Q. In Hydro's response to PUB 8 NLH, Hydro states that ..."by the autumn of 2005, Hydro determined that a staged reduction of the sulphur levels in the HFO would result in continued emissions in excess of the permitted levels as determined by the modeling used in the administration of the Air Pollution Control Regulations, 2004." Please provide details as to the nature and extent of the exceedance of permitted levels of emissions and current forecast cost and rate impact differences under such a plan.

A. This was partially answered by the previous response to PUB 9 NLH which stated in part:

> "The Department of Environment and Conservation's Guidance Document GD-PPD-009.2 *Determination of Compliance with the Ambient Air Quality Standards* specifies that where the maximum predicted ground-level concentration under all operating scenarios is below the associated ambient air quality standard for the given timeframe, the facility will be deemed to be compliant for that particular pollutant. Therefore, all modeled scenarios for sulphur dioxide would be required to have resultant ground-level concentrations below 900 ug/m^3 for a one-hour period. The completed air dispersion modeling for the Holyrood Thermal Generating Station's 2004 emissions indicated a maximum one-hour ground-level concentration of 3147 ug/m^3 for sulphur dioxide.
>
> The Department of Environment and Conservation has specified that, in calculating volumetric emissions of sulphur dioxide from HTGS, a

98% conversion of sulphur concentration in fuel to sulphur dioxide in emissions must be used. Assuming this relationship, then a reduction in maximum sulphur content in the fuel burned from 2% to 1% would result in a near 50% reduction in the sulphur dioxide emission rate for any individual production rate. In air dispersion modeling algorithms the emission rate has a direct proportional affect on the resulting predicted ground level concentration. As the maximum ground level concentration predicted by the 2004 modeling would have to be reduced by 71% to achieve a level below 900 ug/m^3, the sulphur content required to achieve a predicted maximum ground level concentration in compliance with the standard would have had to be as low as 0.6%. However, the frequency for which the 2004 modeled ground-level concentrations were predicted to exceed the government standard was very low, indicating that the combination of emission/production rates with meteorological conditions that result in such maximum ground-level concentrations may be relatively infrequent. Therefore, it may not be necessary to reduce the emission rate to the maximum projected if the infrequent meteorological condition is avoided. This will have to be tested by future modeling and monitoring of ground level concentrations over time."

Cost and rate impacts reflecting a staged reduction in sulphur levels are shown in the table below. These amounts are indicative of the magnitude of the changes in rates, but detailed cost of service studies and fuel costing reflecting fuel inventory impacts have not been performed.

Cost and Rate Impacts

Year	Fuel Sulphur Content	Premium per barrel over 2% s	Incremental Annual Cost $ 000	Estimated Rate Impacts over 2% s	
				Island Industrial	End Consumer
2006	1.75%	$0.35	883	0.3%	0.1%
2007	1.50%	$1.00	2,722	0.8%	0.4%
2008	1.25%	$1.65	4,575	1.4%	0.7%
2009	1.00%	$2.40	6,646	2.0%	1.0%