IN THE MATTER OF the *Public Utilities Act*, (the "Act"); and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for the approval, pursuant to Section 71 of the Act, of the cost of Low Sulphur Fuel as a fuel cost component to be recovered through the Rate Stabilization Plan charged to Newfoundland Power Inc. and the Island Industrial Customers.

TO: The Board of Commissioners of Public Utilities (the "Board)

SUBMISSIONS OF THE CONSUMER ADVOCATE
MAY 12, 2006

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VIII. OVERVIEW OF APPLICATION

8. By Application dated January 20, 2006, Newfoundland and Labrador Hydro (Hydro) applied to the Board of Commissioners of Public Utilities (the Board) for approval, pursuant to s. 71 of the *Public Utilities Act*, R.S.N. L. 1990 c. P.-47, of the cost of one percent (1%) sulphur content fuel as a fuel cost component to be recovered through the Rate Stabilization Plan charged to Newfoundland Power Inc. and the Island Industrial Customers. Hydro started to burn one percent (1%) sulphur fuel in March 2006 (**CA 6 NLH p. 2, Line 9**). Hydro is entitled to burn whatever type of oil it chooses at Holyrood subject to the oil having no greater sulphur content than 2%

which is the maximum set by provincial law. At issue in this application is whether the costs of burning one percent (1%) sulphur content fuel must be borne by consumers.

2. Hydro has stated that it is required to operate within the environmental laws of the province and it is entitled to recover the expenses it incurs that are prudently incurred for those purposes. Hydro asserts that immediately switching from two percent (2%) to one percent (1%) sulphur content fuel is the least cost option available to it for the purposes of achieving compliance with the standards imposed on it by provincial environment laws, namely those imposed under the Environmental Protection Act, SNL 2002 c. E-14.2 and the Air Pollution Control Regulations, 2004 made under that Act.

II. THE APPROPRIATE PUBLIC UTILITY REGULATORY APPROACH TO HYDRO'S APPLICATION

3. Hydro's Manager of Environmental Services, Frank Ricketts, testified (**Transcript of May 5, p. 44, lines 5 to 10**) that Hydro's proposal to recover the costs associated with the one percent (1%) sulphur fuel at the Holyrood facility is based upon the notion that these additional costs are required to be incurred in order to be compliant with the law. Under cross-examination by counsel for the Industrial Customers, Joseph Hutchings, Q.C., Mr. Ricketts stated:

> "Q: Okay, all right. So we don't need to consider for the purposes of these

proceedings whether or not you're going beyond what is necessary. All you're proposing is to get yourselves in compliance".

A: That's the intent of this action, yes".

Reference: Transcipt, May 5, 2006, p. 44, lines 5-10

4. Mr. Ricketts' aforesaid reply highlights the conundrum presented by Hydro's application. Whether Hydro's application for cost recovery of the incremental cost of one percent (1%) sulphur fuel should be granted is not based on whether its proposal is better for the environment, but rather must be determined on the basis of whether the immediate switch to one percent (1%) fuel is necessary to comply with provincial environmental laws and whether or not it has been shown to be the least cost means of achieving that goal.

5. The Board is constrained by the Public Utilities Act and the Electrical Power Control Act, S.N.L. 1994 c.E-5.1 (EPCA) in adjudicating upon Hydro's application.

6. The Public Utilities Act states:

> "s.16 The board shall have the general supervision of all public utilities, and may make all necessary examinations and inquiries and keep itself informed as to the compliance by public utilities with the law and shall have the right to obtain from a public utility all information necessary to enable the board to fulfil its duties".

7. The EPCA states at Section 4:

"s.4 In carrying out its duties and exercising its powers under this Act or under the *Public Utilities Act*, the public utilities board shall implement the power policy declared in section 3, and in doing so shall apply tests which are consistent with generally accepted sound public utility practice".

Section 3(a) and (b) of the EPCA states:

"s.3 It is declared to be the policy of the Province that

(a) the rates to be charged, either generally or under specific contracts, for the supply of power within the province

(i) should be reasonable and not unjustly discriminatory,

(ii) should be established, wherever practicable, based on forecast costs for that supply of power for 1 or more years,

(iii) should provide sufficient revenue to the producer or retailer of the power to enable it to earn a just and reasonable return as construed under the *Public Utilities Act* so that it is able to achieve and maintain a sound credit rating in the financial markets of the world, and

(iv) should be such that after December 31, 1999 industrial customers shall not be required to subsidize the cost of power provided to rural customers in the province, and those subsidies being paid by industrial customers on the date this Act comes into force shall be gradually reduced during the period prior to December 31, 1999;

(i) all sources and facilities for the production, transmission and distribution of power in the province should be managed and operated in a manner

(i) that would result in the most efficient production, transmission and distribution of power,
(ii) that would result in consumers in the province having equitable access to an adequate supply of power,
(iii) that would result in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service,
(iv) that would result in, subject to Part III, a person having priority to use, other than for resale, the power it produces, or the power produced by a producer which is its wholly-owned subsidiary,
(v) where the objectives set out in subparagraphs (i) to (iv) can be achieved

> through alternative sources of power, with the least possible interference with existing contracts,
>
> and, where necessary, all power, sources and facilities of the province are to be assessed and allocated and re-allocated in the manner that is necessary to give effect to this policy.
>
> (Emphasis added)

8. In essence, the Board is an economic regulator. While it has the duty as part of its supervisory duties to ensure that public utilities comply with the laws which apply to them, it is not seemingly the intent of the legislature of this province, as made manifest in the Public Utilities Act and the EPCA, to invest the Board with powers in relation to what are at core environmental policy choices. Our "least cost" regime, which, in this context, only legally requires consumers to pay for such expenditures as are necessary for a utility to comply with applicable provincial or federal law, may not provide much solace to those persons who reside in the vicinity of the Holyrood facility and who have experienced the direct effects of the emissions from the facility over many years. One may suggest that such citizens are not so much concerned as to whether Hydro is complying with the law as they are about the emissions, soot and opacity, be they compliant or not. In response to **CA 16 NLH**, Hydro has indicated that it received some 238 complaints from members of the public from 2001 to 2005 with the vast majority of these relating to stack emissions. In particular, the Holyrood Thermal Generating Station Air Emission Control Assessment of 2004-04-12 **(PUB8NLH**) at p. 9 states:

"The majority of emission related complaints received from the communities surrounding the Holyrood Thermal Generating Station has related to acid smut deposition. The frequency of such complaints has diminished over the last few years as the Holyrood Thermal Generating Station personnel have modified soot blowing procedures to reduce acid smut formation. However, such complaints are still received when an upset in the Holyrood Thermal Generating Station operations result in abnormal heavy particulate releases which are deposited as dust on adjacent properties."

9. The legal landscape in this province may be contrasted with the legislative response in other jurisdictions. In California, lawmakers have expressly stated that in the resource planning sphere for instance, that "least cost planning" must become "environmental least cost planning". In Section 701.1 of the Public Utilities Code (**p. 238 of Information No. 3**) it states:

"s. 701.1 (a) The Legislature finds and declares that, in addition to other ratepayer protection objectives, a principal goal of electric and natural gas utilities' resources planning and investment shall be to minimize the cost to society of the reliable energy services that are provided by natural gas and electricity, and to improve the environment and to encourage the diversity of energy sources through improvements in energy efficiency and development of renewable energy resources, such as wind, solar, and geothermal energy.

(b) The Legislature further finds and declares that, in addition to any appropriate investments in energy production, electrical and natural gas utilities should seek to exploit all practicable and cost-effective conservation and improvements in the efficiency of energy use and distribution that offer equivalent or better system reliability, and which are not being exploited by any other entity.

(c) In calculating the cost effectiveness of energy resources, including conservation and load management options, the

commission shall include a value for any costs and benefits to the environment, including air quality. The commission shall ensure that any values it develops pursuant to this section are consistent with values developed by State Energy Resources Conservation and Development Commission pursuant to Section 25000.1 of the Public Resources Code. However, if the commission determines that a value developed pursuant to this subdivision is not consistent with a value developed by the State Energy Resources Conservation and Development Commission pursuant to subdivision (c) of Section 25000.1 of the Public Resources Code, the commission may nonetheless use this value if, in the appropriate record of its proceedings, it states its reasons for using the value it has selected".

10. The California Public Utilities Commission stated in Decision 91-06-022 as follows on page 194:

"[7, 8] Electric resources formerly were valued solely in terms of their energy output and capacity (contribution to system reliability). Such traditional valuation neglects some aspects of the social infrastructure in which electric resources play a vital part. The health and security of our citizens dictate that we now include these aspects.

Air quality (and the lack of it) has measurable impacts on our productivity at work, our enjoyment of leisure, and the very length of our life spans. The political will, expressed at the state and national level, is clear. We must address our air quality problems. While electric generation is not the primary source of criteria pollutants, it is a major contributor. Its emissions impose costs on society that should be accounted for. Least cost planning must become *environmental* least cost planning. See attachment 5 (Public Utilities Code para. 701.1)".

Reference: Re Biennial Resource Plan Update Following the California Energy Commissions Seventh Electricity Report (Decision No. 91-06-022) (June 5, 1991) (124 PUR 4th 181) (Information No. 1).

III. THE ISSUES

11. Given the constraints of the public utility regulatory regime of Newfoundland and Labrador the issues which must be determined are:

Issue 1: Has Hydro demonstrated that it is failing to comply with the air quality standards in the Environmental Protection Act and the Air Pollution Control Regulations made thereunder? and,

Issue 2: If so, has Hydro demonstrated that the immediate switch to one percent (1%) sulphur content fuel is the least cost means of achieving compliance with the law?

IV. THE EVIDENCE

12. According to Frank Ricketts, Hydro has never exceeded the annual 25,000 tonne limit for sulphur dioxide emissions imposed on Hydro by virtue of an agreement with the provincial environment regulator which commenced in 1991. (**Transcript, May 5, 2006, at pages 111-112**).

13. However, ambient air quality is another matter. Hydro was advised formally by correspondence (**CA5 NLH page 2 of 2**) dated February 9, 2006 from Derrick Maddocks, Director of the Department of Environment and Conservation that the Department has deemed the emissions of sulphur dioxide and nitrogen oxides from the Holyrood facility to

be non-compliant with the ambient air quality standards set out in the Air Pollution Control Regulations, 2004.

14. Compliance with ambient air quality standards is determined based upon the results of a plume dispersion model conducted in accordance with Departmental Standards. (**See CA5 NLH and paragraphs 2 and 3 of the Guidance Document, "Determination of Compliance with Ambient Air Quality Standards at CA 18 NLH**").

15. The latest modeling results as reported in the Report of SENES Consultants dated October 2005, according to Derrick Maddocks, indicated:

> "Both sulphur dioxide and nitrogen oxide exceedances of the ambient air standards at numerous off-property locations within a 4 km radius".

16. Derrick Maddocks also stated in his February 9, 2006 correspondence as follows:

> "The thermal generating station will be deemed non-compliant until such time as acceptable modeling based on current stack testing data, or approved compliance monitoring in areas of exceedances, demonstrates compliance. Please review the attached Guidance Document for further information".
>
> (Emphasis added)

17. It will be noted that Mr. Maddocks' correspondence was dated February 9, 2006. Prior to that, on February 2, 2006, Hydro received its Certificate of Approval from the Minister of Environment and Conservation. (**Pre-Filed Evidence of Hydro, Tab 3**). The record also discloses that prior to February 9, 2006, the Department was provided with Hydro's most

recent ambient air monitoring program results (**Transcript of May 8, 2006 at page 132, line 8 to page 133, line 1**).

18. The Guidance Document attached to the February 9, 2006 correspondence from Mr. Maddocks (i.e. Determination of Compliance with the Ambient Air Quality Standards) which was issued on February 8, 2001 and revised on July 22, 2004 and September 23, 2005 (**CA 18 NLH**) states:

> "8. For each pollutant modeled, where the maximum predicted ground-level concentration under all operating scenarios is below the associated ambient air quality standard for the given time frame, the facility will be deemed to be compliant for that particular pollutant. The facility will be deemed compliant when the modeling for all pollutants of concern indicates each pollutant is below the associated ambient air quality standard. Compliance will be valid until registration of the next scheduled dispersion model.
>
> 9. If non-compliance is determined, a facility may elect to enter into a compliance agreement with the department for the purposes of:
>
> (a) attaining compliance within a reasonable time frame; or
>
> (b) establishing a compliance ambient monitoring network at locations of maximum predicted non-compliance. If the network indicates compliance at all locations for all time frame after 2 years of monitoring, then the facility will be deemed compliant. If the network indicates non-compliance at any locations for any time frame within 2 years of monitoring, then the facility will enter into an additional compliance agreement for the purposes of attaining compliance within a reasonable time frame.
>
> 10. Where a facility elects to establish and operate a compliance ambient monitoring network, it will be established subject to the provisions of the facility's Certificate of Approval and in accordance with PPD 98-01.
>
> 11. Where it is not practical to establish a compliance ambient monitoring

network at locations of maximum predicted non-compliance, upon application to the department, the facility may establish a compliance ambient monitoring network at alternate locations in close proximity to the location of maximum predicted non-

compliance. In such situations, compliance will be based on prorating the monitored levels to the locations of maximum predicted non-compliance based on the registered dispersion model".

(Emphasis added)

19. The evidence discloses that the air dispersion model upon which the Department has determined Hydro's non-compliance with respect to SO_2 and No_x emissions, over-predicted the maximum one hour average SO_2 concentrations, when compared to actual observed concentration readings taken from Hydro's ambient air monitoring stations that are in the predominant wind direction (Lawrence Pond and Indian Pond). This model predicted nearly five times the maximum concentration actually recorded at Lawrence Pond and nearly four times the maximum concentration actually recorded at Indian Pond (**SENES Final Report - IC 1(b) NLH**). Each of Hydro's monitoring stations showed hourly SO_2 concentrations well below the legally prescribed limit of 900 Ug/M³. Mr. Ricketts testified that the "maximum desirable" hourly concentration for SO_2 was 450 Ug/M³ (**Transcript, May 5, 2006, p. 64, lines 15-22**). The observed hourly maximums ranged from 289 Ug/M³ to 514 Ug/M³ (**IC 1 1(b), p. 4-7**).

20. Since Hydro began monitoring SO_2 concentrations in the early 1990's at its ambient air monitoring stations, it has only recorded a single instance when the regulatory limit for

concentration was exceeded; this happened on a single day in December of 2005 when the regulatory limit of 900 Ug/m³ per hour was exceeded at the Indian Pond Road site: 970 Ug/m³ at 1600 hours;

1106Ug/m³ at 1700 hours and 1044 Ug/m³ at 1800 hours. (**PUB 6 NLH, lines 16-19; Transcript, May 8, 2006 p. 122, lines 15-25**).

21. The latest air dispersion modeling results as reported upon by SENES which utilized 2004 emissions and meteorological data represents the best modeled SO_2 predictions ever reported since Hydro commenced such modeling exercises. Mr. Ricketts testified that this may be explained by the use of more relevant and local meteorological inputs into the most recent model. Previous modeling had used surface and upper air meteorological data from three (3) surface and one (1) upper air weather stations located at St. John's, Argentia and Gander (**see ES-1 of SENES Report at IC 1(b) NLH; Transcript of May 5, 2006 at pages 131-132**).

22. The latest modeling as reported upon by the SENES Report predicted:

- SO_2 to exceed the <u>hourly</u> Ambient Air Quality Standards (AAQS) of 900 Ug/m³ .06% of this time (approximately 5 hours per year) over an area of 2.2 km²; 99% of the time the actual concentration at any point in the 20 km by 20 km modeling domain will be lower than 313 Ug/m³ (compared to the 900 Ug/m³ AAQS); 97% of the time it will be lower than 78 Ug/m³; 95% of the

time it will be lower than 35 Ug/m³.

- SO_2 to exceed the 3 hour AAQS of 600 Ug/m³ .8% of the time (approximately 70 hours per year) over an area of 1.7 km²; 99% of the time the actual concentration at any point in the 20 km by 20 km modeling domain will be lower than 273 Ug/m³. 97% of the time it will be lower than 86 Ug/m³ and 95% of the time it will be lower than 39 Ug/m3.
- SO_2 to exceed the daily AAQS of 300 Ug/m³ once in 2004 over an area of .1 km²; 99% of the time the actual concentration at any point in the 20 km by 20 km modeling domain will be lower than 205 Ug/m³; 97% of the time it will be lower than 86 Ug/m³; 95% of the time it will be lower than 45 Ug/m³.
- Nitrogen oxide (NO_x) to marginally exceed (i.e. by 5 Ug/m³) the hourly AAQS of 400 Ug/m³ once in 2004 over an area of .1 km²;
- Total Suspended Particulate Matter (TSP) not to exceed the Daily AAQS of 120 Ug/m³; the maximum predicted concentration being 28 Ug/m³.
- TPS not to exceed the Annual AAQS of 60 Ug/m³; the maximum predicted concentration being .63 Ug/m³.

23. Despite Hydro having an ambient air monitoring network in place which exceeds that of any utility in Atlantic Canada, (**Transcript May 8, 2006, p.23, lines 22-25; p. 24, lines 1-6**) the evidence is that Hydro has not taken any steps towards electing to establish a "compliance" ambient monitoring network in an attempt to re-establish compliance pursuant to the provisions of the Guidance Document referred to in Derrick Maddock's letter of February

9, 2006.(**Transcript May 8, p.63 lines 13-25, p.64 line 1; May 5, p.123, lines 3-12)**. If such an election were

made, Hydro would have an opportunity to re-establish compliance if it could be shown that its monitoring network over a two year period of monitoring indicated compliance at all locations and for all time frames.

24. The evidence is that the Guidance Document would permit Hydro to make application to the Department under paragraph 11 of the same if it found it impractical to establish a compliance ambient network at locations of maximum predicted non-compliance. In such a case, Hydro could seek approval to establish its compliance network at alternate locations in close proximity to the location(s) of maximum predicted non-compliance. In such situations, compliance would be based on prorating the monitored levels to the levels of maximum predicted non-compliance based on the dispersion model.

25. Mr. Ricketts upon questioning by Board Counsel (**Transcript May 5, 2006, p. 144-145**) characterized the establishment of a compliance monitoring network as being "not highly practical" and referred to the problem of setting up a monitoring system that would be able to capture the ground level concentrations in the areas that the model shows to be the "highest highs" but allowed that it was "not unachievable perhaps". However, it must be noted that:

(i) Hydro has not attempted it;

(ii) The Guidance Document clearly contemplates permitting alternate locations in cases of impracticability;

(iii) The fifty top predicted hourly concentrations occur predominantly within five hundred metres to a kilometre of the plant property itself. (**Transcript of May 5, 2006, p. 70, lines 7-25 and p. 71, lines 1-3**); and

(iv) Hydro's existing Indian Pond Drive monitoring site is apparently already in the midst of the predicted highest area of concentration (**Transcript of May 8, 2006, p. 30, lines 12-15**).

26. The evidence is that the switch to one percent (1 %) sulphur fuel from two percent (2%) sulphur fuel will involve an incremental fuel cost increase on an annual basis. When the Application by Hydro was filed the estimated annual increase was $7,974,000 (**IC 4 NLH**) based upon an annual assumed use of 2,658,000 barrels of fuel. Naturally, it is not possible to state with precision what the incremental cost per barrel will be in the coming years.

27. The evidence is that the burning of one percent (1%) sulphur fuel is not anticipated to assist in the goal of achieving compliance with respect to nitrogen oxides, a matter of non-compliance raised by Derrick Maddock's letter of February 9, 2006. (**Transcript May 5, 2006 p.113, lines 23-25, p. 114, lines 1-25, p.115, lines 1-19).**

28. The evidence with respect to achieving legally acceptable standards in relation to opacity attributable to the burning of one percent (1%) sulphur fuel is not at all conclusive. The Acres Report of February 2004 at pages 6-2 states:

> "Managing opacity to the proposed limits, may in general, be achieved by fuel switching to lower sulphur fuel oils or by the adoption of co-firing natural gas in the event it becomes available. If switching to a lower sulphur fuel is adopted, the impact on opacity should be monitored as part of the follow-up operating permit emissions monitoring program to establish the magnitude of the benefit achieved on opacity."

29. The evidence with respect to achieving sulphur dioxide emissions compliance by burning one percent (1%) fuel by aiming for compliance with the air dispersion model is not assured. In fact, **PUB 9 NLH** Hydro admits (lines 15-26) that:

> "The maximum ground level concentration predicted by the 2004 modeling would have to be reduced by 71% to achieve a level below the maximum permitted of 900 micrograms per cubic meter (900 Ug/m3), consequently, the sulphur content required to achieve a predicted maximum ground level concentration in compliance with the standard could have to be as low as .6%. However, the frequency for which the 2004 modeled ground level concentrates were predicted to exceed the government standard was very low because it assumed the concurrence of a particular combination of

emission/production rates with specific meteorological conditions. Therefore, it may not be necessary to reduce the sulphur level of the fuel to that level to achieve sustained emissions at permitted levels. This will have to be tested by future modeling and monitoring of ground level concentrations over time."

30. In essence, Hydro is pinning its sulphur dioxide emissions compliance effort to the satisfaction of dispersion modeling predictions (**Transcript May 8, 2006 p. 65 lines 15-25; May 5, p.126 lines 2-14)**. While the evidence is clear (see **PUB 9 NLH, lines 11-14)** that reducing the sulphur content from 2% to 1% will result in a near 50% reduction in the sulphur dioxide emission rate for any individual production rate and the sulphur dioxide emission rate in modeling has a direct proportionate effect on the ground level concentration, it is not so clear that it is prudent for Hydro to spend millions of dollars per year in an attempt to satisfy the model reported upon by SENES (**IC 1b NLH-p. 4-2**) which predicted a maximum one hour concentration of 3,147 Ug/m³ vastly in excess of the 900 Ug/m³ regulatory standard. Remarkably, even if one summed the observed maximum 1 hour readings from all four monitoring stations for which data is reported (found at Table 4.6 of the SENES Report), one still falls short of the predicted maximum of 3,147 Ug/m³ by 1523 Ug/m³.

31. With respect to particulate matter, Derrick Maddocks' February 9, 2006 correspondence which is captioned "Re: Non-compliance with the Ambient Air Standards" makes no assertion of non-compliance. However, his correspondence to Hydro dated February 2, 2006

(Information No. 2) which is captioned "Re: Certificate of Approval for the Holyrood Thermal Generating Station" states that Hydro has been found to be non-compliant with respect to ambient air concentrations of sulphur dioxide, particulate matter and nitrogen oxides in areas outside of the Thermal Generating Station property line. This assertion with respect to particulate matter is seemingly at

odds with the SENES Report which expressly states (p.5-1) that total suspended particulate matter (TPS) emissions from the three stacks at Holyrood are not predicted to exceed provincial standards using 2004 emissions and meteorological data.

32. In response to (**CA 6 NLH, lines 25-29**), Hydro cited an October 2005 $PM_{2.5}$ reading as the only instance where in the opinion of Hydro, it failed to meet the standards imposed on it as regards particulates. That reading taken from the Main Gate monitoring station (which is located within the Holyrood property boundary) showed that $PM_{2.5}$ concentrations exceeded the daily limit - 25.8 Ug/M³ vs. the 25 Ug/M³ standard. However, Hydro's Certificate of Approval states (**at p. 1 of Appendix "A"**) that the ambient air quality standards found in the Air Pollution Control Regulations only apply outside of the boundary surrounding the Thermal Generating Station.

33. The mandate of Acres in its Report was to provide Hydro with an independent evaluation for the reduction of plant air emissions to achieve certain emission targets set by Hydro. The

mandate of Acres was not to evaluate options for the reduction of plant air emissions in order to comply with the laws of Newfoundland and Labrador. Therefore, while it is undoubtedly a worthy environmental goal for Hydro to try to achieve a reduction in particulates by twenty percent (20%) from current levels, including fine particulate matter (PM_{10}), and while the switch to one percent (1%) fuel may potentially achieve that target, there is no evidence on the record in this proceeding which establishes that Hydro is non-compliant or failing to meet the requirements of the law with

respect to particulate matter, whether it be total particulate, $PM_{2.5}$ or PM_{10}, whose concentration limits are prescribed in Schedule A to the Air Pollution Control Regulations, 2004.

34. Hydro's not being in violation of any air quality standards in relation to particulate matter (in light of its having been named the fifth largest single point emitter of $PM_{2.5}$ in Canada) is obviously more a function of the standards set under province's environmental laws than anything else. This brings us back to the conundrum once again. Despite being a large $PM_{2.5}$ emitter, there is no evidence that Hydro needs to immediately switch to one percent (1%) sulphur fuel in order to comply with the law. The following exchange with James Haynes is noteworthy (**Transcript May 8, 2006, p.148 lines 20-25, p.149 lines 1-14**):

> "Vice-Chair Whalen:
>
> Q: Is Hydro in violation of any air quality standards with respect to its particulates

2.5 or 10?

A: I think we've had some excursions there, but I can't speak--I mean, the letter says--the letters say different things different times. One talks of sulphur particulate and nitrogen oxide. The other one, one letter, I think, just dropped-happened to drop one of those.

Q: Yes, that's my point, is that the letter, the February 9 letter just makes specific reference to sulphur dioxide and nitrogen oxide and doesn't make any mention of your PM numbers at all.

A: Of $PM_{2.5}$, no, it doesn't. But it would be--I think the earlier or the latter letter actually did mention that. It's a bit of a moving target at times".

V. CONCLUSION WITH RESPECT TO ISSUE I

35. We must now come back to the question whether Hydro has demonstrated that it is failing to comply with the air quality standards in the Environmental Protection Act and the Air Pollution Control Regulations made thereunder:

- Hydro has demonstrated non-compliance with respect to sulphur dioxide concentrations. The predicted concentrations exceed the standards for one hour and three hour periods. However, Hydro can elect to establish a compliance monitoring network.
- In the case of the determined non-compliance in respect of nitrogen oxides, the predicted exceedance was exceedingly slight. There is no evidence that the burning of one percent (1%) sulphur fuel will reduce the emission concentrations of nitrogen oxides. Presumably, Hydro may also elect to monitor these emissions as well.

- With respect to particulates, there is no evidence of non-compliance with the law requiring further action.
- With respect to opacity, there is evidence from Hydro that it has exceeded the opacity regulations (**Transcript May 8, 2006, page 124, lines 17-19, Holyrood Thermal Generating Station Air Emission Control Assessment - 2004-04-12 at p. 10 at PUB 8 NLH**). However, it is not evident from the record whether Hydro will be required by regulators to take any steps in relation thereto other than continue to monitor and record

the opacity of emissions from each boiler under paragraphs 69-71 of Hydro's recently issued Certificate of Approval. It would appear from Information No. 2 that the Department has expressed willingness to enter into a compliance agreement with respect to opacity monitoring. Hydro has stated that it has no current plan to enter into a compliance agreement (**Transcript May 8, 2006 p. 62 lines 9-24**). On the basis of the record it is not possible to state without falling into speculation whether Hydro must do anything further to achieve compliance with respect to opacity.

VI. CONCLUSION WITH RESPECT TO ISSUE II

37. We must next turn to the question whether Hydro has demonstrated that the immediate switch to one percent (1%) sulphur content fuel is the least cost means of achieving compliance with the law.

38. Even if one were to assume that Hydro must take action on opacity beyond monitoring under its Certificate of Approval, without speculating as to what Hydro may be required to do in relation to improving opacity (and over what time frame) it is not possible to assess whether Hydro's current proposal to burn one percent (1%) fuel is the least cost means of achieving compliance. Even if one were to assume for the purposes of argument that Hydro had to immediately achieve the opacity limits prescribed in Section 9 of the Air Pollution Control Regulations, the evidence from Hydro falls short of establishing that the switch to one percent (1%) sulphur fuel is the least cost means of compliance given that Hydro has not costed or tested the efficacy of fuel additives, other than fuel additives aimed at increasing efficiency at Holyrood. Nor has Hydro examined or tested the impact of such fuel additives on the efficiency of Holyrood. (**Transcript May 8, 2006, pp. 10-13; pp. 125-129**). According to the Acres Report (page 6-2) proprietary fuel additives may provide a reduction in total particulate emissions of about fifty to sixty percent (50-60%). In **PUB at 7 NLH, lines 16-17** Hydro states that particles larger in size than 10 micrometers have a greater effect on opacity levels than smaller particles. At this juncture, it is not possible to assess whether the use of fuel additives would provide Hydro with improved opacity by decreasing particulates as it has not been investigated.

39. As regards sulphur dioxide concentration non-compliance, the fact that Hydro for its own reasons, has not entered into a Compliance Agreement under the Guidance Document (either to attain compliance within a reasonable time frame or to establish a compliance ambient

monitoring network) effectively deprives the Board and the parties to this hearing a sound factual basis for determining whether:

(a) an immediate switch to one percent (1%) sulphur fuel is required, or whether

(b) an immediate switch to one percent (1%) sulphur fuel is the least cost means of achieving compliance with emission standards in respect of SO_2.

40. If Hydro were to elect to establish a compliance network it is at least conceivable that two years of continuous monitoring would show permissable concentration levels given its favourable past monitoring results and Hydro could thereby re-attain compliance. In such circumstances, an immediate switch to one percent (1%) sulphur fuel would not be either necessary or the least cost alternative.

41. Mr. Ricketts testified that Hydro has not had discussions with the Department that would specify a time for compliance that would be agreeable to the Department **(Transcript May 5, 2006, p. 98, lines 14-19**). While Mr. Haynes did not recall a discussion with the Department as to how much time Hydro could be afforded to implement mitigative measures, he noted that when Hydro tabled its plan to move to one percent (1%) fuel, the Department called it a "good start". (**Transcript May 8, 2006, p. 67-68**). Mr. Haynes also testified that in the discussions with the Department concerning the Compliance Agreement, the Department wanted Hydro to be not only fully compliant but to exceed the regulations. As he put it (**Transcript May 8, 2006, lines 20-24**):

> "But there were other issues, and I don't recall them all, but exceeding compliance was one of the things they wanted in that document which we had some trouble with".

42. In light of these imponderables it would appear that caution is required before Hydro proceeds to incur extra millions of dollars on an annual basis in order to switch immediately to one percent (1%) fuel. One cannot predict with certainty what the incremental cost of one percent (1%) fuel will be over the short term, as witnessed by the fact (**CA 1 NLH**) that even over the 2005 to 2006 period, the incremental cost for one percent (1%) fuel has ranged from $0.60 to $4.50 per barrel.

VII. RECOMMENDED DISPOSITION OF APPLICATION AND CONCLUSION

43. As previously stated, we are disadvantaged in this proceeding from being able to assess the viability of other options for achieving compliance with provincial environmental laws. For instance, we do not know if Hydro would be able to enter a Compliance Agreement to set up a compliance monitoring network. If a compliance monitoring network is not possible, what time frame would be acceptable for compliance? Hydro has not discussed time frames. The state of the record, unfortunately, is wanting.

44. Given this quandary, the Consumer Advocate is left little choice but to submit that Hydro has not established that the immediate switch to one percent (1%) sulphur fuel is either required

or the least cost means of achieving compliance with the limits imposed by provincial environmental laws and regulations. Hydro's Application should be declined.

45. The Consumer Advocate is mindful of the fact that many residents who live in the vicinity of Holyrood and perhaps many other consumers would not object to paying a small amount more on their electricity bills each month if it meant a cleaner environment. However, there may indeed be many others who will object to any further increases regardless of the justification. Ultimately, consumers have a statutory right to insist that all facilities for the production of power are managed and operated in a manner that results in the most efficient production of power and at the lowest possible cost consistent with reliable service. Viewed in that context and in light of the evidence, this Application failed to meet that requirement.

DATED at St. John's, in the Province of Newfoundland and Labrador, this 12 day of May, 2006.

CONSUMER ADVOCATE

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