2007 NSUARB-P-886

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The *Public Utilities Act,* R.S.N.S. 1989, c.380 as amended

IN THE MATTER OF: An Application by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz **REDACTED**

Question IR-1: **Reference DE, pages 1 to 3 and Appendix A, Table 2**

Please indicate the change in required revenues for 2007 due to all of the changes in rates proposed by NSPI. If that amount differs from the difference of $82.5 million indicated by the revenue data in columns (4) of (5) of Table 2, please explain the reasons for the difference. Finally please divide the change in revenues into the amounts due to higher fuel prices and increased volumes, recovery of approved expenses, increased pension expenses. Explain how the increase in revenues was divided and provide any supporting calculations.

Response IR-1: The gross change in required revenues for 2007 is $82.5 million. However, the revenue amount in column (5) includes $0.4 million in incremental miscellaneous revenues and $0.8 million in incremental Mersey Additional Energy revenues that are not included. Therefore the net revenue requirement including these incremental revenues is $81.3 million. Please refer to Table 11 in Appendix A of the Direct Evidence.

The change in required revenues for each component is determined by calculating the change in 2007F vs. 2006C. The breakdown is as follows:

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TO: NSPI

FROM: Stutz **REDACTED**

Response IR-1: (cont'd)

Component	2007F vs. 2006C (in millions)
Fuel Expense	$ 68.5
Section 21 & Q1-05 tax deferral*	$ 26.1
[redacted]	$(10.0)
Depreciation*	$ 11.8
Electrical Sales Revenues	$ (8.2)
Pension*	$ 5.2
Interest	$ (2.6)
Income Tax (net)*	$ (5.8)
Net Earnings*	$ (3.8)
Other	$ 0.1
Total Revenue Requirement	**$ 81.3**

*tax affected

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TO: NSPI

FROM: Stutz

Question IR-2: **Reference DE, page 2, Lines 21 to 22**

How much of the incremental $68.5 million in fuel and purchased power costs is due to the increase in generation assumed for 2007F? Provide any calculations supporting your response.

Response IR-2: Please refer to UARB IR-4 Attachments 1 through 14.

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FROM: Stutz

Question IR-3: **Reference DE, page 7, Figure 2.1 and note 3**

Please explain the "standard accounting methodology" referred to in note 3. Explain how Figure 2.1 was developed and provide any supporting calculations.

Response IR-3: Standard cost accounting variance calculations use price and volume variances to explain the change in costs and volumes from one period to the next. A price variance is the change in price multiplied by the affected volume. A volume variance is the change in volume multiplied by the affected price.

Please refer to UARB IR-4 for the supporting calculations for Figure 2.1.

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TO: NSPI

FROM: Stutz

Question IR-4: **Reference DE, page 9, Figure 2.2 and Appendix A, Table 8**

Please provide the data used to develop the annual data on Net Fuel Cost and Gas Sales Benefit shown in Figure 2.2. For the Gas Sales Benefit please include the annual "Cost" and "Recovery" which in Table 8 are used to compute the Gas Sales Benefit.

Response IR-4: Please refer to Stutz IR-25 Attachment 1.

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FROM: Stutz

Question IR-5: **Reference DE, page 15, lines 6 to 10**

Please provide a copy of the documents EVA reviewed in order to develop this portion of its evidence. Indicate the date on which each document reviewed was received by EVA.

Response IR-5: EVA received no specific documents from NSPI prior to EVA preparing the referenced paragraph. EVA had conversations with a number of NSPI personnel who characterized the fuel budget. In addition, EVA was actively involved in NSPI solid fuel decisions and knew that solid fuel costs had stabilized. EVA also knew the assumptions regarding HFO and natural gas costs in the 2006 Application and that the market prices for these commodities had changed such that HFO costs would be higher and natural gas resale margins would be lower.

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TO: NSPI

FROM: Stutz

Question IR-6: **Reference DE, pages 16 to 28**

Please provide copies of Figures 2.3.1 and 2.3.3 to 2.3.9, each updated to show the most recent data available.

Response IR-6: Please see response to Liberty IR-63.

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TO: NSPI

FROM: Stutz

Question IR-7: **Reference DE, page 23, Figure 2.3.6**

To the extent possible please explain the causes of the spike in Pet Coke prices in 2006.

Response IR-7: Petroleum coke prices spiked in 2005 in response to supply disruptions caused by an active hurricane season in the Gulf. Prices spiked further in 2006 in response to strong European demand, residual supply disruptions from the hurricanes and expectations of a strong 2006 hurricane season.

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TO: NSPI

FROM: Stutz

Question IR-8: **Reference DE, page 36, lines 11 to 13**

To date has there been any evidence that NSPI's credit rating has or will effect the Company's fuel procurement costs? If so please identify all such evidence and provide any supporting materials.

Response IR-8: NSPI has not experienced increased fuel procurement costs, to date, as a result of its reduced credit rating. No amount is included in the 2007 revenue requirement for such increases, however, the Company may experience additional costs in the future as new fuel procurement arrangements are made. These costs could be explicit such as a requirement to post a letter of credit, or implicit such as higher quoted prices from suppliers.

For additional information, please refer to CME IR-1.

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TO: NSPI

FROM: Stutz

Question IR-9: **Reference DE, page 41, lines 12 to 14**

Please provide a more complete discussion of this point. If possible include, as part of your response, a quantitative analysis indicating the prices at which buying HFO would become more attractive than burning gas.

Response IR-9: Please refer to Confidential Liberty IR-35.

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TO: NSPI

FROM: Stutz

Question IR-10: **Reference DE, page 45, Figure 2.4**

Please explain why the Pet Coke positions drop substantially in 2007 and then rebound in 2008 to 2010.

Response IR-10: The petroleum coke positions drop substantially in 2007 as petroleum coke is not economic relative to other available fuels. Petroleum coke pricing is currently at an all-time high, and high sulphur coal is the economic alternative.

The petroleum coke positions are forecasted to rebound in 2008 to 2009 as incremental petroleum coke supply is scheduled to become available and petroleum coke pricing is forecast to return to more historical levels. This may or may not actually occur.

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TO: NSPI

FROM: Stutz **REDACTED**

Question IR-11: **Reference DE, page 53, lines 5 to 21 and Appendix A, Table B**

Please provide tables showing the results of each of the six steps in the gas margin calculation for the years 2005, 2006 and 2007. For 2006 show the steps leading to both the compliance and forecast values.

Response IR-11: Please refer to UARB IR-22 which provides the calculation of the gas resale margin for the years 2005 (Actual), 2006 (YTD September, October to December Forecast) and 2007 Forecast. The 2006C natural gas margin was set by the Board as part of the 2006 Rate Decision and is $40.0 million.

The 2005 and 2006 actual natural gas margin in UARB IR-22 represent the transactions that occurred during these time periods, during which time NSPI followed the methodology described on Page 53 of the Direct Evidence.

Please refer to Avon IR-31 Confidential Attachments 1 through 5 which address the key points listed on page 53 of the Evidence for the 2007 gas margin forecast. The same methodology was followed to forecast the remaining months in 2006.

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TO: NSPI

FROM: Stutz **REDACTED**

Question IR-12: **Reference DE, page 54, lines 21 to 27**

Please indicate the number of barrels of LFO included in the 2006C data. Also please explain how the LFO price forecast for 2007 was developed. Provide copies of any materials relied upon to support that forecast.

Response IR-12: The 2006C volumes of Light Fuel Oil (LFO) are [redacted] gallons for consumption in 2006C.

Please refer to Liberty IR-43 Attachment 11 for the detailed calculation of the 2007 delivered costs of LFO.

The forward curve for NYMEX Heating Oil, as posted the day of close for July 31, 2006, is the source for the delivered prices of LFO in 2007. Please refer to Liberty IR-43 Attachment 14 for the forward curve information used for 2007.

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TO: NSPI

FROM: Stutz **REDACTED**

Question IR-13: **Reference DE, page 63 and 64**

Has NSPI analyzed the fuel costs that would result if as in 2006, Stora was closed for much or all of 2007? If so please describe the analyses the Company performed and the results it obtained. Provide copies of any studies or other materials relied upon to support the Company's conclusions.

Response IR-13: NSPI performed preliminary calculations earlier in 2006 to determine the effect on total fuel costs should StoraEnso not resume production in 2007. This was done by comparing Strategist scenarios, one with, and one without the Stora load, optimizing for SO_2 emissions. The net effect was a reduction in fuel costs of approximately $155 million for 2007.

The assumptions and results of the Strategist runs are shown in the confidential Attachment 1.

Please refer to Stutz IR-17.

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TO: NSPI

FROM: Stutz **REDACTED**

Question IR-14: **Reference DE, page 65, lines 21 to 25**

Please discuss the impact, if any, of success or failure in this matter and the increase the company is requesting.

Response IR-14: The response to this question is confidential.

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TO: NSPI

FROM: Stutz

Question IR-15: **Reference DE, Page 89 and Appendix C**

Please explain why the pension expense varies so dramatically over the years 2005 to 2011. Is there any way to levelize or smooth this pension expense stream?

Response IR-15: Please refer to UARB IR-44(e) and (f) for a reconciliation of 2005 to 2007 expense and explanation of the change in the 2007 to 2011 pension expense.

NSPI smoothes pension expense using all methods permitted by the generally accepted accounting principles, CICA Section 3461, specifically:

a. assets are smoothed over a five year period and accordingly, the recognition of gain and loss of investment returns (relative to assumed return on assets) into the market value of assets and net unamortized gain/loss is done over the maximum five year period;
b. the amount of unamortized gains/loss actually to be recognized in a year's pension expense is determined after application of the 10 percent corridor, and over the maximum permitted period;
c. transitional obligations/assets are amortized over the maximum permitted period;
d. past service costs are amortized over the maximum permitted period.

Pension cost is significantly affected by long-term bond yields as of December 31st of each year. These rates are determined by market forces. NSPI has no control over the discount rates.

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TO: NSPI

FROM: Stutz

Question IR-16: **Reference DE, Pages 98 and 99**

The data in Figures 5.4 and 5.5 show that, with no rate increase, FFO/Interest Coverage and FFO/Total Adjusted Debt for 2007 is at an above the average historic levels for 2002 through 2004. Please identify and provide any evidence showing that the levels for 2002 to 2004 were inadequate or caused problems for NSPI in accessing the capital markets.

Response IR-16: NSPI's FFO/Interest coverage and its FFO/Total adjusted debt do not provide sufficient coverage to effectively access the capital markets. Attachment 1, a Standard & Poor's report dated March 14, 2006, highlights the issue. NSPI has shown modest improvement over the past few years but the coverage ratios are still weak.

Ms. Zeda Redden testified about these difficulties in the 2005 Rate Hearing:

> The November issue was not over subscribed. And typically what happens when you do a debt issue is your lead bank will open it up in the morning. So offers will go out looking for investors. And typically it's closed within an hour. Everything is sold. Ours was open for several hours and not over-subscribed, so therefore, we got just enough. So I do view the issuance as very successful, however, it did not have the same amount of momentum that we had in May certainly. We were still very fortunate to get the hundred and fifty million at the rate we did, but we did not get it as easily as we had got the other issues. And another thing to note is there have been a number of

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RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Response IR-16: (cont'd)

> utility issuances in the last couple of months for 30-year terms, and the spread that NSPI has had to pay – so the interest rates on debt are set using a Bank of Canada rate, and then there is a premium on top of that that each individual company has to pay. And the spread that Nova Scotia Power has had to pay is larger than that of what other utilities had to…[1]

[1]NSPI 2005 Rate Case, Hearing Transcript, NSUARB – NSPI – P-882, November 29, 2005, p. 2643-44, Q.107

STANDARD &POOR'S | RATINGSDIRECT

RESEARCH

Summary: Nova Scotia Power Inc.

Publication date: 14-Mar-2006
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Credit Rating: BBB+/Watch Neg/--

Rationale

The ratings on Nova Scotia Power Inc. (NSPI) reflect the consolidated business and financial risk profile of its parent, Emera Inc., based on Standard & Poor's Ratings Services consolidated rating methodology. Any change to the ratings on Emera will lead to a change in the ratings on NSPI. NSPI is a vertically integrated, regulated electric utility serving about 500,000 customers in the province of Nova Scotia. NSPI had long-term debt outstanding of C$1.5 billion and C$260 million in preferred securities as of Dec. 31, 2005.

NSPI's credit strengths include relatively stable cash flows derived from its province-wide monopoly electricity network, generally supportive regulation, and stable customer base. The utility is subject to cost-of-service regulation that is generally supportive of credit quality and allows NSPI to earn an ROE of between 9.3% and 9.8% on a deemed equity layer of 37.5% for the purpose of ratemaking. Although electricity rates are subject to regulatory approval, the utility is not subject to an annual review. Although NSPI has some limited exposure to the pulp and paper sector, it serves a predominantly residential customer base in a mature market with modest growth.

NSPI's credit strengths are partially offset by a moderate financial profile and the exposure of NSPI's cash flows to potential variances between actual fossil fuel expense and the fuel expense recognized in the setting of the utility's regulated rates. Fuel-related variances can be further exacerbated in periods of low hydrology leading to a requirement for more fossil-fueled generation. NSPI's generation portfolio consists primarily of fossil fuel-fired generation assets including coal, pet-coke, and gas. NSPI's average cost of fossil fuel-fired production rose more than 20% in 2005. The regulator's unwillingness in its 2006 rate decision to approve NSPI's fuel procurement strategy potentially exposes the utility to further fuel cost variances and related regulatory risk. Furthermore, the utility currently relies on the resale of surplus gas supply under contract to 2010 to mitigate rising fuel expense. (For more detailed information on the risk profile of NSPI's regulated businesses see the credit report on Emera Inc., published Sept. 1, 2005, on RatingsDirect, Standard & Poor's Web-based credit research and analysis system, at www.ratingsdirect.com.)

The ratings on Halifax, Nova Scotia-based Emera reflect the utility holding company's vertically integrated utility operations in Nova Scotia and low-risk monopoly electricity distribution and transmission activities in Maine, regulated cash flows, and largely residential and commercial customer base. Together, the utility operations generate approximately 95% of Emera's cash flow and represent a similar percentage of its assets. NSPI's generating resources have achieved improving availability in the past five years while the utility has kept its operating costs (excluding fuel expense) relatively flat since 2002. The reliability of NSPI's electricity transmission and distribution operations is typically within industry benchmarks although system performance suffered during a severe, early winter storm in 2004. About 70% of Emera's regulated sales revenues are derived from its diversified residential and commercial utility customer base at regulated prices, thus providing a backdrop of stability for Emera's regulated cash flows. Although the growth in Emera's total number of customers has averaged about 1% per year since 2002, organic growth opportunities are limited in the mature markets of Nova Scotia and Maine.

Offsetting Emera's strengths are a moderate financial profile, absence of a timely fuel cost recovery mechanism for NSPI, some exposure to higher risk activities such as energy trading, and the potential execution and financial risk associated with its strategy for growth through acquisition. Despite some modest strengthening of cash flow interest and debt coverage ratios in the past several years, Emera's financial profile remains moderate and weak for the ratings. Given NSPI's exposure to rising fossil fuel costs and a lower-than-expected rate increase in 2005, Emera's 2005 year-end results remained weak for the rating. On a consolidated basis, adjusted funds from operations (FFO) interest coverage in 2005 of

3.0x, up from 2.8x in 2004, was slightly better than expected as the company's 2005 cash flow was enhanced by the resale of contracted gas supply. FFO-to-average total debt remained unchanged as compared with 2004, at about 14%. Leverage as measured by total debt-to-total capital was 55%, also similar to 2004. Although Emera's involvement in unregulated business activities represents a relatively small contribution to overall cash flows, these unregulated and higher risk activities marginally weaken the overall business profile of Emera.

Liquidity

Standard & Poor's assesses NSPI's stand-alone liquidity to be satisfactory. At the subsidiary level, NSPI has a C$400 million bank facility that serves to backstop its C$400 million CP program, of which C$220 million remained available as of Dec. 31, 2005. There is C$40 million in debt at NSPI, redeemable in 2006 at the option of the holders that is unlikely to post a refinancing challenge. At year-end 2005, NSPI had issued C$9 million in LOCs from its C$100 million operating facility and had access to the capital markets through the C$150 million of remaining capacity on its C$400 million MTN shelf program that expires in April 2007.

Standard & Poor's assesses Emera's liquidity to be adequate given its stable cash flow generation, its available bank facilities, and its ability to access capital markets through its existing MTN shelf programs at both the holding and operating company levels. On a consolidated basis, expected FFO in 2006 should be sufficient to meet expected capital expenditures and dividend payments. Refinancing C$110 million of maturing debt at Emera in 2006 should be manageable through existing programs. At year-end 2005, in support of its unregulated activities, Emera had access to debt capital through C$600 million in credit facilities, of which C$530 million remained available, as well as through a C$300 million MTN shelf program that expires in April 2007. Emera's consolidated lines of credit meet the company's operating needs and provide liquidity support to Emera's proprietary trading activities.

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RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-17: **Reference DE, page 150, lines 10 to 13**

Does NSPI have any evidence that the "large Industrial Customer" that shut down in 2006 will not shut down again in 2007. If so please provide all such evidence.

Response IR-17: On November 3, NSPI was informed by the customer that it plans to operate at full production for the entire year in 2007.

NSPI has no reason to believe that the customer will not operate in 2007.

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TO: NSPI

FROM: Stutz

Question IR-18: **Reference DE, page 160, lines 19 to 21**

Please file the report cited in this portion of the evidence.

Response IR-18: A copy of NSPI's 2006 Unmetered Class Cost of Service Review and Street Lighting Study Report filed, with the UARB on July 31, 2006, is provided as Attachment 1.

Nova Scotia Utility and Review Board

Nova Scotia Power Incorporated

2006
UNMETERED CLASS
COST OF SERVICE REVIEW
and
STREET LIGHTING STUDY REPORT

DATED: July 31, 2006

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Appendix A Analysis of Weighting Factor for C-3 Customer Allocator
Appendix B Street / Crosswalk Lighting Study

1.0 INTRODUCTION

In the Nova Scotia Utility and Review Board's March 10, 2006 Decision (NSUARB-NSPI-P-882), the Board directed NSPI to conduct a cost of service study with respect to the Unmetered Class. The Decision stated:

"This study shall include a review of the appropriateness of the current [C-3] weighting factor and a review of the rate base, including assets, assigned to the Unmetered Class. The study should also indicate a breakdown of costs and rate base by municipality."[1]

"The cost of service study results shall be filed with Board by July 31, 2006."[2]

This report is provided in response to the Board's directive. In summary, NSPI proposes to change the C-3 weighting factor from 5.0 to 2.0. NSPI's unmetered rate base is correctly stated and does not include any assets other than those owned and paid for by NSPI.

1.1 Background regarding Street Light Study

Street and Crosswalk Lighting rates were initially developed based on a Street/Crosswalk Lighting Study conducted in 1977.

Since 1977, rate adjustments have been applied to the all of the Street/Crosswalk Lighting rate components based on the overall UARB-approved average rate increase/decrease associated with the Unmetered Class. Street Lighting rates comprise a power and energy charge, maintenance charge, and a capital charge. A rate containing all three of these components is referred to as a full charge rate. For situations where the customer owns the fixture but NSPI performs the maintenance, NSPI offers street lighting rates that only include the power and energy and maintenance charges. For situations where the customer both owns and maintains the fixture, NSPI also offers rates that only contain the power and energy charge.

[1] NSUARB-NSPI-P-882 Decision, March 10, 2006, Page 269, paragraph 598.
[2] NSUARB-NSPI-P-882 Decision, March 10, 2006, Page 269, paragraph 600.

NSPI's Cost of Service Study ("COSS") provides an indicator as to how the current and proposed rates and resulting revenue collected compare to the costs assigned/allocated to the various customer classes. The Unmetered Class is an above-the-line ("ATL") class, and the COSS allocates and assigns direct costs to this class using methodologies approved by the Board. When compared to the revenue collected, this results in a revenue/cost ratio which the Company, and ultimately the UARB, uses to determine rate adjustments to this class.

A Street Lighting Study, which focuses on determining capital and maintenance costs, is generally conducted independently of the Company's regular cost of service study that is used for setting rate adjustments for electric tariffs. However, certain items from this cost of service study are used as input to the development of street light rates, such as street lighting operating and maintenance expenses assigned directly to the unmetered class in Exhibit 6A. These costs are used to determine the maintenance component of the street light rate.

2.0 THE C-3 WEIGHTED CUSTOMER ALLOCATOR

There has been discussion and debate about the use of the Cost of Service Study's C-3 Weighted Customer Allocator which is used to allocate certain customer-related expenses to ATL classes. There has also been debate about the use of a weighting factor of 5.0 to determine the percentage of these expenses that is allocated to the Unmetered Class.

This C-3 allocator has historically been applied to expenses incurred in the billing services, call centre, customer service head office, and customer service field operation areas of the Company. In reviewing these costs in 2006, NSPI has determined that the Unmetered Class does not contribute more to the cost causation in the customer service head office and field areas of the Company than any other ATL class and therefore proposes to discontinue the use of the C-3 customer allocator for these costs. Customer service field expenses have been transferred into customer service head office expenses and these costs are now being allocated using the C-1 Allocator (Average Customers). The Unmetered Class would still continue to receive a share of these costs but at a reduced level.

Billing Services and Call Centre functions were reviewed individually to determine the amount of time and effort personnel in these areas spend on issues related to unmetered customers in the normal course of their business operations.

In the **Billing Services** area, the majority of the effort associated with billing unmetered customers centers around those customers that have more than 10 lights, and customers converting traffic control lights from incandescent to LED technology. The LED conversion will continue to be an ongoing activity within the Billing Services function. In the future, the possibility exists that street lights could also be converted to LED with new technology improvements in this area and as government agencies continue to promote and utilize this energy saving technology. A street light conversion to LED would be a much larger project and would involve additional resources in the Billing Services area. The 2006 review results in a weighting factor of 4.78 for the Unmetered class. This is calculated by dividing; the ratio of unmetered costs to the total Billing

Services costs, by; the ratio of the number of unmetered service accounts to the total number of customer accounts.

$$\frac{\text{Unmetered Class Costs}}{\text{Total Billing Services Costs}} \text{ divided by: } \frac{\text{\# unmetered accounts}}{\text{total accounts}} = 4.78$$

This analysis is contained in Appendix A, Table 2.

In the **Call Centre** function, the total call volume was analyzed to determine the number of calls associated with unmetered accounts. The number of unmetered calls identified for the 2005 study period was 18,781 or 1.68% out of a total of 1,114,707 calls. In addition, the review also determined that the call time associated with an unmetered call is roughly the same as any other call received by call centre staff. This analysis results in a weighting factor of 1.04 (down from the 5.0 used currently) and was calculated in the same manner as the weighting factor for the Billing Services function. This analysis is contained in Appendix A, Table 3.

In the summary analysis in Appendix A, Table 1, NSPI used the expenses from the 2006 Compliance Filing and compared the current COSS methodology for these customer service groups that employ the C-3 Weighted Customer Allocator to the Company's proposed methodology for these groups. The 5.0 weighting factor used previously was multiplied by the ratio of; the proposed new cost assignment of $0.598 million to the 2006C cost assignment of $1.625 million; resulting in a revised weighting of 1.84. This figure has been rounded to 2.0 for COSS purposes.

3.0 UNMETERED CLASS RATE BASE

With respect to the unmetered rate base, HRM's concern during NSPI's 2006 Rate Hearing appears to have centered on its belief that developers pay for streetlights in the capital contributions they provide when new subdivisions are developed. HRM argued that NSPI improperly included developer-paid streetlights in its rate base. HRM also argued that some residential customers purchase their own "area lights", and that NSPI has included these customer-owned lights in its rate base.

These assertions are incorrect, and were left somewhat vague in the last Rate Hearing following HRM's questioning of NSPI's Finance Panel. In reviewing this issue and the transcript from the 2006 Rate Hearing, NSPI would like to clarify that:

- Developers do not contribute to the capital costs of providing streetlights. Other than upgrades to provide non-standard or decorative fixtures, capital contributions required from developers relate to infrastructure and associated costs other than streetlight fixtures and associated hardware;

- Virtually all "yard lights" or area lights installed on individual homeowners' properties are NSPI-purchased and owned without any contribution from the homeowners, and any that may be paid for by the homeowner are not included in NSPI's rate base;

- All streetlights replaced as a result of motor vehicle accidents are a replacement of NSPI's assets and properly remain as part of NSPI's rate base.

NSPI's unmetered rate base is correctly stated and does not include any assets other than those owned and paid for by NSPI. Please see column 1 ("Full Charge") of Schedule 1 of the attached Street Light Study for an inventory of the 120,718 unmetered fixtures owned by NSPI.

In the Board's order, NSPI was directed to provide a breakdown of street lighting costs and rate base by municipality. The total rate base and operating costs associated with street lights contained in the regular cost of service study represents the maximum detail available from the books and records of the Company. NSPI does not have the data with which to provide this information by municipality.

4.0 STREET / CROSSWALK LIGHTING STUDY

Street and Crosswalk lighting represent 90% of the total number of NSPI's unmetered service units and the total revenue collected from customers. As stated previously, NSPI-owned streetlights include a power and energy charge, a maintenance charge and a capital recovery charge (i.e., a full charge rate if all three components are used). Customer-owned crosswalk lights and miscellaneous unmetered services contain either a power and energy charge and maintenance charge or only a power and energy charge. The inclusion of the maintenance charge depends on whether it is NSPI or the customer that provides regular maintenance work on the light. Customer-owned lights are typically floodlights installed on a customer's property such as retail parking lots, car dealerships, parks, highway intersection lighting, exhibition facilities and residential yards, barns and garages.

In conducting this 2006 update to the original 1977 Street / Crosswalk Lighting Study, the following information was reviewed and updated:

- Schedule 1 – Street and Crosswalk Lighting Inventory Levels
- Schedule 2 – Determination of Maintenance Costs by Fixture Type
- Schedule 3 – Determination of Average Installation Labour Costs associated with Street Lighting Gross Assets
- Schedule 4 – Determination of Depreciation and Capital-related costs by Fixture Type
- Schedule 5 – Tax-Adjusted Weighted Average Cost of Capital
- Schedule 6 & 7 – Summary and Detail of Current Material Costs by Fixture Type
- Schedule 8 – Lamp Life Analysis
- Schedule 9 – Updated Street and Crosswalk Lighting Rates by Cost Component and Total Revenue based on current Inventory levels

4.1 Schedule 1 - Street and Crosswalk Lighting Inventory

The lighting units reviewed in this study were based on inventory levels as of December 2005. The total units were 134,280 which were made up of 120,718 full charge lights,

894 "power and energy" and maintenance charge lights, and 12,668 "power and energy"-only lights. The majority of the lights (83%) on NSPI's system are High Pressure (Intensity) Sodium ranging in wattage from 70W to 1000W.

4.2 Schedule 2 - Determination of Maintenance Costs by Fixture Type

The purpose of this schedule is to assign current maintenance costs to all lights containing a maintenance charge, based on the service life of each lamp type and the associated maintenance weighting factors, as measured relative to the replacement of 100W High Pressure (Intensity) Sodium lights. These weighting factors and all maintenance charged lights are then used to determine the weighted total (column F) number of lights maintained. Current street light operating expenses were then used to determine annual and monthly maintenance costs by fixture type. The operating expenses used in this review are based on forecasted street lighting expenses from the Customer Operations area for 2006C including a share of corporate overhead and pension costs. This amount of $4.916M is identified in the 2006C COSS in Exhibit 6A. The results, using the weighted number of street lights and the forecasted operating expenses for street lights, determine the annual and monthly maintenance charge to be applied to each type of light.

4.3 Schedule 3 - Determination of Average Installation Labour Costs associated with Street Lighting Gross Assets

This schedule uses the Gross Street Lighting Assets as of December 31, 2005 of $44.602M and the current material costs of each type of fixture, along with the current number of fixtures, to arrive at a total installation labour cost. The current material cost of each fixture is multiplied by the number of fixtures to arrive at a total material capital cost. The amount is subtracted from the total street light gross plant value to arrive at a total installation cost which, divided by the number of fixtures, results in an average installation labour cost of $181.48 per fixture. Material cost information for incandescent and fluorescent lighting was not available and therefore an estimated escalation factor of 125% was applied to the Unit Costs from 1977. This schedule includes a sample material

cost breakdown of a 100W High Pressure (Intensity) Sodium light, which is re-produced below.

Sample Material Cost - 100 Watt High Intensity (Pressure) Sodium:
Inventory Prices as of September 2005

Fixture, Ballast & Photocell	$100.21
Bracket Assembly (Davit)	$46.44
Wire	$11.80
Miscellaneous Hardware	$2.34
Lamp Replacement	$8.37
TOTAL	**$169.17**

4.4 Schedule 4 - Determination of Depreciation and Capital-related costs by Fixture Type

In this schedule, the capital component of the street light rate is determined by individual fixture type. The depreciation rate used in this calculation was 4.55%, which is Year 2 of the UARB-approved depreciation phase-in schedule and represents the rate for 2006. The tax-adjusted, weighted average cost of capital (WACC) of 11.96% was used to calculate the remaining capital-related costs such as interest, preferred dividends, income taxes, grants in lieu of taxes and net income. This method of assigning capital-related costs to street lighting fixtures is consistent with the methodology used in, and approved for, the development of NSPI's Open Access Transmission Tariff (OATT). In applying the depreciation and tax-adjusted WACC rate to the total material and labour installation costs results in an annual and monthly capital cost per lighting fixture.

4.5 Schedule 5 - Tax-Adjusted Weighted Average Cost of Capital

As stated previously, using a tax-adjusted WACC is consistent with the methodology used in the development of NSPI's currently approved OATT. The calculation is broken down into four components; pretax WACC, additional income tax on Common Equity, Large Corporation Tax and Grants-in-Lieu of Property Taxes. The pretax WACC of 8.21% is based on NSPI's 2006 Compliance Filing. The additional Income Tax on

Common Equity uses the extended equity cost of 3.58% and the effective tax rate of 37% to arrive at a rate of 2.10%. The Large Corporation Tax component uses a provincial capital tax rate of 0.266% for 2006 and a federal capital tax rate of 0.125% and the average Net Plant Value of Street Lighting and associated General Property Plant and a share of Deferred Charges and Credits to arrive at a Large Corporation Tax Rate of 0.46%. The resulting Grants-in-Lieu Tax rate of 1.19% used the forecasted 2006C Grants-in-Lieu expense of $32.563M and the Average Net Plant Value of Street Lights as a percentage of Total Electric Plant of 1.18%. Summing the four components of the Tax-adjusted WACC results in a combined rate of 11.96%

4.6 Schedules 6 and 7 - Summary and Detail of Street Lighting Material Costs by Fixture Type

An analysis of current material costs was conducted using information as of September 2005. This analysis involved the review of all components used in the installation of street light fixtures such as the lamp, photocell, davit, wire, connectors and fasteners. A recent review of these material costs concluded that the prices have not changed materially since September 2005 and are still appropriate for this study. In addition, NSPI has provided a detailed listing of all material costs obtained from the material inventory control system.

4.7 Schedule 8 - Lamp Life Analysis

Average Rated Life Spans of each lamp type, as provided in the Canadian Electrical Association's Lighting Reference Guide[3], were used in this study. Annual photocell cumulative operating time is based on 4000 hours per year or 333 hours per month. Using the average lamp life and burning hours per year results in the expected service life, in years, by lamp type. The lamp life and number of replacements, relative to those of a 100W High Pressure (Intensity) Sodium lamp, were then determined. The results of this

[3] Product Knowledge – Lighting Reference Guide, Canadian Electrical Association, April 1992, Originally printed by Ontario Hydro (4th Edition) 1991.

analysis were used to determine the frequency of bulb replacements as it pertains to annual maintenance work in Schedule 2.

4.8 Schedule 9 - New Street and Crosswalk Lighting Rates by Cost Component

Once the analysis of all costs components was complete, they were summarized in Schedule 9 including the rate description, the rate code, the calculated monthly kWh usage and the new power and energy, maintenance, and capital cost components. Incandescent rates < 300W and > 300W were set at those used for 250W and 400W Mercury Vapour rates respectively. Calculation of the power and energy component is shown at the bottom of Schedule 9 and is based on annual photocell and continuous burning energy usage to arrive at average cents/kWh that is applied to the standard energy usage. In addition, this schedule compares the new resulting rates for 2006 and the percentage increase/decrease from the current approved rates for 2006. In comparing these new resulting rates and the current approved rates along with the December/2005 inventory levels results in an increase in total Street and Crosswalk Lighting Revenue for 2006 of $0.276M from $21.397M to $21.673M.

5.0 CONCLUSION

In order to ensure that the three components of unmetered rates remain aligned with costs, NSPI proposes to update this Street / Crosswalk Lighting Study each time the Company files a future general rate application. The Company will review each cost component and propose revisions, if appropriate, to the rate charged to fixture types, replacing the former method of applying the average across-the-board rate adjustment to the total unmetered rate. The Unmetered Rates contained in Schedule A of the Company's official approved tariffs will still be shown as single rates but the individual cost components that make up this rate will be priced accordingly.

NSPI proposes to change the description of High Intensity Sodium to High Pressure Sodium in the Unmetered Rates section of the Company's approved Tariffs which better reflects the current lighting terminology.

APPENDIX A

ANALYSIS OF WEIGHTING FACTOR FOR C-3 CUSTOMER ALLOCATOR

APPENDIX A - TABLE 1

UNMETERED SERVICE CLASS
ANALYSIS OF ALLOCATED CUSTOMER-RELATED EXPENSES

	2006 Compliance Filing			
	Total Direct Costs ($000)	Total - Incl. Corp. O/H & Pension Costs ($000)	Cust. Costs assigned to Unmetered Class ($000)	Cust. Costs assigned to Unmetered Class (%)
Customer Costs Assigned to Unmetered Class Using C-3 Allocator:				
Current COSS Methodology				
Billing Services	$3,272	$5,456	$424	7.8%
Call Centre	6,230	10,389	808	7.8%
Cust. Serv. H/O	3,034	5,060	393	7.8%
	$12,536	$20,905	$1,625	
Proposed COSS Methodology				
Billing Services	$3,272	$5,456	$423	7.7%
Call Centre	6,230	10,389	175	1.7%
Cust. Serv. H/O	3,034	5,060	0	0.0%
	$12,536	$20,905	$598	
			1.84	

APPENDIX A - TABLE 2

BILLING SERVICES OPERATIONS

Rate Class	Total Accts	% of Accounts	Meter Reading Processing	Billing	Inquiries	Large Accts requiring manual effort	Unmetered Accts with more than 10 lights & LED TCL Conversions	Total FTEs	% of FTEs	Operating Budget allocated by Rate Class
			2.5 FTE	7.25 FTE	2.75	1.5 FTE	1.0 FTE			2.6 M
Residential	415,831	89.90%	2.28	6.52	2.47			11.27	75.17%	1,954,342
Tou	3,296	0.71%	0.02	0.05	0.02			0.09	0.60%	15,496
General (Rate 10)	22,391	4.84%	0.12	0.35	0.13			0.61	4.05%	105,222
General Demand (Rate 11)	11,103	2.40%	0.06	0.17	0.07			0.30	2.01%	52,182
Industrial (Rate 21 & 22)	2,419	0.52%	0.01	0.04	0.01			0.07	0.44%	11,362
Unmetered	7,491	1.62%	0.00	0.12	0.04		1.00	1.16	7.75%	201,396
Sub-Total	462,531	100.00%	2.50	7.25	2.75					
LCB/LCCB	57		0.00	0.00	0.00	1.50		1.50	10.00%	260,000
Total	462,588		2.50	7.25	2.75	1.50	1.00	15.00	100.00%	2,600,000
FTE			2.50	7.25	2.75	1.50	1.00			
										2,600,000.00

Billing Services Weighting Factor Calculation = (Unmetered Billing Services Costs / Total Billing Services Costs) / (Total Unmetered Accounts / Total NSPI Accounts)
= ($201,396 / $2,600,000) / (7,491 / 462,531)

Weighting Factor = 4.78

APPENDIX A - TABLE 3

CALL CENTRE OPERATIONS

Group		Calls	Budget 2006	Cost Per Call	Total Cost	%
Outage		116,565			$782,043	10%
Residential		400,097			2,684,280	36%
Commercial		66,861			448,575	6%
Collections		453,439			3,042,155	41%
Wiring Permit		41,650			279,433	4%
Web Contacts		36,095			242,164	3%
Total Contacts 2005		**1,114,707**	**$ 7,478,650**	**$ 6.71**	**$7,478,650**	
Unmetered Service Calls		16,343		$ 6.71	109,646	1.47%
Unmetered Service Web Contacts		2,438		$ 6.71	16,357	0.22%
Total Unmetered Service Transactions		**18,781**		**$ 6.71**	**$126,003**	**1.68%**

Billing Services Weighting Factor Calculation

= (Unmetered Call Centre Costs / Total Call Centre Costs) / (Total Unmetered Accounts / Total NSPI Accounts)

= ($126,003 / $7,478,650) / (7,491 / 462,531)

Weighting Factor = **1.04**

Assumptions/Notes

- Uses 2005 Call/transaction volumes
- Uses 2006 budget
- Cost/call based on inbound contacts plus outbound collections calls (excludes technology satisfied)
- Unmetered Services transactions are a subset of total 2005 contacts and are based on activity codes entered by CSRs.

APPENDIX B

STREET AND CROSSWALK LIGHTING STUDY

SCHEDULE 1

STREET / CROSSWALK LIGHTING STUDY

Inventory Level as of DECEMBER 2005

Rate Code	Description	Quantity			
		Full Charge	Energy & Maint	Energy Only	Total
001/003	Incandescent < 300 Watts	31	0	7	38
002	Incandescent > 300 Watts	3	0	0	3
		34	0	7	41
100	Mercury Vapour 100 Watts	269	0	0	269
101/201/301	Mercury Vapour 125 Watts	11,962	9	11	11,982
102/202/302	Mercury Vapour 175 Watts	3,150	24	153	3,327
103/203/303	Mercury Vapour 250 Watts	1,149	34	54	1,237
104/204/304	Mercury Vapour 400 Watts	1,484	10	16	1,510
105/205/305	Mercury Vapour 700 Watts	12	0	1	13
106/206/306	Mercury Vapour 1000 Watts	76	17	7	100
107	Mercury Vapour 250 Watt Cont. Oper.	5	0	0	5
		18,107	94	242	18,443
110	Fluorescent 2x24" 70 Watts	913	0	0	913
111	Fluorescent 2x48" 220 Watts	153	0	0	153
112	Fluorescent 2x72" 300 Watts	68	0	0	68
113/213	Fluorescent 4x72" 600 Watts	15	0	0	15
114/214	Fluorescent 1x96" 110 Watts	5	26	0	31
115/215	Fluorescent 1x72" 150 Watts	2	3	0	5
116	Fluorescent 4x48" 440 Watts	2	0	0	2
217	Fluorescent 1x48"	0	1	0	1
218	Fluorescent 2x48"	0	0	0	0
330	Fluorescent 4x35"	0	0	2	2
350	Fluorescent 4x96"	0	0	78	78
		1,158	30	80	1,268
117	Fluorescent Crosswalk Cont. 4x72"	0	0	2	2
118	Fluorescent Crosswalk Cont. 2x24"	0	0	17	17
119	Fluorescent Crosswalk Cont. 4x48"	0	0	21	21
120	Fluorescent Crosswalk Cont. 2x96"	0	0	29	29
150	Fluorescent Crosswalk Cont. 4x96"	0	0	23	23
		0	0	92	92
310	Fluorescent Crosswalk 2x24"	0	0	1	1
311	Fluorescent Crosswalk 4x48"	0	0	5	5
312	Fluorescent Crosswalk 2x72"	0	0	2	2
313	Fluorescent Crosswalk 4x72"	0	0	0	0
314	Fluorescent Crosswalk 1x96"	0	0	25	25
315	Fluorescent Crosswalk 1x72"	0	0	0	0
		0	0	33	33
121/221/321	High Pressure Sodium 250 Watts	5,256	160	1,677	7,093
122/326	High Pressure Sodium 400 Watts	3,667	0	86	3,753
123/222/322	High Pressure Sodium 70 Watts	38,321	224	6,299	44,844
124/223/323	High Pressure Sodium 100 Watts	45,889	110	2,508	48,507
125/224/324	High Pressure Sodium 150 Watts	5,241	232	1,299	6,772
327	High Pressure Sodium 500 Watts	0	0	3	3
		98,374	726	11,872	110,972
130	Low Pressure Sodium 135 Watts	61	0	0	61
131/231/331	Low Pressure Sodium 180 Watts	870	43	37	950
132	Low Pressure Sodium 90 Watts	2	0	0	2
		933	43	37	1,013
140/342	Metallic Arc 400 Watts	1,215	0	153	1368
141/341	Metallic Arc 1000 Watts	833	0	11	844
142/343	Metallic Arc 250 Watts	64	0	66	130
143	Metallic Arc 150 Watts	0	1	0	1
344	Metallic Arc 175 Watts	0	0	72	72
345	Metallic Arc 150 Watts	0	0	3	3
		2,112	1	305	2,418
	TOTAL	**120,718**	**894**	**12,668**	**134,280**

STREET / CROSSWALK LIGHTING STUDY
CALCULATION OF MAINTENANCE COSTS BY FIXTURE TYPE

(A) Code	(B) Lamp Type	(C) Service Life (Years)	(D) Maintenance Weighting Factors	(E) # of Full Chg & Eng.+Maint. Fixtures	(F) Weighted Total	(G) Cost Per Year	(H) Cost Per Month
A	Mercury Vapour	6.000	1.0000	6,230	6,230	$37.52	$3.13
B	Mercury Vapour - 125W	4.500	1.3333	11,971	15,961	$50.03	$4.17
C	Fluorescent	3.000	2.0000	1,188	2,376	$75.04	$6.25
D	High Pressure (Intensity) Sodium (Note1)	6.000	1.0000	99,100	99,100	$37.52	$3.13
E	Incandescent	0.625	9.6000	34	326	$360.20	$30.02
G	Metallic Arc 150 & 250W	2.500	2.4000	65	156	$90.05	$7.50
H	Metallic Arc 400W	3.750	1.6000	1,215	1,944	$60.03	$5.00
I	Metallic Arc 1000W	2.500	2.4000	833	1,999	$90.05	$7.50
J	Low Pressure Sodium	2.000	3.0000	976	2,928	$112.56	$9.38
				121,612	131,021		

Street Lighting Maint. Expenses
(from 2006CF COSS, Exhibit 6A) **$4,916,000**

Annual Cost of High Pressure Sodium
($4,916,000 / 131,028 weighted fixtures) **$37.52**

Note 1: Maintenance weighting factors relative to High Pressure Sodium fixture, index = 1.0
Factor is: HPS service life / various fixture service lives

SCHEDULE 3

STREET / CROSSWALK LIGHTING STUDY

CAPITAL COST

Gross Plant Value (including installation costs) less Retirements of Street Lighting Equipment as of December 31, 2005 **$44,601,719**

Description	Unit Cost Mar/1977	Unit Cost Sept/2005	# of Fixtures	Total Value	
Incandescent < 300 Watts	$51.36	$64.20	31	$1,990	
Incandescent > 300 Watts	$63.62	$79.53	3	239	
Mercury Vapour 100 Watts	$76.55	$206.82	269	55,635	
Mercury Vapour 125 Watts	$77.16	$182.05	11,962	2,177,632	
Mercury Vapour 175 Watts	$85.30	$178.55	3,150	562,419	
Mercury Vapour 250 Watts	$87.24	$276.89	1,149	318,148	
Mercury Vapour 400 Watts	$107.82	$286.96	1,484	425,850	
Mercury Vapour 700 Watts	$485.12	$435.30	12	5,224	
Mercury Vapour 1000 Watts	$492.29	$559.52	76	42,524	
Mercury Vapour 250 Watt Cont. Oper.	$87.24	$276.89	5	1,384	
Fluorescent 2x24" 70 Watts	$106.44	$133.05	913	121,475	
Fluorescent 2x48" 220 Watts	$131.91	$164.89	153	25,228	
Fluorescent 2x72" 300 Watts	$178.72	$223.40	68	15,191	
Fluorescent 4x72" 600 Watts	$293.72	$367.15	15	5,507	
Fluorescent 1x96" 110 Watts	$160.00	$200.00	5	1,000	
Fluorescent 1x72" 150 Watts	$121.22	$151.53	2	303	
Fluorescent 4x48" 440 Watts	$188.91	$236.14	2	472	
High Pressure Sodium 70 Watts	***N/A***	$177.00	38,321	6,782,966	
High Pressure Sodium 100 Watts	***N/A***	$169.17	45,889	7,762,849	
High Pressure Sodium 150 Watts	***N/A***	$172.21	5,241	902,531	
High Pressure Sodium 250 Watts	$156.49	$223.05	5,256	1,172,357	
High Pressure Sodium 400 Watts	$173.73	$238.12	3,667	873,190	
Low Pressure Sodium 90 Watts	***N/A***	$575.81	2	1,152	
Low Pressure Sodium 135 Watts	$371.69	$575.81	61	35,124	
Low Pressure Sodium 180 Watts	$226.10	$685.27	870	596,181	
Metallic Arc 250 Watts	***N/A***	$419.69	64	26,860	
Metallic Arc 400 Watts	$358.84	$279.83	1,215	339,995	
Metallic Arc 1000 Watts	$560.49	$527.40	833	439,325	22,692,751
			120,718		

Total Installation Costs (Labour) $21,908,968

Installation Costs per Fixture **$181.49**

Escalation Factor (Incandescent)	125%
Escalation Factor (Fluorescent)	125%

Note: 2005 costs are based on stores material inventory cost as of September 2005 with the exception of Incandescent and fluorescent which have been assumed at 125% of 1977 costs.

Sample Material Cost - 100 Watt High Intensity (Pressure) Sodium :
Inventory Prices as of September 2005

Fixture, Ballast & Photocell	$100.21
Bracket Assembly (Davit)	46.44
Wire	11.80
Miscellaneous Hardware	2.34
Lamp Replacement	8.37
TOTAL	**$169.17**

SCHEDULE 4

STREET / CROSSWALK LIGHTING STUDY

Capital Cost Rate Component Calculation

Depreciation Rate for 2006	4.44%
Tax Adjusted Weighted Average Cost of Capital	11.96%

	Material Cost Sept/2005	Labour Cost	Total	Depreciation Expense	Cost of Capital	Total Annual Cost	Total Monthly Cost
Incandescent < 300 Watts	$64.20	$181.49	$245.69	$10.91	$29.38	$40.29	$3.36
Incandescent > 300 Watts	79.53	181.49	261.01	11.59	31.22	42.81	3.57
Mercury Vapour 100 Watts	206.82	181.49	388.31	17.24	46.44	63.68	5.31
Mercury Vapour 125 Watts	182.05	181.49	363.53	16.14	43.48	59.62	4.97
Mercury Vapour 175 Watts	178.55	181.49	360.03	15.99	43.06	59.05	4.92
Mercury Vapour 250 Watts	276.89	181.49	458.38	20.35	54.82	75.17	6.26
Mercury Vapour 400 Watts	286.96	181.49	468.45	20.80	56.03	76.83	6.40
Mercury Vapour 700 Watts	435.30	181.49	616.79	27.39	73.77	101.15	8.43
Mercury Vapour 1000 Watts	559.52	181.49	741.01	32.90	88.62	121.53	10.13
Mercury Vapour 250 Watt Cont. Oper.	276.89	181.49	458.38	20.35	54.82	75.17	6.26
Fluorescent 2x24" 70 Watts	133.05	181.49	314.54	13.97	37.62	51.58	4.30
Fluorescent 2x48" 220 Watts	164.89	181.49	346.38	15.38	41.43	56.81	4.73
Fluorescent 2x72" 300 Watts	223.40	181.49	404.89	17.98	48.42	66.40	5.53
Fluorescent 4x72" 600 Watts	367.15	181.49	548.64	24.36	65.62	89.98	7.50
Fluorescent 1x96" 110 Watts	200.00	181.49	381.49	16.94	45.63	62.56	5.21
Fluorescent 1x72" 150 Watts	151.53	181.49	333.01	14.79	39.83	54.61	4.55
Fluorescent 4x48" 440 Watts	236.14	181.49	417.63	18.54	49.95	68.49	5.71
High Pressure Sodium 70 Watts	177.00	181.49	358.49	15.92	42.88	58.79	4.90
High Pressure Sodium 100 Watts	169.17	181.49	350.65	15.57	41.94	57.51	4.79
High Pressure Sodium 150 Watts	172.21	181.49	353.69	15.70	42.30	58.01	4.83
High Pressure Sodium 250 Watts	223.05	181.49	404.54	17.96	48.38	66.34	5.53
High Pressure Sodium 400 Watts	238.12	181.49	419.61	18.63	50.19	68.82	5.73
Low Pressure Sodium 90 Watts	575.81	181.49	757.29	33.62	90.57	124.20	10.35
Low Pressure Sodium 135 Watts	575.81	181.49	757.29	33.62	90.57	124.20	10.35
Low Pressure Sodium 180 Watts	685.27	181.49	866.75	38.48	103.66	142.15	11.85
Metallic Arc 250 Watts	419.69	181.49	601.18	26.69	71.90	98.59	8.22
Metallic Arc 400 Watts	279.83	181.49	461.32	20.48	55.17	75.66	6.30
Metallic Arc 1000 Watts	$527.40	$181.49	$708.89	$31.47	$84.78	$116.26	$9.69

SCHEDULE 5

STREET / CROSSWALK LIGHTING STUDY
Tax-Adjusted Weighted Average Cost of Capital

a) Weighted Average Cost of Capital - Pretax

	Proportion	Cost	Extended
ST Debt	7.77%	5.08%	0.39%
LT Debt	45.57%	8.19%	3.73%
Preferred	9.15%	5.42%	0.50%
Common	37.51%	9.55%	3.58%
	100.00%		8.21%

WACC - pretax cost 8.21%

b) Additional income tax for common equity

Extended equity cost	3.58%
Effective tax rate (excluding surta	37.0%
Income tax	2.10%

WACC - equity tax cost 2.10%

c) Large Corporations Tax

Provincial capital tax	0.266%
Federal capital tax	0.125%
Ave. NBV - Street Lighting	$25.961
Ave. NBV - Assigned GP Plt.	2.008
Ave. Deferred Chgs & W/C	4.338
NPV - Total Street Lighting	$32.306
Provincial capital tax	$0.086
Federal capital tax	$0.064
Total	$0.150
Percentage of NBV	0.46%

WACC - Large Corporations Tax 0.46%

d) Grants in Lieu of Property Tax

Total 2006C Forecasted Expense	$32.563
St. Lgts. % of Total Electric Plant	1.18%
St. Lgts. Allocated Amount	$0.386
Percentage of NBV	1.19%

WACC - Grants in Lieu of Property Tax 1.19%

Total WACC - Interest / Carrying Cost **11.96%**

SCHEDULE 6

STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
September 2005

Light Type Street Lights	Material Cost	Fixture	Lamp	Photocell	Davit	Wire	Connectors	Fasteners
Incandescent < 300 Watts	$51.36	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Incandescent > 300 Watts	$63.62	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Mercury Vapour 100 Watts	$206.82	$122.41	$15.99	$7.84	$46.44	$11.80	$0.88	$1.46
Mercury Vapour 125 Watts	$182.05	$102.95	$10.67	$7.84	$46.44	$11.80	$0.88	$1.46
Mercury Vapour 175 Watts	$178.55	$102.95	$7.17	$7.84	$46.44	$11.80	$0.88	$1.46
Mercury Vapour 250 Watts	$276.89	$189.80	$7.86	$7.84	$57.25	$11.80	$0.88	$1.46
Mercury Vapour 400 Watts	$286.96	$198.75	$8.98	$7.84	$57.25	$11.80	$0.88	$1.46
Mercury Vapour 700 Watts	$435.30	$318.97	$37.10	$7.84	$57.25	$11.80	$0.88	$1.46
Mercury Vapour 1000 Watts	$559.52	$439.19	$41.10	$7.84	$57.25	$11.80	$0.88	$1.46
Mercury Vapour 250 Watt Cont. Oper.	$276.89	$189.80	$7.86	$7.84	$57.25	$11.80	$0.88	$1.46
Fluorescent 2x24" 70 Watts	$106.44	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 2x48" 220 Watts	$131.91	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 2x72" 300 Watts	$178.72	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 4x72" 600 Watts	$293.72	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 1x96" 110 Watts	$160.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 1x72" 150 Watts	$121.22	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fluorescent 4x48" 440 Watts	$188.91	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
High Pressure Sodium 70W	$177.00	$107.80	$8.62	$0.00	$46.44	$11.80	$0.88	$1.46
High Pressure Sodium 100W	$169.17	$100.21	$8.37	$0.00	$46.44	$11.80	$0.88	$1.46
High Pressure Sodium 150W	$172.21	$102.95	$8.67	$0.00	$46.44	$11.80	$0.88	$1.46
High Pressure Sodium 250 Watts	$223.05	$142.48	$9.18	$0.00	$57.25	$11.80	$0.88	$1.46
High Pressure Sodium 400 Watts	$238.12	$156.93	$9.80	$0.00	$57.25	$11.80	$0.88	$1.46
Low Pressure Sodium 90W	$575.81	$463.38	$44.00	$7.84	$46.44	$11.80	$0.88	$1.46
Low Pressure Sodium 135 Watts	$575.81	$463.38	$44.00	$7.84	$46.44	$11.80	$0.88	$1.46
Low Pressure Sodium 180 Watts	$685.27	$562.07	$54.77	$7.84	$46.44	$11.80	$0.88	$1.46
Metallic Additive 250W	$419.69	$329.47	$18.83	$0.00	$57.25	$11.80	$0.88	$1.46
Metallic Arc 400 Watts	$279.83	$198.64	$9.80	$0.00	$57.25	$11.80	$0.88	$1.46
Metallic Arc 1000 Watts	$527.40	$399.26	$56.75	$0.00	$57.25	$11.80	$0.88	$1.46

Date: 7/28/2006

SCHEDULE 7

STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
September 2005

ITEM	DESCRIPTION	AVG COST	Location
0000386440	LAMP FLUORESCENT 40W 48	1.35	
0000386450	LAMP FLUORESCENT 40W 48	1.75	
0000386700	LAMP FLUORESCENT 75W 96	3.49	
0000386710	LAMP FLUORESCENT 205W	3.95	
0000387070	LAMP FLUORESCENT 35W 24	4.19	
0000387190	LAMP FLUORESCENT 60W 48	3.14	
0000387360	LAMP FLUORESCENT 85W 72	6.54	
0000388000	LAMP 100 WATT M.V.	15.99	
0000388180	LAMP 125 WATT M.V.	10.67	
0000388330	LAMP 175 WATT M.V.	7.17	
0000388500	LAMP 250 WATT M.V.	7.86	
0000388660	LAMP 400 WATT M.V.	8.98	
0000388770	LAMP 700 WATT M.V.	37.10	
0000388980	LAMP 1000 WATT MV	41.10	
0000388990	LAMP 70 WATT H.P.S.	8.62	
0000389000	LAMP 100 WATT H.P.S.	8.37	
0000389030	LAMP 135 WATT L.P.S.	44.00	
0000389040	LAMP 150 WATT HPS 100V	25.23	
0000389060	LAMP 150 WATT H.P.S.55V	8.67	
0000389090	LAMP 180 WATT L.P.S.	54.77	
0000389250	LAMP 250 WATT H.P.S.	9.18	
0000389400	LAMP 400 WATT H.P.S.	9.80	
0000389450	LAMP 1000W HPS	56.75	
0000389700	LAMP HALIDE 250W	18.83	
0000389770	LAMP HALIDE 400W	14.93	
0000389810	LAMP HALIDE 1000W	31.31	
0000389900	LAMP STREET LITE SIGNAL	2.21	
0002103270	CONDUIT FLEX BLK 1/2"	3.97	
0050091540	BOLT LAG 1/2"X 4" GALV	0.56	
0050103120	BOLT MACHINE 5/8" X 12"	0.90	
0054223510	CRIMPIT #2/0- #8 WR139	0.44	
0057151000	BRACKET 10'L	88.91	
0057152040	BRACKET 1 1/4"X4' FIXED	46.62	
0057152220	BRACKET 4'X 2' 16" TEN	27.46	
0057154060	BRACKET 1 1/4"X6' LOWER	46.44	
0057155060	BRACKET SWIVEL 1 1/4 X6	18.91	
0057155720	BRACKET TAPERED 6' X 2"	48.90	
0057155723	BRACKET TAPERED 8'	87.05	
0057155725	BRACKET TAPERED 2"X10'	106.44	
0057156020	BRACKET LOWER 2" X 6'	57.25	
0057156080	BRACKET FIXED 2" X 8'	87.48	
0057157010	BRACKET TAPERED 12'L	141.42	
0057158140	PLATE POLE ST LITE 1 1/	9.46	
0057158220	PLATE POLE ST LIGHT 2"	26.24	
0057350350	LUMINAIRE LPS 135W	463.38	

SCHEDULE 7

STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
September 2005

ITEM	DESCRIPTION	AVG COST	Location
0057350720	LUM LPS 180W 120/240/347 V	562.07	R04B
0057350750	LUMINAIRE LPS 180W 240V	493.30	XX
0057350800	LUMINAIRE LPS 180W 347V	386.70	XX
0057350830	LUMINAIRE HPS 70W POLY	73.33	XX
57350835	LUM. 70W POLY C/W LAMP	99.23	XX
0057350836	LUM 70W POLY ALUM.ALLOY	97.70	XX
0057350837	LUMINAIRE 70W HPS CWA ACRY	120.88	C01A
0057350850	LUMINAIRE HPS 70W GLASS	69.32	XX
0057350855	LUM. 70W GLASS C/W LAMP	97.68	C03A
0057350856	LUM 70W GLASS AL. ALLOY	99.37	M12D
0057350857	LUM. 70W GLASS CWI BAL.	120.32	M08A
0057350860	LUM 100W HPS POLY	75.00	XX
0057350865	LUM. 100W POLY C/W LAMP	100.21	XX
0057350866	LUMINAIRE 100W ACRYLIC HPS	122.41	C07A
0057350867	LUM 100W POLY AL. ALLOY	98.37	XX
0057350875	LUM. 100W GLASS C/WLAMP	98.76	XX
0057350877	LUM. 100W GLASS CWI BAL	135.75	XX
0057350880	LUMINAIRE HPS 150W GLAS	82.27	XX
0057350885	LUM. 150W GLASS C/WLAMP	100.95	XX
0057350886	LUMINAIRE 150W HPS CWI GLAS	145.97	M05A
0057350887	LUM. 150W HPS 240V GLAS	150.88	C09A
0057350890	LUMINAIRE HPS 150W POLY	79.24	XX
0057350895	LUM. 150W POLY C/W LAMP	102.95	XX
0057351315	LUMINAIRE 250W HPS CWI GLAS	142.48	C07A
0057351400	LUMINAIRE 250W HPS CWI 347V	160.36	C05A
0057351710	LUMINAIRE HPS 400W GLAS	109.60	XX
0057351715	LUMINAIRE 400W HPS CWI 120/2	156.93	M12A
0057351720	LUMINAIRE HPS 400W 240V	204.30	XX
0057351730	LUMINAIRE HPS 400W 347V	196.00	XX
0057351760	LUMINAIRE 400W 600V HPS CWI	164.95	M12A
0057353330	LUMINAIRE MTL-HLDE 400W	281.54	XX
0057353500	LUMINAIRE HALIDE 1000 W	300.00	XX
0057353550	LUMINAIRE HALIDE 1000 W	294.79	T01C
0057400920	AREA LIGHT MV 125 W	107.76	XX
0057401200	LUMINAIRES 70W H-P.S.	107.80	D14B
0057401205	DUSK-T-DAWN 70W HPS CWA	184.25	D08B
0057402020	AREA LIGHT MV 175 W	92.88	XX
0057402100	LUMINAIRES 100W H.P.S.	106.37	XX
0057402105	DUSK-T-DAWN 100W HPS CWA	140.50	C15A
0057402150	FLOODLIGHT 150W HPS CWI	180.62	C17A
0057402240	FLOODLIGHT M.V. 175W	53.03	
0057403330	FLOODLIGHT M V 250 W	397.90	XX
0057403500	FLOODLIGHT 250W HPS CWI	181.97	
0057404050	FLOODLIGHT M V 400 W	281.17	XX
0057404600	FLOODLIGHT 400W HPS CWI	192.21	C11A

SCHEDULE 7

STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
September 2005

ITEM	DESCRIPTION	AVG COST	Location
0057408250	FLOODLIGHT MTL HAL.250W	329.47	D05B
0057408500	FLOODLIGHT 400W MTL-HAL CW	198.64	D03A
0057409000	FLOODLIGHT 1000W MH CWI	399.26	
0057409380	FLOODLIGHT M V 1000 W	439.19	XX
0057600450	BRACKET & ADAPTORS	9.15	
0057601010	CAP SHORTING TWIST LOCK	4.80	
0057601200	CONTROL 120 V PHOTO	7.05	
0057601400	CONTROL ELECT 120V PHOTOC	7.84	
0057602000	PHOTO CONTROL 120V HD	19.51	
0057602400	CONTROL 240V ELECT PHOTOC	10.30	
0057602960	GUARD WIRE FOR ST-LITE	50.44	
0057603800	REFRACTOR GLASS	32.60	
0057603900	REFRACTORS POLYCARBON #	0.00	
0057604020	REFRACTOR POLY LU B2214	48.03	
0057604050	REFRACTOR POLY LU B2217	73.74	
0057604080	REFRACTOR POLYCARBON #9	21.07	
0057604170	REFRACTOR GLASS	66.37	
0057604200	REFRACTOR ACRYLIC VB15	40.70	
0057604210	REFRACTOR POLY LUM VB15	78.68	
0057604220	REFRACTOR AREA LIGHT	18.66	
0057604240	REFRACTOR GLASS OV15	16.00	
0057604250	REFRACTOR POLY LUM 0V15	24.00	
0057604255	REFRACTOR STREETLIGHT OV	17.85	
0057604270	REFRACTOR GLASS OV25	25.89	
0057604280	REFRACTOR POLY OV25	92.87	
0057604300	REFRACTOR GLASS OV50	17.50	
0057605800	REDUCER LAMPHOLDER,	6.25	
0057606100	REFRACTOR 125 W M V	34.36	
0057606500	REFRACTOR FOR SODIUM	71.31	
0057606550	REFRACTOR FOR SODIUM	88.62	
0057606700	REFRACTOR 250 W M V	38.69	
0057606950	REFRACTOR 400 W M V	33.01	
0057607300	RELAY 30 AMP 110 V MURC	33.89	
0057607330	RELAY 30 AMP 125 V	140.04	
0057607400	RELAY 60 AMP 115 V	211.15	
0057607440	RELAY 60 AMP 250 V	191.29	
0057608690	STARTERS HPS LUMINAIRES	31.63	
0057608700	STARTER FOR HPS 70-150W	40.95	
0057608703	STARTER FOR HPS 55V	41.17	
0057608710	STARTER FOR SODIUM	40.41	
0057608713	STARTER KIT HPS 55V 70/	31.75	
0057608720	STARTER FOR HPS 150-400	40.76	
0057608722	STARTER FOR HPS 100V	36.35	
0057608730	STARTER FOR SODIUM	48.16	
0065734220	CABLE CU ST-LITE 2C #12	0.65	

SCHEDULE 8

STREET / CROSSWALK LIGHTING STUDY
LAMP LIFE ANALYSIS
September 2005

Assumptions: Total annual photocell operating time is based on 4,000 hours per year or 333 hours per month.
All Average Rated Life Spans are as indicated in the CEA Lighting Reference Guide, April 1992.
Originally printed by Ontario Hydro (4th Edition)
(CEA = Canadian Electrical Association)

Lamp Type	Average Life (Hrs)	Burning Hours per Year	Service Life (Years)	Life Relative to 100W HPS	Replacements Relative to 100W HPS
Incandescent	2500	4000	0.6	0.10	9.60
Flourescent (48 in., T12, Recess Base)	12000	4000	3.0	0.50	2.00
Mercury Vapour	24000	4000	6.0	1.00	1.00
Mercury Vapour 125W *See Note	18000	4000	4.5	0.75	1.33
Metal Halide 175W	7500	4000	1.9	0.31	3.20
Metal Halide 250W	10000	4000	2.5	0.42	2.40
Metal Halide 400W	15000	4000	3.8	0.63	1.60
Metal Halide 1000W	10000	4000	2.5	0.42	2.40
High Pressure Sodium 70W	24000	4000	6.0	1.00	1.00
High Pressure Sodium 100W	24000	4000	6.0	1.00	1.00
Low Pressure Sodium	8000	4000	2.0	0.33	3.00

*** No Average life data was available for this lamp size in the references listed above. 75% of the quoted life for all Mercury Lamps was used.**

STREET / CROSSWALK LIGHTING STUDY

COMPARISON OF NEW PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE: MARCH 10, 2006

Description	Rate Code	kW.h/Mo.	Power & Energy	Maintenance	Capital	2006 New Resulting Rates	2006 New Resulting Revenue	2006 Approved Rates	Percent Change	Units	Revenue Variance
Incandescent :											
Incandescent < 300 Watts - Note 1	001	97	$10.46	$3.13	$6.26	$19.85	$7,386	$18.66	6.4%	31	444
Incandescent > 300 Watts - Note 1	002	154	16.61	3.13	6.40	26.14	941	27.06	-3.4%	3	(33)
Incandescent < 300 Watts - Note 1	003	97	10.46	0.00	0.00	10.46	879	$13.69	-23.6%	7	(271)
							9,206			41	140
Mercury Vapour :											
Mercury Vapour 100 Watts	100	43	4.64	3.13	5.31	13.08	42,212	10.65	22.8%	269	7,834
Mercury Vapour 125 Watts	101	52	5.61	4.17	4.97	14.75	2,117,031	12.31	19.8%	11,962	350,004
Mercury Vapour 175 Watts	102	69	7.44	3.13	4.92	15.49	585,540	14.50	6.8%	3,150	37,440
Mercury Vapour 250 Watts	103	97	10.46	3.13	6.26	19.85	273,754	18.52	7.2%	1,149	18,400
Mercury Vapour 400 Watts	104	154	16.61	3.13	6.40	26.14	465,539	27.02	-3.2%	1,484	(15,633)
Mercury Vapour 700 Watts	105	260	28.05	3.13	8.43	39.61	5,704	50.63	-21.8%	12	(1,587)
Mercury Vapour 1000 Watts	106	363	39.16	3.13	10.13	52.42	47,804	65.33	-19.8%	76	(11,777)
Mercury Vapour 250 Watt Cont. Oper.	107	213	17.81	6.26	6.26	30.33	1,820	28.30	7.2%	5	122
Mercury Vapour 125 Watts	201	52	5.61	4.17	0.00	9.78	1,056	8.89	10.0%	9	96
Mercury Vapour 175 Watts	202	69	7.44	3.13	0.00	10.57	3,044	10.93	-3.3%	24	(104)
Mercury Vapour 250 Watts	203	97	10.46	3.13	0.00	13.59	5,545	14.85	-8.5%	34	(514)
Mercury Vapour 400 Watts	204	154	16.61	3.13	0.00	19.74	2,369	22.91	-13.8%	10	(380)
Mercury Vapour 700 Watts	205	260	28.05	3.13	0.00	31.18	0	37.86	-17.6%	0	0
Mercury Vapour 1000 Watts	206	363	39.16	3.13	0.00	42.29	8,627	52.40	-19.3%	17	(2,062)
Mercury Vapour 125 Watts	301	52	5.61	0.00	0.00	5.61	741	5.60	0.3%	11	2
Mercury Vapour 175 Watts	302	69	7.44	0.00	0.00	7.44	13,660	7.43	0.1%	153	17
Mercury Vapour 250 Watts	303	97	10.46	0.00	0.00	10.46	6,778	10.46	0.0%	54	(1)
Mercury Vapour 400 Watts	304	154	16.61	0.00	0.00	16.61	3,189	16.61	0.0%	16	0
Mercury Vapour 700 Watts	305	260	28.05	0.00	0.00	28.05	337	28.04	0.0%	1	0
Mercury Vapour 1000 Watts	306	363	39.16	0.00	0.00	39.16	3,289	39.16	0.0%	7	0
							3,588,040			18,443	381,857

STREET / CROSSWALK LIGHTING STUDY

COMPARISON OF NEW PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE: MARCH 10, 2006

Description	Rate Code	kW.h/Mo.	Power & Energy	Maintenance	Capital	2006 New Resulting Rates	2006 New Resulting Revenue	2006 Approved Rates	Percent Change	Units	Revenue Variance
Fluorescent :											
Fluorescent 2x24" 70 Watts	110	30	3.24	6.25	4.30	13.79	151,069	10.20	35.2%	913	39,318
Fluorescent 2x48" 220 Watts	111	85	9.17	6.25	4.73	20.15	37,002	18.54	8.7%	153	2,963
Fluorescent 2x72" 300 Watts	112	116	12.51	6.25	5.53	24.29	19,823	23.99	1.3%	68	248
Fluorescent 4x72" 600 Watts	113	222	23.95	6.25	7.50	37.70	6,786	41.61	-9.4%	15	(704)
Fluorescent 1x96" 110 Watts	114	47	5.07	6.25	5.21	16.53	992	13.83	19.5%	5	162
Fluorescent 1x72" 150 Watts	115	60	6.47	6.25	4.55	17.27	415	14.74	17.2%	2	61
Fluorescent 4x48" 440 Watts	116	166	17.91	6.25	5.71	29.87	717	31.28	-4.5%	2	(34)
							216,804			1,158	42,014
Fluorescent 4x72" 600 Watts	213	222	23.95	6.25	0.00	30.20	0	33.17	-9.0%	0	0
Fluorescent 1x96" 110 Watts	214	47	5.07	6.25	0.00	11.32	3,532	8.48	33.5%	26	886
Fluorescent 1x72" 150 Watts	215	60	6.47	6.25	0.00	12.72	458	10.35	22.9%	3	85
Fluorescent 4x48" 440 Watts	216	166	17.91	6.25	0.00	24.16	*0*	25.31	-4.5%	0	0
Fluorescent 1x48" 120 Watts	217	49	5.29	6.25	0.00	11.54	138	8.78	31.4%	1	33
Fluorescent 2x48" 220 Watts	218	85	9.17	6.25	0.00	15.42	0	13.85	11.3%	0	0
Fluorescent 4x35"	*330*	47	5.07	0.00	0.00	*5.07*	*122*	5.06	0.2%	2	0
							4,250			32	1,004
Fluorescent Crosswalk - Continuous Burning - Customer Owned :											
Fluorescent 2x24" 70 Watts	118	66	5.52	0.00	0.00	5.52	1,126	6.96	-20.7%	17	(294)
Fluorescent 4x48" 440 Watts	119	364	30.43	0.00	0.00	30.43	7,669	38.31	-20.6%	21	(1,985)
Fluorescent 4x72" 600 Watts	117	486	40.63	0.00	0.00	40.63	975	51.15	-20.6%	2	(252)
Fluorescent 2x96"	120	254	21.24	0.00	0.00	21.24	7,390	26.74	-20.6%	29	(1,916)
Fluorescent 4x96"	150	613	51.25	0.00	0.00	51.25	14,145	64.52	-20.6%	23	(3,663)
							31,304			92	(8,110)
Fluorescent Crosswalk - Photocell Burning - Customer Owned :											
Fluorescent 2x24" 70 Watts	310	30	3.24	0.00	0.00	3.24	39	4.25	-23.8%	1	(12)
Fluorescent 4x48" 440 Watts	311	166	17.91	0.00	0.00	17.91	1,075	23.46	-23.7%	5	(333)
Fluorescent 4x72" 600 Watts	313	222	23.95	0.00	0.00	23.95	0	31.33	-23.6%	0	0
Fluorescent 2x72"	312	116	12.51	0.00	0.00	12.51	300	16.38	-23.6%	2	(93)
Fluorescent 1x96"	314	47	5.07	0.00	0.00	5.07	1,521	5.07	-0.1%	25	(1)
Fluorescent 1x72"	315	60	6.47	0.00	0.00	6.47	0	6.47	-0.1%	0	0
Fluorescent 4x96"	350	280	30.21	0.00	0.00	30.21	28,277	39.51	-23.5%	78	(8,705)
							31,211			111	(9,144)

STREET / CROSSWALK LIGHTING STUDY

COMPARISON OF NEW PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE: MARCH 10, 2006

Description	Rate Code	kW.h/Mo.	Power & Energy	Maintenance	Capital	2006 New Resulting Rates	2006 New Resulting Revenue	2006 Approved Rates	Percent Change	Units	Revenue Variance
Low Pressure Sodium :											
Low Pressure Sodium 90 Watts	132	45	4.85	9.38	10.35	24.58	590	14.21	73.0%	2	249
Low Pressure Sodium 135 Watts	130	60	6.47	9.38	10.35	26.20	19,178	16.35	60.2%	61	7,210
Low Pressure Sodium 180 Watts	131	80	8.63	9.38	11.85	29.86	311,693	19.17	55.7%	870	111,558
Low Pressure Sodium 180 Watts E&M	231	80	8.63	9.38	0.00	18.01	9,293	13.63	32.1%	43	2,260
Low Pressure Sodium 180 Watts E/O	331	80	8.63	0.00	0.00	8.63	3,832	8.63	0.0%	37	2
							344,586			1,013	121,279
High Pressure Sodium :											
High Pressure Sodium 70 Watts	123	32	3.45	3.13	4.90	11.48	5,278,825	10.99	4.5%	38,321	225,052
High Pressure Sodium 100 Watts	124	45	4.85	3.13	4.79	12.77	7,033,286	12.82	-0.4%	45,889	(26,278)
High Pressure Sodium 150 Watts	125	65	7.01	3.13	4.83	14.97	941,734	15.66	-4.4%	5,241	(43,155)
High Pressure Sodium 250 Watts	121	100	10.79	3.13	5.53	19.45	1,226,669	20.59	-5.5%	5,256	(71,983)
High Pressure Sodium 400 Watts	122	150	16.18	3.13	5.73	25.04	1,102,066	27.62	-9.3%	3,667	(113,325)
High Pressure Sodium 70 Watts	222	32	3.45	3.13	0.00	6.58	17,687	5.45	20.7%	224	3,037
High Pressure Sodium 100 Watts	223	45	4.85	3.13	0.00	7.98	10,534	7.28	9.6%	110	924
High Pressure Sodium 150 Watts	224	65	7.01	3.13	0.00	10.14	28,230	10.10	0.4%	232	111
High Pressure Sodium 250 Watts	221	100	10.79	3.13	0.00	13.92	26,726	15.07	-7.6%	160	(2,208)
High Pressure Sodium 70 Watts	323	32	3.45	0.00	0.00	3.45	260,779	3.45	-0.1%	6,299	(294)
High Pressure Sodium 100 Watts	324	45	4.85	0.00	0.00	4.85	145,966	4.86	-0.1%	2,508	(187)
High Pressure Sodium 150 Watts	325	65	7.01	0.00	0.00	7.01	109,272	7.01	0.0%	1,299	42
High Pressure Sodium 250 Watts	321	100	10.79	0.00	0.00	10.79	217,138	10.79	0.0%	1,677	41
High Pressure Sodium 400 Watts	322	150	16.18	0.00	0.00	16.18	16,698	16.17	0.1%	86	14
High Pressure Sodium 500 Watts	327	183	19.74	0.00	0.00	19.74	711	19.76	-0.1%	3	(1)
							16,416,319			110,972	(28,210)
Metallic Additive :											
Metallic Arc 250 Watts	142	100	10.79	7.50	8.22	26.51	20,357	23.44	13.1%	64	2,355
Metallic Arc 400 Watts	140	150	16.18	5.00	6.30	27.48	400,727	33.82	-18.7%	1,215	(92,369)
Metallic Arc 1000 Watts	141	360	38.84	7.50	9.69	56.03	560,058	69.40	-19.3%	833	(133,665)
Metallic Arc 150 Watts	143	67	7.23	7.50	0.00	14.73	177	19.86	-25.8%	1	(62)
Metallic Arc 250 Watts	343	100	10.79	0	0	10.79	8,546	10.79	0.0%	66	2
Metallic Arc 400 Watts	342	150	16.18	0	0	16.18	29,706	16.17	0.1%	153	25
Metallic Arc 1000 Watts	341	360	38.84	0	0	38.84	5,127	38.83	0.0%	11	1
Metallic Arc 175 Watts	344	67	7.23	0	0	7.23	6,247	8.09	-10.7%	72	(746)

STREET / CROSSWALK LIGHTING STUDY

COMPARISON OF NEW PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE: MARCH 10, 2006

Description	Rate Code	kW.h/Mo.	Power & Energy	Maintenance	Capital	2006 New Resulting Rates	2006 New Resulting Revenue	2006 Approved Rates	Percent Change	Units	Revenue Variance
Metallic Arc 150 Watts	345	57	6.15	0	0	6.15	221	7.21	-14.7%	3	(38)
							1,031,165			2,418	(224,497)
TOTALS							**$21,672,884**			**134,280**	**$276,333**

Note 1 - Incandescent rates were set at 250W and 400W Mercury Vapour

Calculation of Power & Energy Rate : **Based on Misc. Small Loads Tariff Rate Components & 1kW lighting load**			
Photocell Operation (4000 burning hours per year)			
Demand Charge - $8.41/kW			$8.41
Energy Charge :			
1st Block : $.0956 for 1st 200 kW.h	200	0.0956	19.12
2nd Block : $.0632 for all additional	133	0.0632	8.43
			$35.96
Rate per kW.h	333		**$0.107880**
Continuous Burning (8760 burning hours per year)			
Demand Charge - $8.41/kW			$8.41
Energy Charge :			
1st Block : $.0956 for 1st 200 kW.h	200	0.0956	19.12
2nd Block : $.0632 for all additional	530	0.0632	33.50
			$61.03
Rate per kW.h	730		**$0.083603**

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The *Public Utilities Act,* R.S.N.S. 1989, c.380 as amended

IN THE MATTER OF: An Application by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-19: **Reference DE, pages 167 and 168**

Please provide a version of Figure 9.1 with exports and GRLF revenues at current rates.

Response IR-19: There is only one revenue figure associated with exports projected for 2007. Export revenues are an outcome of the interplay between the wholesale market conditions anticipated in northeast North America, hourly production costs and available generation capacity at NSPI. They are not based on tariff rates.

A version of Figure 9.1, with Generation Replacement and Load Following (GRLF) revenues at current rates is shown in Attachment 1. Also, please refer to UARB IR-61a.

Figure 9.1 Modified for GRLF class at current rates.

	R/C Ratio	% Revenue Increase	Proposed Revenue
ABOVE-THE-LINE CLASSES			
Residential	**90.8%**	**0.0%**	**$481.6**
Commercial			
Small General	93.7%	0.0%	$28.1
General Demand	101.4%	0.0%	$244.3
Large General	90.9%	0.0%	$32.9
Total Commercial	**99.4%**	**0.0%**	**$305.3**
Industrial			
Small Industrial	94.3%	0.0%	$23.0
Medium Industrial	93.3%	0.0%	$46.8
Large Industrial	91.5%	0.0%	$68.9
ELIIR-2	85.4%	0.0%	$112.4
Total Industrial	**89.2%**	**0.0%**	**$251.1**
Other			
Municipal	89.7%	0.0%	$15.0
Unmetered	100.7%	0.0%	$24.4
Total Other	**96.2%**	**0.0%**	**$39.4**
Total Above-the-line classes	**92.9%**	**0.0%**	**$1,077.4**
Below-the-line		**0.0%**	**$18.4**
Exports		**0.0%**	**$8.5**
Miscellaneous		**0.0%**	**$10.5**
Total Revenue		**0.0%**	**$1,114.8**
Revenue Requirement		**0.0%**	**$1,197.6**
Revenue Shortfall			**($82.8)**

NOVA SCOTIA UTILITY AND REVIEW BOARD

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IN THE MATTER OF: An Application by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-20: **Reference DE, pages 168 and 169, and Appendix A, Table 6**

Please provide a calculation reconciling the BTL rate revenue shown in Table 6, Columns (4) and (5), with that shown in Figure 9.1 and 9,2.

Response IR-20: Details of the revenue calculations in columns (4) and (5) from Table 6, Appendix A are provided in NSPI's response to UARB IR-54. Figures 9.1 and 9.4 correspond to revenues displayed in columns (4) and (5). Figures 9.2 and 9.3 are provided to illustrate the interim steps taken by NSPI to allocate the revenue shortfall of $82.5 million among customer classes. Each of these steps is described in detail in the Direct Evidence, Section 9.

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The *Public Utilities Act,* R.S.N.S. 1989, c.380 as amended

IN THE MATTER OF: An Application by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-21: **Reference DE, pages 173 and 176**

Please explain why the demand and energy charges for the Large Industrial Rate shown in Figure 9.5 increases less than the average revenue shown in Figure 9.4. Provide a calculation reconciling the two sets of figures.

Response IR-21: Revenue collected from the Large Industrial Class is a net outcome of energy and demand charges and supply-interruptible and transformer ownership credits. Since the credits have not been proposed to change in this Rate Application, the energy and demand charges must increase by a smaller percentage than that of the total class revenue. This ensures that the anticipated revenue equals the revenue requirement. Please see NSPI's response to UARB IR-54 for details of the revenue calculations for the Large Industrial Class.

NOVA SCOTIA UTILITY AND REVIEW BOARD

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RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-22: **Reference DE, pages 176 to 178**

Please provide the billing determinants and revenue calculations discussed on these pages.

Response IR-22: Please see response to UARB IR-54.

NOVA SCOTIA UTILITY AND REVIEW BOARD

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RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz **REDACTED**

Question IR-23: **Reference Appendix A, Table 2**

Please explain the basis for the change in Regulatory Amortization between Columns (2) and (3) in Table 2. Please redevelop the data in Column (2) assuming that there is no shift in Regulatory Amortization from that shown in Column (3).

Response IR-23: The response to this question is confidential.

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The *Public Utilities Act,* R.S.N.S. 1989, c.380 as amended

IN THE MATTER OF: An Application by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz

Question IR-24: **Reference Appendix A, and DE, page 99**

Please explain how the ratios shown in Figure 5.4 and 5.5 are derived. If data beyond that included in Appendix A is required please identify and provide it. Provide a table showing the derivation of all the data shown in Figures 5.4 and 5.5.

Response IR-24: Please refer to Attachment 1.

Tables in 2007 Financial Outlook (2005, 2006 and 2007 only)
(millions $$)

	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Forecast 2006	Forecast 2007	Rates 2007
Figure 5.4 - Pg 99 - FFO/Interest Coverage							
Operating Cash Flow **(OCF)** (Table 5 line 14)	218.8	215.3	236.8	208.0	274.3	221.6	272.7
Interest Expense **(IE)** (Table 10 Line 7)	124.4	118.8	114.2	110.2	114.3	112.4	112.3
Amortization Deferred Financing Costs **(ADFC)** (Table 10 Line 6)	(20.3)	(17.9)	(16.4)	(14.8)	(14.4)	(14.4)	(14.4)
FFO (OCF+ IE Less ADFC)	**322.9**	**316.2**	**334.6**	**303.4**	**374.2**	**319.6**	**370.6**
Interest Expense (IE Less ADFC)	**104.1**	**100.9**	**97.8**	**95.4**	**99.9**	**98.0**	**97.9**
FFO Interest Coverage (FFO / Interest Expense)	**3.1**	**3.1**	**3.4**	**3.2**	**3.7**	**3.3**	**3.8**
Figure 5.5 - Pg 99 - FFO/Total Adjusted Debt							
Preferred Shares **(PS)** (Table 3 Line 29)	260.0	260.0	260.0	260.0	260.0	260.0	260.0
Long term Debt **(LTD)** (Table 3 Line 32)	1,035.0	1,195.0	1,095.0	1,305.0	1,349.6	1,233.8	1,233.8
Current Portion Long term Debt **(CPLTD)** (Table 3 Line 37)	150.0	140.0	100.0	40.0	0.0	115.0	115.0
Bank Indebtedness **(BI)** (Table 3 Line 38)	271.8	106.8	278.7	188.7	155.4	89.3	88.3
Total Adjusted Debt (PS + LTD + CPLTD + BI)	**1,716.8**	**1,701.8**	**1,733.7**	**1,793.7**	**1,765.0**	**1,698.1**	**1,697.1**
FFO (Calculated Above)	**322.9**	**316.2**	**334.6**	**303.4**	**374.2**	**319.6**	**370.6**
FFO Total Adjusted Debt (FFO/Total Adjusted Debt)	**0.19**	**0.19**	**0.19**	**0.17**	**0.21**	**0.19**	**0.22**

FFO Interest Coverage

$$\frac{\text{Operating Cash Flow + Interest Expense - Amortized Deferred Financing Costs}}{\text{Interest Expense}}$$

FFO/Total Adjusted Debt

$$\frac{\text{Operating Cash Flow + Interest Expense - Amortized Deferred Financing Costs}}{\text{Preferred Shares + Long term Debt + Current Portion LTD + Bank Indebtedness}}$$

NOVA SCOTIA UTILITY AND REVIEW BOARD

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RESPONSE TO INFORMATION REQUEST

TO: NSPI

FROM: Stutz **REDACTED**

Question IR-25: **Reference Appendix A, Table 8**

a. Please segregate solid fuel costs for each year by coal and petcoke.

b. Please produce the numbers in Table 8 back to 2001 so that we have data consistent with Figure 2.2.

c. Please provide your best estimate of fuel costs for 2007 assuming Stora is shut down for the full year.

Response IR-25:

a. Please refer to Confidential Attachment 1.

b. Please refer to Confidential Attachment 1.

c. Please refer to Stutz IR-13.

Nova Scotia Power Inc.
Detail of Fuel and Purchased Power
Years Ended December 31st
Millions of Dollars (CAD)

Table 8

2007 Financial Outlook

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Actual 2001	**Actual 2002**	**Actual 2003**	**Actual 2004**	**Actual 2005**	**Forecast 2006**	**Compliance Rates Test Year Forecast 2006**	**Proposed Rates Test Year Forecast 2007**
Fuel By Type								
Coal	192.7	196.6	175.7	172.9	$217.3			
Petcoke	10.2	16.1	32.4	30.2	$35.2			
Natural gas	46.9	63.2	10.7	5.2	14.5			
Bunker C	37.8	14.2	78.0	80.1	98.7			
Furnace	1.3	1.5	2.2	1.9	2.3			
Diesel	2.7	1.5	4.8	6.0	1.1			
Additives	2.4	2.7	4.3	3.4	4.3			
Total Fuel For Generation	**294.0**	**295.8**	**308.0**	**299.8**	**373.3**			
Purchased Power								
Imports	6.5	6.6	11.5	16.2	25.4			
Independent power producers	15.1	16.3	16.7	16.5	21.4			
Total Purchased Power	**21.6**	**22.9**	**28.2**	**32.6**	**46.8**			
Fuel and Purchased Power	**315.7**	**318.7**	**336.3**	**332.4**	**420.1**			
Fuel For Resale								
Costs	58.4	31.7	119.8	115.9	131.6			
Recoveries	(83.1)	(42.2)	(190.6)	(152.5)	(182.1)			
Net Cost (Benefit)	**(24.7)**	**(10.5)**	**(70.8)**	**(36.6)**	**(50.5)**			
Export Sales	8.9	17.9	14.4	5.9	7.7			
Water Royalties	-	-	**0.8**	**0.8**	**0.8**			
MTM on HFO and Natural Gas	-	-	-	-	**(4.5)**			
Total Fuel and Purchased Power	**299.8**	**326.1**	**280.6**	**302.5**	**$373.6**			
Total System Requirements (GWH)	**11,646.1**	**12,031.0**	**12,328.7**	**12,564.9**	**12,482.7**			
Total Fuel Cost / MWH	**$25.74**	**$27.10**	**$22.76**	**$24.07**	**$29.93**			

Notes:
1) Figures presented reflect whole numbers which may cause $0.1M in rounding differences on some line items.

Forecasts are compiled for purposes of this rate application and are not intended to be relied upon for other purposes.