IN THE MATTER OF THE *UTILITYS COMMISSION ACT*,
R.S.B.C. 1996, c. 473

- AND –

A FILING BY BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

CALL FOR TENDERS FOR CAPACITY ON VANCOUVER ISLAND/

REVIEW OF ELECTRICITY PURCHASE AGREEMENT

The Final Argument of John A Hill

Filed February 4, 2005

Table of contents

1. Submission to not approve the EPA

I submit here that the Commission panel should not approve the Energy Purchase Agreement and should require that BC Hydro adopt a "no award" option. In the extensive discussions around gas price, electricity price, heat rate, generation deficit and the forecasts of these things to twenty five years, and however much BC Hydro would like to characterize this as something else, the central issues have been forgotten or side-stepped. This was a call for tender to fill a forecast capacity shortfall until the new transmission could be supplied. As a separate issue the Commission Panel identified that there should be on island generation as a next addition. Some how these two issues got combined into a strange project that does neither well. BC Hydro convened a meeting at the Rocky Mountain institute with the guru's of the future electrical industry and they now need a "no award" direction from the Panel so they can get on with a program they have already been rehearsing.

2. Regulatory parameters

The Commission Panel should be under no illusion that the bidders in the process have not considered the regulatory risk. It has been put to them in the Call For Tender document part 13 Regulatory Matters which clearly explains to the bidders that *" the commission may Under the Act, if the Commission determines, after a public hearing, that the contract is not in the public interest, the Commission may make an order declaring the contract unenforceable, in whole or in part,"* and it further states that it may under 71.1 (2), irrespective of order 202, make an order under subsection (3) if the commission, after a hearing, finds that a contract to which subsection (1) applies is not in the public interest by reason of

c) the price and availability of any other form of energy, including but not limited to petroleum products, coal or biomass, that could be used instead of the energy referred to in paragraph (a),

d) in the case only of an energy supply contract that is entered into by a public utility, the price of the energy referred to in paragraph (a), or

e) any other factor that the commission considers relevant to the public interest.

BC Hydro must have understood this as they have clearly suggested to the bidders that there was a regulatory risk, especially since the project was rejected by the Commission Panel once and they suggested in their decision that a more imaginative solution was needed.

3. Transmission issues to the island

This call is for capacity to fill a perceived shortfall in the winter of 2007/08 after which the new 230kV cables will be installed. After this it is accepted by all that there is no urgent demand for capacity or energy and Mr. Keough's Cross examination of the BCTC panel gave us a very nice update of the progress of the new cables. It would seem the installation date has become "firm and confident" in the words of Mr. Mansour. Comforting as it's uncertainty was an issue in the VIGP hearing.

As to the immediacy of the problem that on island generation is the only solution, in the testimony at page 2293/94 Mr. Mansour discusses the reliability of the cable systems with Mr. Wallace and they agree that in the winter of 2007/08 there is a reasonable level of comfort with relying on the HVDC cables for 200 MW. This capacity would not be required unless there was a failure somewhere else in the system at the peak should the cold temperatures materialize. He volunteers in discussions in the same area of the transcript, the possibility of upgrading the 500 KV cables to handle 120 MW if some temperature monitoring equipment is installed. Either of these options with Norski's load shedding proposals would provide the bridging until the new 230kV cables are installed. This will allow us to have a better look at the problem of how to get green capacity and energy into the Vancouver Island energy system.

4. The fairness issues and the Independent Reviewer's roll

The CFT instituted by BC Hydro was not fair. The initial time purposed by the CFT process was a ten year period for a capacity solution. This would be a period conducive to the type of project which many smaller bidders could entertain. Mr Bois page 1384 line16 characterized CFT as a 35 year contract. Hemmingsen argued 25 plus 10 but since the option to renew is that of the buyer and seller then I have to agree with Mr. Bois, it's 35. This change was supposedly to level the playing field but since the heavy financing required to support the VIGP type project needed that time frame which

was 3 years beyond what one of the last remaining proponents had arranged, it resulted in the scuttling of the last aggregate portfolio. It very neatly tipped the field.

Fuel cost risk is a considerable disincentive to any bidder of a gas project. As has I'm sure become apparent to the commission from the discussions with the various forecasters and as BC Hydro in there argument state there is a considerable risk with fuel supplies especially gas and to have that risk completely removed from one fuel type puts any other at an extreme disincentive. BC Hydro may well be able to manage a portion of the risk and work out a way to pass what risk is left on to the bidders, but they chose not to and to completely assume it is simply not fair to others. Then to go into the energy purchase agreement without a gas supplier totally willing to provide service and counting on their regulator to enforce a gas supply is effectively allowing a bidder to bid without a reliable fuel supply contract. In the Call for Tenders rules this was a material omission, which in those same terms BC Hydro had the right to overlook, but that is a slippery slope down which they went here and refused to go with other bidders on other issues.

The Independence of the Reviewer has to be questioned. The reviewer was chosen by, paid by, and it seems required to report to BC Hydro. In the VIGP decision the commission was quite correct in it's concern about the independence and at least the appearance of independence and gave some considerable thought and direction as to how that could be addressed. Under cross examination neither Mr. Cender nor Mr. Hodgsen expressed the slightest indication they saw a credibility problem. Mr. Hodsen made an interesting statement at page 1872 line 5 that the Independent reviewer did not report to BC Hydro but to the public all though there seemed to be little correspondence with anyone other than BC Hydro and in that he stated he reported to the public there is no evidence for this and I have considerable difficulty understanding how the public was involved at all.

It would seem that the independent Reviewers' roll changed somewhere along the process from that of a person responsible for insuring that the process was fair to one who saw to it that the rules, as set and adjusted by BC Hydro, were followed or as Mr Sorensen points out to Mr. Wiesberg 1778 line 23 that they would be held to "a set of practices and procedures." It was arranged to have him begin his work after the process had set the rules in such a way that only certain types of bids would be entertained and by

the overwhelming collection of gas bids and little above all other fuel types, the strategy seems to have been successful. The Independent Reviewer then wrote his report, collected his fare and left before BC Hydro found that the chosen bid was not the least cost bid anyway. Why was it that the Independent Reviewer did not pick up this failure? So in the end the CFT and the black box of a QEM failed to produce the least cost option and in an attempt to negotiate a way out of this failure, the entire CFT process has been thrown into doubt, the precise outcome that the BCUC, BC Hydro, and the public wanted to avoid.

5. Forecasting

a. BC Hydro's demand side forecasts

This call is for capacity to fill a perceived shortfall in the winter of 2007/08 after which the new 230kV cables will be installed. After the first cable is in it is accepted by all that the problem is to locate energy to satisfy a forecast increase of thirty percent in demand on Vancouver Island over the next twenty-five years. Interestingly the size of the plant with duct firing is approximately equal to the size of the forecast capacity shortfall 2007/08and since I am not a believer in coincidence, we should carefully look at the short fall which the commission had, I believe correctly, adjusted to 116 MW in the VIGP hearing. All that has happened since is a spike -that is still estimated although BC Hydro would have us believe it was measured- and a hundred and fifty MW of fudging.

Mr. Miller has once again provided an interesting look at the basic assumptions of the demand side forecast done by BC Hydro. I have learned that in statistical analyses a thick report is not necessarily an accurate one; in fact if there is a cumulative error such as a deviation away from a median say to error on the side of safety, then the error compounds the thicker the report is. In the Revised Energy Load Forecast Exhibit B-67 there appears to be a consistent fudging on the part of the analysts to see increases where none exist.[1] An example would be to take the mean of the load on coldest day of the year and for the forecast of that mean, anchor it to the peak load for a particular year rather than the mean for that year. There could be an argument for doing this but it would not

[1] (C20-32) 8.0 Reference: Steve Miller Associates ("SMA") Evidence, p.14 A Consistent Pattern of Over-Prediction

be a statistical argument it would be the introduction of a fudge factor. A collection of these fudges produces an inaccurate picture and in view of BC Hydro's dubious history of success with forecasting accuracy, the picture must be carefully and independently assessed to insure any level of trustworthiness.

I must add to Mr. Miller's evaluation a couple observations that I have identified in the BC Hydro load forecast material that don't seem to jib. It has been found that the commercial and industrial sectors have considerably different energy intensity by GDP. The amounts of each are changing as Vancouver Island shifts its economy away from industrial resource extraction and into service and tourist industries. Although this is a province wide trend, the GDP is aggregated provincially and the much higher regional differences for Vancouver Island are not reflected in a calculation of provincial GDP by provincial energy consumption. The energy used by a workplace in a pulp mill is considerably higher that that of a fishing guide where that employee is now occupied and since the part time service industry is the preferred job in the government job creation strategy, this trend will probably not change. According to the European Union's discussion paper intrauser exhibit (C13-5) "Energy consumption and gross domestic product" Energy consumption is rising, but more slowly than gross domestic product (GDP). Between 1995 and 2001, energy consumption rose by 7% while GDP increased by 16%" This trend will be more intense here as the change is occurring much more quickly.

There is a strange anomaly in the mining forecast in the table 10.4 of the Electrical load forecast. From 98/99 to 03/04 the energy sales to the metal and coal mines showed 1 and 4 percent respectively reductions in electricity purchases. The reasons for this are well explained in the discussion at 10.2.3 where the medium term mining outlook, resulting from conditions that have be prevailing for the last five years and beyond, is bleak and, including the lounge generated optimisium, characteristic of the industry, nothing has changed. The dollar continues to strengthen, environmental regulations and land claim issues continue, no new significant ore found and none being looked for. This discussion is centered on the whole of BC and a disaggregate has not been done, but from my own experience in the transportation industry, Vancouver island will be worse off than the rest of the province. So where did **increases** of **6.6** and **5.4**

percent for the first five years of the forecast period come from, and then being reduced to 0 for the years beyond that? This has gone beyond fudging into the realms of fiction. Province wide this produces a difference of 250 MW above the real expected load.

b. Gas and electricity price forcasts

Much evidence was presented to the panel to both substantiate various forecasts of gas and electricity price and much evidence that the same gas and electricity price forecasts are wildly in error. The forecasting to date has given no one much confidence in the models. Mr. Lauckhart, Dr. Pickel, and Mr. Fulton have come to two somewhat different conclusions based on two different methodologies and the commonality between the two is that the data is insufficient to come to conclusions. I can not say that either opinion was wrong. What I can say is that anyone who is willing to forecast the value of a volatile product like energy for twenty-five years into the future has a superb astrologer. The rate of change of; technology; social norms and cultural expectations; environmental conditions and the related regulatory structures and costs; and the publics willingness to accept the questionable contractual arrangements that are put in place by multinational interests supposedly on their behalf, has risen to a phenomenal pace and is accelerating. I submit that a sharp line on a graph is just that.

There is one thing that can be stated with a reasonable amount of certainty. There are many things made from natural gas. It is striped to make hydrogen, it is used for heating and cooling at much higher efficiencies that being converted to electricity and then used for heating and cooling, it can be used for conventional internal combustion engines. Dave Hughes, Calgary-based geologist with Natural Resources Canada has been explaining to bureaucrats, professional oilmen and CEOs that burning natural gas to make synthetic crude out of tar sand, one of the largest uses of it in Alberta and thus one of the biggest, and most persistent drivers of price, is “a bit like making gold into lead. You might as well take that Mackenzie Valley pipeline and run it straight into Ft McMurray. It is going to take it all” It can be used for making electricity. It is a finite resource and must be extracted and processed and then shipped from a limited, and becoming more so, number of sites. And, most importantly, it can not be made from electricity.

Electricity on the other hand, both capacity and energy, can be made from all sorts of things including gas. Most of the things it can be made from require capital investments but do not require fuel investments, fossil fuels being the one exception to this generalization. It was expressed that the dispatchability of the plant is an advantage that can be used to exploited high heat rate periods. This is a departure from the highly successful practice of buying cheep power from Alberta's night time coal production to bank NPV hydro and then selling that hydro as a short notice high price commodity. It seems that the Albertans, according to Mr. Fulton, would rather buy back our electrical power in the peaks than generate their own with gas.

It was generally expressed by BC Hydro that the price of gas drives the price of electricity and it was generally argued by all others that either the reverse is true or that there is little evidence for a connection. I notice that starting at 3074 line 5, Mr. O'Riley describes how the water levels drive the price of electricity and in that alternate energy sources, such as cheap coal sources have done, will keep the water levels high and thus, as Dr. Pickel described in his Testimony to the Federal Energy Regulatory Commission PWX-1, keeping capacity high, increasing NPV and could easily tend to keep the electricity prices down. This used to be a good thing but if it occurs the no award becomes the most economical choice and if built the Gas plant dispatch opportunities will decrease. It has been suggested that in the volatile energy pricing regimes seen lately that the heat rates have remained stable and although this is true for the moment any increase in electricity prices will be followed by increases in gas prices and given the coming competition for gas throughout North America, heat rates will undoubtedly change quickly making fuel cost free sources of energy more competitive and there for reduce the plant dispatch. The risk that this scenario will occur, and the political, environmental, and social pressure for it to occur is high and getting higher, the plant could cost the rate payer a billion dollars over the life of the plant to not operate. This risks a major diversion of funds that could be directed to the new energy direction as articulated by Mr. Elton. Green energy additions for the future will tend to be capitally expensive and fuel cheep, so if they do get built they will tend to cap the price of electricity and result in less dispatch for DPP as Mr. O'Riley discussed with Mr Quail 1578 line 8.

6. So when would it run?

So when would it run? I must admit that, as I am its next door neighbor, if it never ran I would be delighted as living down wind from an emitter of 800,000 tons of carbon each year is not something I look forward to. But that aside, I guess I shouldn't really worry as Ms. Hemingsen explained in a discussion over a BC Hydro spreadsheet (C19-17) with Mr. Bois at 1387 of the transcript that, were the plant built, to the winter of 2007/08 at least, and there has been no solid evidence just questionable forecasting for the economics beyond that, the thing will only run one day a month. I must also explain that I am an extremely low user of electricity by lifestyle and as I am constantly working to reduce that still further, I don't expect to be a contributor to the economic success of the plant. I also must worn you that I am actively working with my neighbors both industrial and residential, through legislative, economic incentives, and practical help and advice, to reduce their dependency on energy and therefore reducing their contributions to the economics of the plant. It is gratifying to see in the evidence presented by Mr. Miller (C20-21) page 14 that ten years of work towards energy reduction are having an effect as we are consistently below BC Hydro forecasts. I must say that in contrast it is interesting to hear Mr. O'Riley describe to Mr. Quail how the plant will have to run more that it is available in the first few years to make up for when in the later stages of it life it can't compete with alternates. And if the plant has to run just to meet the capacity needs then it could cost big, way more that the no award and the load shedding options. If the plant doesn't run then it will cost more than the no award for sure. 1658 Mr. O'Riley's comments to Mr. Fulton. It seems that there is a massive collection of risks to this plant with a slim chance of just recovering the capital costs.

7. The unquantifiable but no less important costs.

Last year the BC Government enacted its new environmental energy policy which I have to admit is a pretty pulpy document of platitudes but where in it described intent to move toward a new greener energy supply. Mr Elton, the CEO of BC Hydro, on page 28 of the Select Standing Committee on Crown Corporations says that BC Hydro will incorporate two components of the energy plan simultaneously, those being low cost and

the environmental impact reduction. In the mission statements of BC Hydro they commit to triple bottom line accounting. The only impact which is presently incorporated into the financial calculations of DPP is the Green House Gas emissions, a factor which has been passed on the proponent but also a factor by whose approximate amount (estimated from the VIEP) the project is under the VIGP projected original cost and an amount that the Rate payer will underwrite by the nature of the chain of responsibility for the costs of environmental damage and will surly be passed back. I also note that Policy Action # 20 of the Energy Plan provides that electricity distributors will pursue a voluntary goal to acquire 50% of new supply from B.C. clean electricity over the next 10 years, and incorporate this strategy into the number one issue of the energy change policy. Underwriting a project that must emit 800,000 tons of carbon emissions per year to make it's payments seems a poor start and a tough position to come back from.

I note that in the VIGP decision that the Commission was very concerned with exposure to GHG liabilities. It should continue to be as downloading these responsibilities to the energy providing contractor does not make them disappear. These green house gas emissions costs, and in fact any costs related to the environmental damage, will be passed on to either the rate payer through rate hikes or environmental degradation as the proponents are not in the business of gifting expenses. They will either make money through the rates, or they will go broke and pass them down through legal responsibilities to BC Hydro or the BC Government. I note that on page 2243 in a discussion Mr. Andrews had with Mr. Myers he implies that the capacity charge might be the mechanism for recovering the incurred GHG liabilities and I must say I find it curious that the charge for not emitting GHG is the mechanism for recovering it. Seems like the proponents don't figure on running the plant much either. There is another wild card risk in that as Mr. Jaccard pointed out, there is a move to charge the environmental costs related to fossil fuel emissions upstream at the well head. This would very likely be a latent cost of unknown proportions that would be picked up by the rate payer or the tax payer. There is also the cost to the Canadian tax payer of acquiring the pollution credits back after BC Hydro has committed the province to pollute through a third party, a commitment that it can not renegotiate.

Appreciating that the project has achieved an environmental certificate it must be understood that this does not mean that there are no environmental costs associated with its operation. The carbon costs, the costs of reclamation of the site and plume after emitting twenty five years of acid creating compounds, the costs to fisheries, and wildlife under that same plume, will be understood by society by the end of the contract and these and other costs will be quantified and charged back to the ratepayer or the taxpayer.

There is another unquantifiable cost in the damage done to an infant environmental energy industry which will be shut out by an expenditure of billions of energy dollars over an extended period of time on this gas plant. This is an industry which needs to see public leadership in the form of decisions directing us away from the multinational supported fossil fuel energy industry. BC Hydro has done an extremely poor job of encouraging this area of its economics and it seems that this is the ideal opportunity to direct our energy and funds toward this end. So poor a job have they done that we have the outrageous situation of a wind power company with a permit to install 450 MW of wind generation is about to ship the power south to Washington, right past the Vancouver Island problem, because Washington State has a real active well financed policy to encourage this type of energy development.

8. The decision, moving forward or backward.

This plant is a poor attempt to look after ourselves and our own energy future and not the economic and environmental future of our children. This Commission Panel has been entrusted with the opportunity to direct hydro to step out the door into the new energy reality or to close the door on it by committing potentially 4 billion dollars to the use of fossil fuel for 35 years. You, the Commission Panel, have an auspicious decision to make.

"Those generations are not an abstraction. They are real people. They are children who look up at me, and at you, with that look in their eyes that is full of hope that says: I trust you to look after my future." **- Bob Elton, CEO, BC Hydro, November 2004**