

Gabriola Ratepayers and Residents Association
Hearing Final Arguments

1278 The Strand
Gabriola Island, B.C.
V0R 1X3
February 4, 2005

Mr. Robert J. Pellatt
British Columbia Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, B.C., V6Z 2N3

Re: Project 3698354 – Order No. G-99-04
Exhibit No. C-30-9
Hearing Final Arguments

Dear Sir;

The Gabriola Island Ratepayers and Residents Association
submits the following arguments for the Duke Point Power hearings.

Yours sincerely,

J.R. Young
President
Gabriola Ratepayers and
Residents Association
(ranyoung@shaw.ca)

Public Interest

1. The most disturbing aspect of the Duke Point Gas Plant hearings has been the realization that B.C.Hydro was not following the public interest of the citizens of British Columbia. Perhaps this is why the Utilities Commission is necessary. The public wishes were clearly enunciated in the Nanaimo Town Hall meetings. The Gabriola Ratepayers and Residents Association clearly requested a 'no award' finding at our public meeting January 4, 2005 on Gabriola. Although our membership is only 250, we represent the wishes of the 3500 citizens of Gabriola. This has been repeated by the Islands Trust, who represent the citizens of the Gulf Islands. More than that, our citizens cannot understand why 'green' energy proposals have not been pursued, and why B.C.Hydro stalling has resulted in British Columbia falling behind other provinces in alternatives such as wind power.

Water Supply

2. Water is a scarce resource in the summer and fall on the East Coast of Vancouver Island. The Harmac water permit flow, which the gas plant is piggybacking, hasn't been used to its full allowance for years, if ever. If it is used heavily in the summer or fall, water must be started over the dam three days in advance, or the federal fisheries will shut down both Harmac and the gas plant. Fisheries Canada requires a minimum flow to be maintained in the Nanaimo River. The gas plant requires up to 6480 L/min. at peak hot weather for the cooling towers.

Cost/Benefit

3. We wish to address the cost/benefit of the Duke Point Power Plant to the ratepayers of Gabriola Island and other rural residents. Our power supply is not 'safe and secure', mostly due to distribution problems. The power was off for most of four days over the past cold week due to an overloaded transformer, and off again overnight as we were in Vancouver attending your hearings.

A bit of explanation is necessary. The normal process is for a branch to be bent down by the snow or rain, short out the power line, and result in an interrupter to take the circuit out. After about 10 seconds, the

interrupter turns back on. If the branch has continued falling, and is no longer shorting the circuit, then power is restored. B.C.Hydro has no way of knowing that this has happened, and hence keeps no records of the automatic procedure. We see a 10 second power fail that forces clocks to be reset, turns on all the security lights, and can do nasty things to any computer or embedded processor in appliances.

If the branch continues to short out, the interrupter leaves the power on, allowing the fuses to blow downstream of the interrupter. At this point B.C.Hydro depends on people calling the trouble number, which by the way has improved considerably over the past year, because it does not just ring busy. Given that someone gets through, B.C.Hydro can then dispatch a crew to Gabriola from their homes in Nanaimo. Unfortunately the last ferry off Gabriola is 10:25 p.m., so if B.C.Hydro feels that the problem cannot be fixed, and the crew returned by 10:25 p.m., they will not dispatch a crew until the next morning. Hence the overnight outages that usually are resolved around 10:30 the next morning. There is one family, friends of ours, who are served directly off the line coming to Gabriola, and positioned upstream of the interrupters. If we phone them, we can tell if it is a local problem, and depending on the time, likely to be off overnight, or a system problem from off island.

The point is that Gabriola, and other rural residents are being supplied with interruptible power, but we do not have the advantage of a load curtailment tariff as explained by Ms. Van Ruyven. We do not have natural gas on Gabriola, and hence heat mostly with wood and electricity. The result is that if the Commission allows B.C.Hydro to spend a billion dollars on the Duke Point Power Plant, we will be forced to pay our share, but will see little or none of the advantages.

Weather Analysis

Reference: GSXCC Information Request 1.33.3 Table IR 1.33.3(b)

Reference: GSXCC Information Request 1.28.1 Table IR 1.28.1

4. The use of the average cold weather peak in planning obviously ignores the 50% probability that the peak will be colder. Using the worst weather in the past 40 years, -13.05°C , and the regression rate of $37.5 \text{ MW}/^{\circ}\text{C}$ obtained from the modification of the average cold weather, we require an additional 354 MW to meet the 40 year coldest weather point. Although the regression rate was obtained by changes near the average winter temperature, and may be non-linear, the non-linear assumption

implies that we do not have enough heating installed in our houses, and that residents cannot plug in extra space heaters when their house gets cold. B.C.Hydro's attempt to take this into account by starting their forecast off from the latest peak, is totally incorrect, as pointed out by S.Miller in his SMA presentation.

Average peak winter 2007/2008 'SMA' forecast	2261 MW
Coldest weather in 40 years additional amount	<u>354 MW</u>
Peak Requirement	2615 MW

The point here is that the CFT tender process was flawed and totally unrealistic because B.C.Hydro did not do realistic forecasting. Hence any findings from the defective CFT tender process should be rejected.

Liquefied Natural Gas

5. Mr. Simpson's evidence appears to be the slipperiest fish in the B.C.Hydro school. Liquefaction and de-liquefaction of natural gas, apparently required to serve winter peak demand, costs upwards of \$1.50/gigajoule. We haven't heard how much is necessary to go this route, and how much tolling should be added as a result. We have heard that it might be possible to foist the cost off on the rest of the gas users on Vancouver Island. All public costs incurred due to the gas plant should be considered by the commission, whether or not they are passed on to B.C. Hydro.

Mr. Simpson also implies on page 1593 of the January 18 transcript that it is possible to dock LNG tankers 'offshore', away from the Duke Point Ferry Terminal, and transfer LNG by the pipeline. I have news for Mr. Simpson. Gabriola Island is directly 'offshore' of Duke Point, and is surrounded by priority ferry and shipping lanes. Perhaps a dock in Vancouver harbour, and a LNG pipeline to Duke Point? Or have we discussed this already?

Imaginary Shortages

6. Imaginary shortages require imaginary solutions, not real billions of dollars. The unused 3 lines of the Cheekye-Dunsmuir can supply 1200 MW, and I'm sure the D.C. line will be operational for a few days in the winter of 2007/08. I expect any time soon to see a directive that all B.C.Hydro employees should hop around on one foot, saving the other one as a spare according to the n-1 reliability protocols.

Power Alternatives

Reference: Green Island Energy Information Request 1.12.3

Reference: BCUC Information Request 1.24.3

Reference: www.wtrg.com/daily/gasprice.html

Reference: Norske Skog Canada September 2, 2004 submission P.13

Reference: Green Island Energy Gold River Power Project Term Sheet

7. Given that there is spare transmission capacity, the intent to purchase generated capacity on Vancouver Island makes sense, provided the electricity cost is less than mainland generation costs and transmission losses. With a restriction on transmission capacity, the VIGP becomes the standard which has been stated at \$65.6/MWh excluding capacity charges. Gas prices used for 2008 had a monthly average of 4.73 Cdn\$/GJ plus tolling charges from Huntington/Sumas. December 30, 2004 futures for February delivery are now 6.149 US\$/mmbtu reflecting the significant market energy price increases in the latter half of 2004. The point is that the new 'standard' for Vancouver Island power generation is based on an out of date natural gas price. The commission should request an updated price forecast before any decisions are based on the VIGP standard, including the LNG liquefaction and de-liquefaction costs.

Other options are apparently:

- Norse curtailment \$100.00/MWh plus \$50,000/MW capacity charge.
- Peaking plant est. \$132/MKWh refr. Norske P17.
- VIGP (new) est. \$65 to \$75/MWh refr. Norske P15.
- Green Island Project \$61/MWh. including all capacity and energy.

As the Green Island energy proposal (C9-3) offers 85MW at \$61/MWh without capacity charges, this proposal is clearly less expensive from an energy basis than the VIGP.

Power Availability

Reference: BCTC Capital Plan Submission May 2004

Reference: Norske Skog Canada September 2 2004 P.5

Reference: Norske Skog Canada September 2 2004 P.7

8. 2008 Power availability for Vancouver Island without using the spare three lines on the Cheekeye-Dunsmuir line, but maintaining the name

plate for Pole 2 of the HVDC line as requested by BCTC in their capital plan is:

Cheekye-Dunsmuir Line emergency level with n-1	1300 MW
HVDC Pole 2 name plate emergency level	476 MW
Vancouver Island Hydro	450 MW
Island Co-Gen	240 MW
Green Island energy proposal	85 MW
Norske energy proposal	<u>140 MW</u>
Total	2691 MW

The spare three lines on Cheekye-Dunsmuir are then a backup for the HVDC Pole 2, and in fact can supply the entire Vancouver Island requirement given adequate mainland generation.

Wind Power

9. B.C.Hydro has ignored wind power, other than using it as a public relations enhancement to their annual report. Wind generated power has been ignored as being 'undependable' in spite of the cause and effect relationship between peak cold weather on Vancouver Island, and Arctic outflow winds coming out of all of the mainland inlets. Anyone living in Howe Sound knows what I am talking about. The result of winter weather is to increase wind speeds, and to increase wind speeds in the daytime, corresponding to the peak power consumption.

As Dr. Mark Jaccard testimony indicated, wind generation needs a flat area (ocean) where wind blows steadily, such as the north end of Vancouver Island. Near Gabriola wind data for Entrance Island is summarized for a 5-year period (1997 to 2001). The Entrance Island station (Environment Canada station #1022689) is located at 49° 13' N, 123° 48' W, 5.0 m elevation. At this station, hourly wind speed and direction data were gathered by a single anemometer at a measurement of height of 10m above the ground. Prior to analysis, the data was inspected for erroneous readings due to freezing or equipment malfunction. The recovery rate on the data set was 95.5%.

Entrance Island Data Summary

Figure1: a) wind rose; b) wind speed frequency distribution.

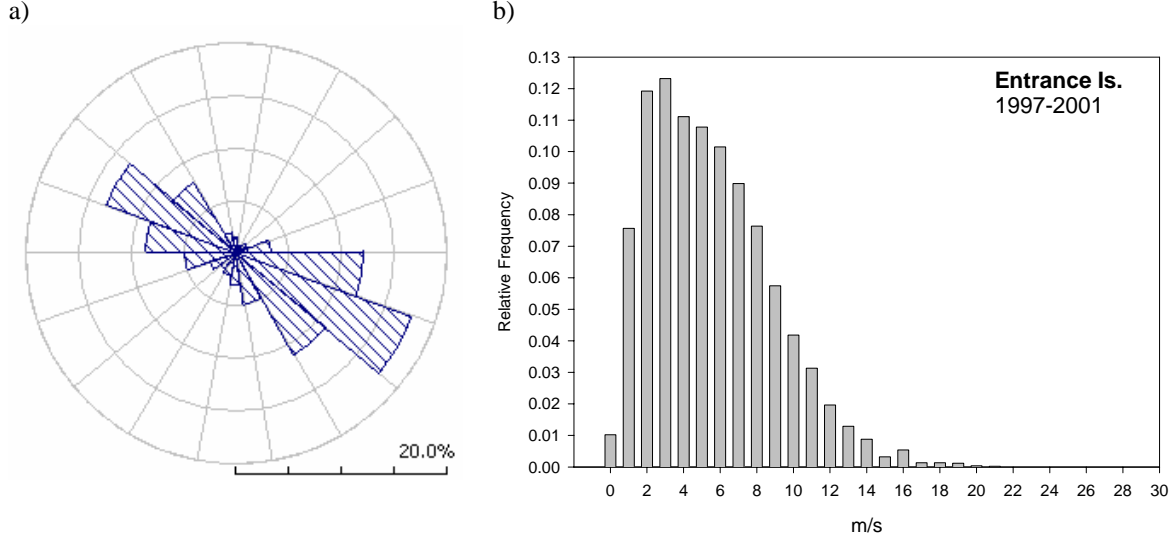


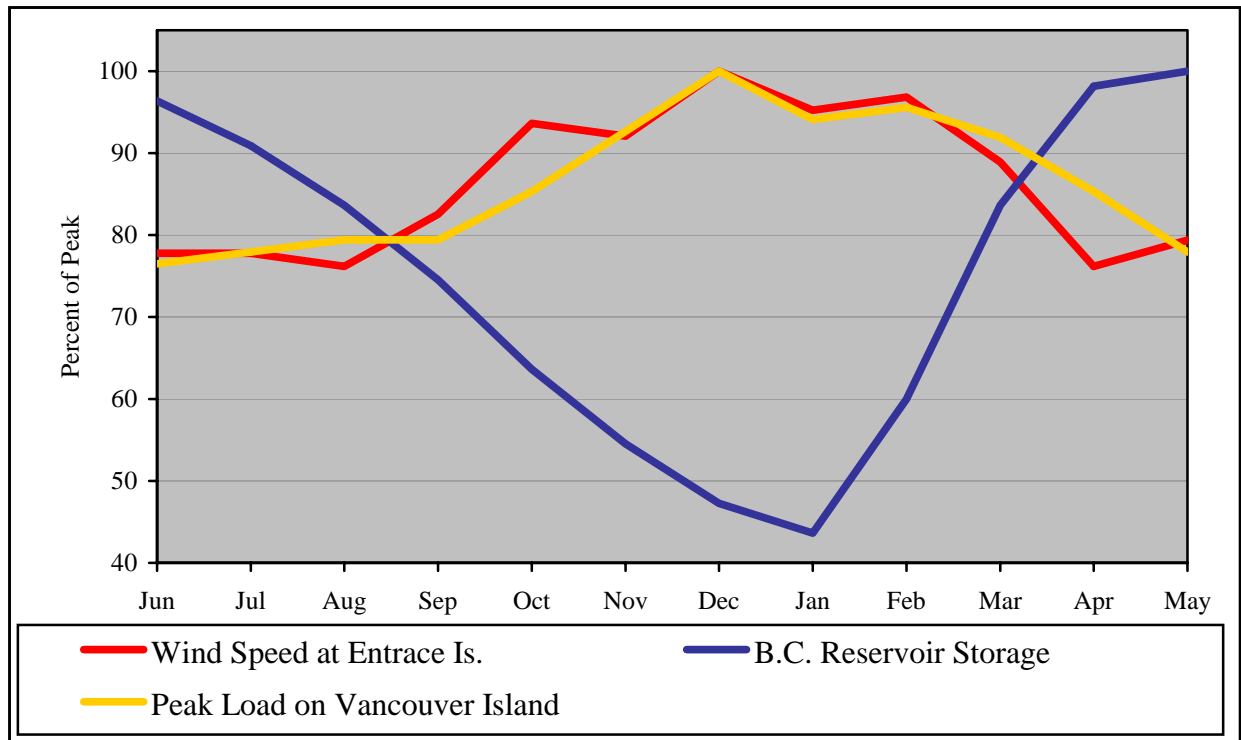
Table 2: Monthly wind speed statistics for a 5-year period.

Entrance 1997-2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
mean wind speed (m/s)	6.0	6.1	5.6	4.8	5.0	4.9	4.9	4.8	5.2	5.9	5.8	6.3
std dev.	3.56	3.86	3.42	2.95	2.94	3.05	3.08	3.12	3.22	3.5	3.6	4.28
max	18.6	21.1	21.1	20	16.4	16.4	16.9	18.6	20.6	20.6	22.2	27.8

Comparison of wind data and power consumption

10. The wind speed pattern at Entrance Island corresponds well to the electrical load of Vancouver Island. Highest wind speeds and loads occur when hydroelectric reservoir storage is at its minimum. The electrical load and hydroelectric reservoir storage data is from 1998-2002. While the EC data is 1997 – 2001, the yearly wind speed pattern is expected to be representative.

Figure 2: Comparison of wind speeds at Entrance Island with peak electrical load and with hydroelectric reservoir storage.



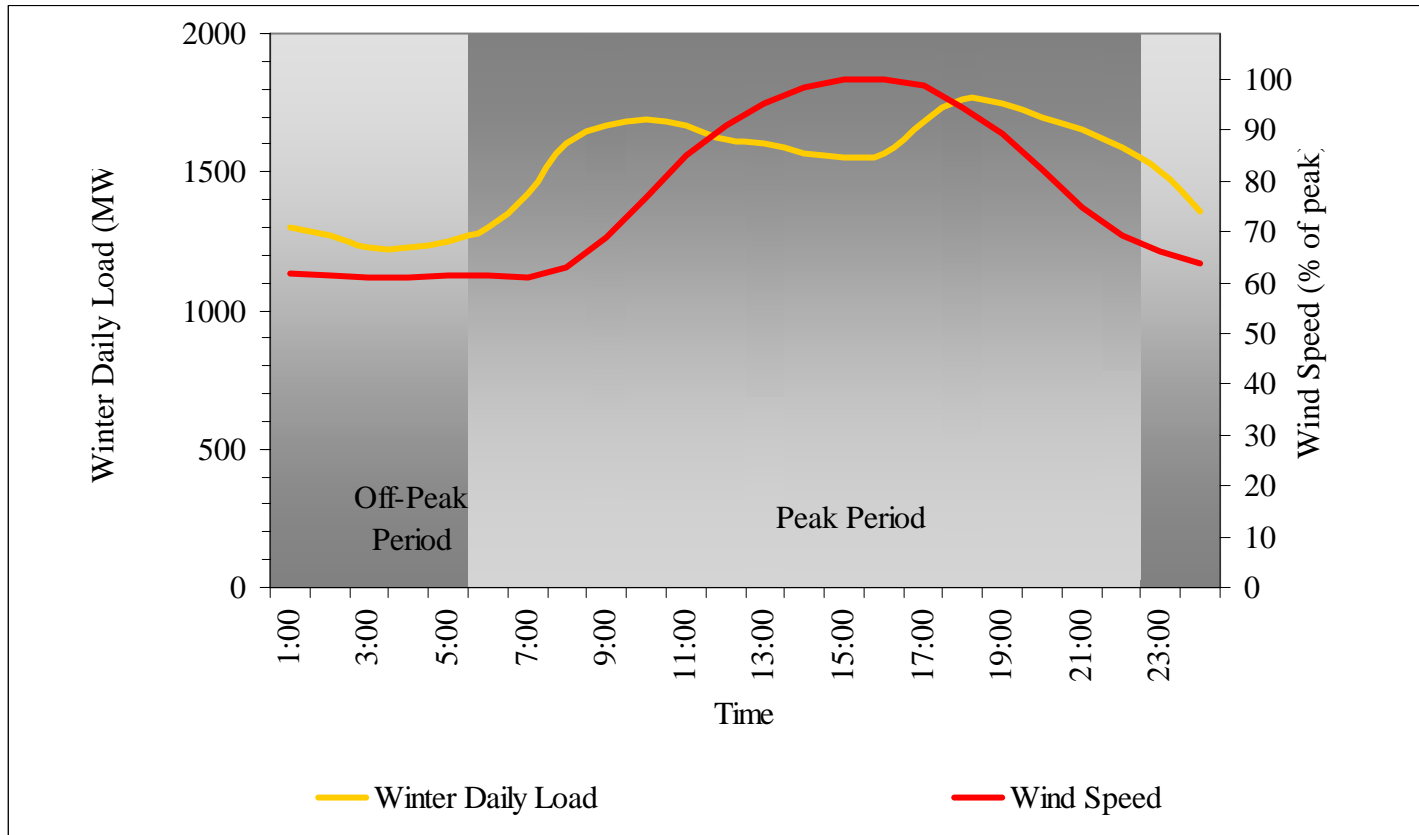
Sources:

Peak Load represents my best "eye-ball" averaging of 1998-2002 data, from BC Hydro Annual Report 2003, p.53

Reservoir Storage represents my reading of the graph from BC Hydro Annual Report 2003, p.94

Wind Speed represents Entrance Island averages from 1997 to 2001, from Environment Canada.

11. Correlation of Wind Availability with Winter Daily Load on Vancouver Island



Sources: BCUC Staff Information Request No. 1.7.3 Dated 21 March 2003

Environment Canada Port Hardy data

Reference: www.suncor.com/links_popup.aspx?ID=2408

Wind Power Costs

12. Wind power costs can be inferred from the Alberta Magrath Wind Power, Project \$48 M for 30MW gives estimated costs at a 5.9% municipal interest rate and 37% wind efficiency of \$29.12/MWh before maintenance charges. Presumably this was costed prior to the change in the Canadian dollar/U.S. dollar exchange rate which would now reduce new installation costs. In essence wind power from a public provider, in conjunction with hydro supplies which can be saved behind the dam, has become cheaper than thermal power, and is now roughly equivalent to our heritage hydro costs.

Development Required

13. The problem with the power plant, is not that it is a power plant, it is the use of natural gas, or oil, to run the turbines. Weyerhaeuser has a multi-fuel dual stage gas turbine plant operating using hog fuel on the prairies. It took a couple of years to get it to run, but it is now reliable. World War II busses in London used to run on sawdust, which produced gas for the engines. In the risk minimization environment of B.C. Hydro, these developments would never be allowed. We need leadership, not public relations.

Conclusion

14. The conclusion is that the scope of the CFT process operated by B.C. Hydro was flawed. The commission should return a no award result, with directions to B.C. Hydro to remove the time, power level and other constraints. In effect, B.C. Hydro should 'mop up' all the available power on Vancouver Island priced at or lower than the DPP running at a reasonable 80%. In effect we need another energy purchase before they make determinations that DPP is necessary. Perhaps if B.C. Hydro does it enough times, eventually they will get it right.