7.3 percent interest over 30 years to be 167.9 million as in the table yesterday would be borrowings of

$2,023 million which means that the amount financed, assuming a dead-equity ratio of 59-41 would be $3.429 billion which is the equivalent of the overnight construction cost and that implies an interest rate on construction costs given the annual expenditures that are in that table of 4.6 percent which also implies an equity investment of $1.406 billion.

All of this, of course, does not include transmission to the island without which the project will be impossible. Presumably, we will have a chance to discuss this with your colleagues who will be evaluating the other half of this project -- the transmission half -- a little bit later on.

Also, just for the record, it appears that the discount rates used to calculate the levelized unit energy cost of 7.7 cents were 5.3 percent for the energy component and 7.3 percent for the financial component. I would have preferred to be able to confirm these figures with the proponent, but that’s no longer possible.

To be clear, it is my opinion that the information provided yesterday should have been in the file before these hearings even began. In

fact, the proponent has succeeded in running up the clock and this should not have been allowed to happen.

I would also like to say I've been very impressed with your work here, both in terms of the way the hearings have been run; fairly and equitably, and the seriousness with which you're approaching these complicated issues. However, I do continue to believe it was a serious mistake to move to hearings with such an incomplete record given the drastic changes in the context that occurred last fall. I'm sure there were many important people breathing down your necks, but I do think this is at the root of most of the difficulties; at least the ones -- the part of the hearings I've been involved with.

I'd also -- with your permission, I'd like to say a word about my clients, The Grand Riverkeeper. The reason I ended up here really is because the Chairman of the Board of the Helios Centre ran into Clarice Resowski on a visit to Labrador many years ago and ever since then Clarice has been after me to try to give them a hand. But I have to say, I've worked -- and I think I've told you before, I've worked with a number of First

Nations on energy-related issues and as I've gotten to know these people -- you know, it's really the first -- my two visits here -- I have to say that to me these people have attachments to this place that are just as deep and just as serious as the attachments of the First Nations that I've worked with. But at the same time, the political context is very different. There are no land claim negotiations. There are no benefits agreements. And it seems to me there's something inherently unjust in this kind of arrangement.

Now, we've all read all the literature about sustainable development and the role of equity as one of the major components of sustainable development and equity in large projects has something to do with the sharing of benefits and costs. And there's something wrong with the situation where for large numbers of people, there are only costs related to a project and there are no benefits from that project that flow to them and I'm sure you'll find a good solution to that.

CHAIRPERSON CLARKE: Mr. Raphals, I should -- I know you weren't here for my opening remarks ---

MR. RAPHALS: I'm sorry. I apologize.

CHAIRPERSON CLARKE: --- but I just want -- and we do have some time, but I wanted to remind you that the intent is that before 15 minutes and I'm not sure ---

MR. RAPHALS: I'm almost done.

CHAIRPERSON CLARKE: --- how much more you've got there.

MR. RAPHALS: I'm almost done.

CHAIRPERSON CLARKE: And secondly, as you know, that the panel can only consider information in the closing remarks which are -- it's information that you previously provided.

MR. RAPHALS: Yes.

CHAIRPERSON CLARKE: It's your sum-up position. Okay, thank you.

MR. RAPHALS: So just to sum up actually -- that's where I was -- as I noted in my initial report, in some ways a literal way and also I think in a sense of intention, a significant part of the justification for this project is actually to build the project and I find that unacceptable.

The project has substantial economic costs, environmental and social

externalities, and these environmental and social externalities should be incurred only if either the project meets a need that cannot be met at lower economic, environment and social costs or if it produces benefits that are so great as to outweigh these externalities, including the equity issues where the people who receive the benefits are different from those who bear the costs.

From what I've seen, neither of these is the case. There is no reliable evidence that the needs to be met by the project, that is to say, serving island electric needs and reducing or eliminating the use of Holyrood, cannot be met at lower economic and environmental costs by alternate solutions involving wind efficiency and probably a peaking plant or a transmission line, or in the worst case, the occasional use of Holyrood.

The financial benefits are strictly the result of using the monopoly situation to extract funds from ratepayers in excess of the actual cost of the project, and I think economically that's not a benefit, it's a really awash, and for these reasons, in my view, the project should not be authorized.

That completes my comments.

CHAIRPERSON CLARKE: Okay, thank you, Mr. Raphals.

I'll ask my colleagues on the panel whether they have any questions of clarification of your position.

Okay, thank you very much.

Our next presenter is Robin Goodfellow-Baikie.

--- CLOSING REMARKS BY ROBIN GOODFELLOW-BAIKIE:

MS. GOODFELLOW-BAIKIE: Good morning.

CHAIRPERSON CLARKE: Good morning

MS. GOODFELLOW-BAIKIE: Suppose a Nalcor team member lives on a beautiful natural property in St. John's, it is a home that's been in the family for generations, I come along and say that the government's going to move in on that property because they want money from it and I say it's for the good of the province.

The property, however, will be irreparably damaged; pesticides will be used so I can't garden anymore. There will be many workers around it for years. And I cannot move. Compensation, no, although, there may be some benefit in 20 years -- maybe -- and not only that