

NON-CONFIDENTIAL

1 **Request IR-1:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Page 5 of 14’ titled RATEMAKING**
4 **METHODOLOGY FOR UNMETERED SERVICES states that:**

5
6 **“In its 2012 GRA Decision, Board approved the following methodological changes**
7 **to the ratemaking treatment of unmetered services.”**

8
9 **The change listed included:**

- 10
11
 - **Determination of the value associated with the non-LED stranded asset was**
12 **deferred until a LED capital Work order is submitted.**
- 13
14 **a) Please provide a detailed reference in the NSUARB decision where the Board**
15 **approved this methodological change.**

16
17 **Response IR-1:**

18
19 The Board approved 2012 rates on the basis of a Compliance Filing submitted by NS Power
20 which proposed that LED conversion charges be settled at the time of the LED capital work
21 order submission.¹ For NS Power’s proposed approach to this matter, as indicated in 2012
22 Annual Capital Expenditure (ACE) hearing, please refer to Attachment 1. Please also refer to
23 HRM IR-3 and Multeese IR-46.

¹ NSPI 2012 General Rate Application, Compliance Filing, NSUARB-NSPI-P-892, December 09, 2011, page 17.

The following are the excerpts from the 2012 ACE Hearing.¹

Page 88:

MR. JEDYNAK: And what will the conversion fee be?

MR. MCGREGOR: I'm not in a position to talk to that. Perhaps one of my colleagues

MR. FERGUSON: We haven't calculated the conversion fee associated with that. We haven't made a filing to that effect to the Board.

Page 91:

MR. DHILLON: So have we heard from the government that they have passed the regulation for conversion yet, or if you're preparing the capital request?

MR. MCGREGOR: That's -- so have we heard from the government, no. We've heard it's imminent, the regulations should be posted soon we hope.

MR. DHILLON: So your application will be after the regulation is passed?

MR. MCGREGOR: Yeah.

MR. DHILLON: Am I right?

MR. MCGREGOR: That's my understanding.

¹ NSPI 2012 Annual Capital Expenditure Plan, Hearing Transcript, NSUARB-NSPI-P-128.12, February 13, 2012.

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1 **Request IR-2:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Page 5 of 14’ titled RATEMAKING**
4 **METHODOLOGY FOR UNMETERED SERVICES states that:**

5
6 **“In its 2012 GRA Decision, the Board approved the following methodological**
7 **changes to the ratemaking treatment of unmetered services.”**

8
9 **The change listed included:**

- 10 • **The pricing of unmetered service components of energy, fixture maintenance**
11 **and fixture capital is to be aligned with costs in two phases:**

12
13 **a) Please provide a detailed reference in the NSUARB decision where the Board**
14 **approved this methodological change.**

15 **b) The Settlement Agreement made reference to a 2 year realignment of rates with**
16 **costs of the “unmetered services of electricity and fixture capital” over a 2 year**
17 **period. To what extent was fixture maintenance costs a 2 year process?**

18
19 **Response IR-2:**

20
21 (a) Please refer to HRM IR-1. Also, paragraph 36 of the 2012 GRA Decision states:

22
23 Taking into account the complete evidentiary record, and the submissions
24 of the parties, the Board is satisfied that the GRA Agreement is in the
25 public interest. It provides for rates that are just and reasonable. The
26 Board approves the GRA Agreement.¹

27
28 (b) The fixture maintenance rate component is already aligned with costs. No realignment of
29 this rate component is required.

¹ NSPI 2012 General Rate Application, UARB Decision, NSUARB-NSPI-P-892, November 29, 2011, paragraph 36.

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1 **Request IR-3:**

2
3 **The Preliminary Issues List released by the NSUARB on May 11, 2012 included Item 6**
4 **Cost of Service and determination of Class Revenue Requirements (including streetlight**
5 **stranded costs):**

- 6
7 a) **Has NSPI provided sufficient information in its 2013 GRA Application to**
8 **adequately examine streetlight stranded assets as identified above?**
9 b) **If so, why is NSPI deferring the non-LED streetlight stranded asset valuation until a**
10 **capital a work order is submitted?**
11 c) **If not, does NSPI intend to submit additional evidence to enable this discussion to**
12 **proceed within the context of the 2013 GRA process?**

13
14 **Response IR-3:**

15
16 (a-c) NS Power has not requested Board approval of non-LED recovery of stranded asset rates
17 and charges in its Application. NS Power proposed the following in Section 11.2.4, page
18 138, lines 24-25, and page 139, lines 1-2 of the Application:

19
20 As agreed in the 2012 GRA Settlement Agreement, we will defer the
21 value and method of recovering non-LED stranded assets until the
22 regulatory proceeding on the LED Capital Work Order Submission.¹

¹ NSPI 2012 General Rate Application, NSUARB-NSPI-P-892, May 13, 2011, Section 11.2.4, page 138, lines 24-25, and page 139, lines 1 – 2.

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1 **Request IR-4:**

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3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 3 of 46 is a 2013 Inventory level**
4 **as of March 2011. In the 2012 GRA, NSPI submitted a similar Schedule 1 which was**
5 **updated as of February 2011:**

- 6
7 a) **Does NSPI have an inventory level more recent than March 2011?**
8 b) **If not, why not?**
9 c) **Please identify the quantity of streetlights added and the streetlights**
10 **retired/replaced during the period March 2011 and May 2012.**
11 d) **Please identify the number, the location, the wattage and the technology**
12 **(HPS, LED, etc.) of streetlight fixtures which were added or replaced during**
13 **the period January 1, 2012 and May 31, 2012.**

14
15 **Response IR-4:**

- 16
17 (a) Yes. NS Power will provide updated quantities with the capital work order submission.
18
19 (b) Not applicable.
20
21 (c-d) The number of streetlights installed and retired between January 1, 2012 to May 31, 2012
22 was 1,178 and 1,052, respectively. Please refer to Attachment 1.

January 1, 2012 - May 31, 2012										
COMMUNITY	70W	100W	125W	150W	250W	400W	HPS	QTY INSTALLED NEW	QTY REPLACED/ RETIRED	TOTAL
Amherst	1	16	0	0	1	0	18	5	13	18
Antigonish	0	18	0	0	0	0	17	10	8	18
Baddeck	3	8	1	0	1	0	13	6	7	13
Barrington	0	5	0	0	2	0	7	3	4	7
St. Margarets Bay	45	11	1	0	0	0	59	47	12	59
Bridgetown	0	11	0	1	0	1	13	6	7	13
Bridgewater	6	40	0	0	2	0	49	17	31	48
Chester	3	7	0	0	0	0	10	5	5	10
Cheticamp	7	9	0	0	0	0	16	11	5	16
Clare	2	12	0	0	1	0	15	3	12	15
Coldbrook	5	22	0	4	3	0	34	10	24	34
Dartmouth	44	38	0	3	1	2	99	63	36	99
Digby	0	12	0	0	0	0	14	3	11	14
Goshen	0	6	0	0	0	0	6	0	6	6
Guysborough	0	4	0	1	0	0	5	1	4	5
Halifax County	20	3	0	0	1	1	25	20	5	25
Ingonish	2	8	0	0	0	0	10	7	3	10
Kingston	2	16	0	0	0	0	18	10	8	18
Liverpool	3	12	0	0	0	0	15	5	10	15
Mabou	5	2	1	0	0	0	8	2	6	8
Parrsboro	2	5	0	0	0	0	7	0	7	7
Port Hawkesbury	5	14	0	0	1	0	20	9	11	20
River Bourgeois	8	2	1	0	0	0	11	8	3	11
Sackville	38	31	0	0	1	0	70	49	21	70
Shelburne	4	8	0	0	0	0	12	3	9	12
Sheet Harbour	7	8	0	1	0	0	16	5	11	16
Stellarton	5	46	0	1	0	1	53	16	37	53
Sydney	3	51	0	3	12	5	74	41	33	74
Tatamagouche	0	14	0	0	0	0	14	1	13	14
Truro	4	34	0	3	2	1	44	15	29	44
Upper Musquodoboit	3	15	0	0	0	0	18	11	7	18
Windsor	3	18	0	1	0	0	22	10	12	22
Yarmouth	12	12	0	0	0	1	25	14	11	25

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1 **Request IR-5:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 3 of 46 the March 2011 adjusted**
4 **section of Schedule 1 indicates that inventory includes 9163 LED Full Charge Streetlights.**
5 **This represents 9163 more LED fixtures than were included in the February 2011**
6 **inventory level identified in the 2012 GRA Schedule 1 (ref DE-03 – DE-04 Appendix G**
7 **Page 20).**

- 8
9 a) **Please explain what LED A, LED B and LED C represent. Why do they not have a**
10 **Rate Code.**
11 b) **Please confirm that NSPI installed 9163 LED fixtures between February 2011 and**
12 **March 2011 as indicated at the bottom of the “Full Charge” column.**
13 c) **Please identify where NSPI installed LED streetlights in 2011**
14 d) **Did NSPI charge conversion fees for these fixtures converted, or any streetlight**
15 **conversions prior to May 2012?**

16
17 **Response IR-5:**

18
19 Please refer to Section 11.2.4, page 138, lines 24-25, and page 139, lines 1-2 of the Application.
20 NS Power intends to set streetlight rates in the regulatory proceeding on the LED capital work
21 order submission.

- 22
23 (a) NS Power has not yet finalized the Request for Proposal for the LED streetlight project.
24 The proposed full service LED rates are interim only. The anticipated future types of
25 fixtures to be used are labeled using generic descriptors for confidentiality reasons. The
26 LED fixtures have built in flexibility to set the amount of illumination to be used as
27 requested by streetlight customers. Each LED fixture type can give rise to more than one
28 bundled service, as far as the amount of electricity consumption is concerned, and
29 therefore more than one bundled rate. Hence, no rate reference is being used in some of

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- 1 the schedules. However, specific rate codes corresponding to the LED fixture types are
2 included in Appendix I Schedule 10 of the Application.
3
- 4 (b) Not confirmed. The March 2011 inventory has been adjusted, as indicated in Appendix I
5 Schedule 1 of the Application, to reflect anticipated LED fixture count of 9,163 by the
6 end of 2012.
7
- 8 (c) NS Power did not install full service LED streetlights in 2011.
9
- 10 (d) Please refer to response (c) and Multeese IR-46.

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1 **Request IR-6:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 3 of 46 – The “Forecast 2013**
4 **(Quantity)” section identifies the same quantities of all streetlight as the March 2011**
5 **quantities:**

6
7 **a) Does this indicate that NSPI does not anticipate installing any LED streetlights in**
8 **2013?**

9 **b) If this schedule is incorrect, please update and resubmit.**

10
11 **Response IR-6:**

12
13 (a) For forecasting purposes, the total quantity of streetlights forecast for 2013 is assumed to
14 stay at a March 2011 inventory level. The information displayed under March 2011 is on
15 a prospective LED-adjusted basis. NS Power anticipates that at the beginning of 2013
16 there will be 9,163 full-service (NS Power owned) LED streetlights in place and that
17 15,000 will be added in 2013. This results in a year average of 16,663 LED lights as
18 illustrated in the last column of Schedule 1 (Appendix I Attachment 1, page 3 of 46 of the
19 Application). Also, please refer to HRM IR-5.

20
21 (b) The assumptions for Schedule 1 are correct.

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1 **Request IR-7:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 4 of 46 – The Schedule 2 Column**
4 **(D) maintenance Weighting Factors provides a weighting factor of 0.3 for LED streetlights:**

- 5
6 **a) Please provide any data and calculations to support this weighting factor.**
7 **b) Appendix I Attachment 1 Schedule 10 does not include any maintenance component**
8 **for the proposed 2013 rates. Please explain how this reconciles with the factor**
9 **identified in Schedule 2.**

10
11 **Response IR-7:**

- 12
13 (a) The weighting factor by streetlight type is determined by dividing the years of service life
14 of the high pressure sodium light (Column C) by those of a specific light type in question.
15 For example, for LED light type the calculations are as follows:

16
17
$$\text{LED (Column D)} = \text{HPS (Column C)} \div \text{LED (Column C)}$$

18
$$\text{LED (Column D)} = 6.0 \div 20 = 0.3$$

19
20 This calculation is consistent with how maintenance weighting factors have been derived
21 in previous unmetered studies.

- 22
23 (b) The proposed full service LED rates do not include maintenance charges as NS Power
24 has assumed that no LED maintenance service will be required. The allocation of a
25 portion of the test year revenue requirement of \$5.7 million, associated with the overall
26 streetlight fixture maintenance service, to LED streetlights is not consistent with this
27 view. Upon review, NS Power has determined that the proposed streetlight rates for non-
28 LED fixtures are underestimated by about \$0.25 million. We propose to correct this at
29 the time of the Compliance Filing.

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1 **Request IR-8:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 6 of 46 – The Schedule 4 –**
4 **Capital Cost Rate Component Calculation provides a “Revenue Conversion Factor” for**
5 **Non-LED and for LED streetlights:**

6
7 a) **Please provide the detailed calculations associated with the derivation of these**
8 **factors. If included in the COSS study, please isolate the functional, classification**
9 **and allocation aspects associated specifically with the derivation of these numbers to**
10 **assist with the understanding of the calculation.**

11 b) **The 2012 GRA Schedule 4 identified LED fixture capital costs which ranged from**
12 **\$552.27 to \$823.38. The 2013 LED A, B and C capital costs are now listed at \$420.00**
13 **for all fixture sizes. Please provide supporting information to confirm this number.**

14 c) **The 2012 GRA Schedule 4 had identified an installation cost for LED fixtures of**
15 **\$100.00. The 2013 Schedule 4 Labour Cost has increased to \$325.40. Please provide**
16 **supporting information to confirm this number.**

17
18 **Response IR-8:**

19
20 (a) The revenue correction factors are determined by dividing the capital related costs of
21 non-LED and LED fixtures by the preliminary non-LED fixture revenues simulated in
22 Appendix I Schedule 4 of the Application.

23
24
$$\text{Non-LED revenue correction factor} = \$3,899,055 \div 7,646,756 = 0.5099$$

25
26
$$\text{LED revenue correction factor} = \$1,962,839 \div 1,905,943 = 1.0299$$

27
28 The non-LED fixture costs are calculated as a total of cost items shown in lines 15
29 through 20 of page 3 of Exhibit 5 of the Cost of Service Study (COSS), SR-01 of the

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1 Application. The LED costs are determined in Schedule 5A of Attachment 1 Appendix I
2 of the Application.

3
4 The simulated revenues are calculated in Schedule 4 of the unmetered study in the
5 column labeled “revenue” in the “2013 Forecast” section.

6
7 Please refer to Attachment 1 and Multeese IR-48.

8
9 (b) The amount provided is NS Power’s current blended cost estimate for all LED streetlight
10 fixtures. As indicated in the Unmetered Study, the capital portion of the LED streetlight
11 is subject to change at the time of the capital work order submission.

12
13 (c) The 2013 figure, in addition to the installation cost, also includes administrative overhead
14 not accounted for in the 2012 GRA. These numbers will be updated and included in the
15 capital application.

2012 General Rate Application (NSUARB P-892)
NSPI Responses to Multeese Information Requests

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1 **Request IR-11:**

2
3 **With respect to DE-03 – DE-04, Appendix G, Schedule 4, please provide the development**
4 **of the numbers used to calculate the revenue correction factors; i.e, for the non-LED, the**
5 **development of the \$8,603,338 and the \$4,194,480; and for the LED the development of the**
6 **\$1,314,036 and the \$1,314,415.**

7
8 Response IR-11:

9
10 Revenue correction factor for Non-LED Light Fixtures

11
12 The revenue correction factor of 0.488 applied to non-LED fixtures is calculated by dividing the
13 non-LED capital-related cost of \$4,194,480, calculated as a total of cost items shown in lines 15
14 through 20 of page 3 of Exhibit 5 of the COSS model (Please refer to SR-01, Attachment 1,
15 Page 39), by the preliminary non-LED fixture revenue of \$8,603,338, as shown in the non-LED
16 total in the column labeled “revenue” in the “2012 Forecast” section of Schedule 4 (Please refer
17 to DE-03 – DE-04, Appendix G).

18
19 The COSS-based capital-related cost of \$4,194,480 is determined by applying the relative shares
20 of non-LED streetlights in the distribution net plant value to the demand-related portion of the
21 distribution capital-related costs. For more explanation please refer to DE-03 – DE-04,
22 Appendix G, Section 4.1, lines 8 through 15.

23
24 The preliminary revenue of \$8,603,338 is calculated by multiplying the preliminary non-LED
25 rates, as shown in the “Total Cost” column of the “Before Correction Factor” section, by the
26 forecasted number of fixtures. For further details please refer to DE-03 – DE-04, Appendix G,
27 Section 5.4.

2012 General Rate Application (NSUARB P-892)
NSPI Responses to Multeese Information Requests

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1 Revenue correction factor for LED Light Fixtures

2

3 The revenue correction factor of 1.003 applied to LED fixtures was calculated by dividing the
4 LED capital-related cost of \$1,314,415, as calculated in column labeled “LED” in DE-03 –
5 DE04, Appendix G, Schedule 5A, by the preliminary LED fixture revenue of \$1,314,037 as
6 shown in the LED total at the bottom of the column labeled “revenue” in the “2012 Forecast”
7 section of Schedule 4.

8

9 For details on how the cost of \$1,314,415 is calculated please refer to DE-03 – DE-04, Appendix
10 G, Section 5.5.

11

12 The preliminary revenue of \$1,314,037 is calculated by multiplying the preliminary LED unit
13 costs, as shown in the “Total Cost” column of the “Before Correction Factor” section, by the
14 forecasted number of fixtures. For further details please refer to DE-03 – DE-04, Appendix G,
15 Section 5.4.

16

17 In preparing this response NSPI realized that the revenue correction factor of 1.003 used for LED
18 is incorrect. The factor is predicated on an incorrect LED cost amount of \$1,314,415, which in
19 turn is reflective of an incorrect Gross and Net Plant Value amounts of \$17.68 million and \$8.84
20 million as shown under column LED in Schedule 5A (Appendix G). The \$17.68 million
21 represents year-end results, as opposed to year-average results. The Net Plant Value of \$8.84
22 million is predicated on the year-end value and does not reflect depreciation in this year. The
23 figures should have been \$8.84 million and \$8.60 million, respectively. The resulting LED
24 capital-related cost should have been \$1,291,742, or \$22,673 lower than submitted, and the
25 revenue correction factor 0.9830.

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1 **Request IR-9:**

2
3 **GRA 2013 DE-03 – DE-04 Appendix I Attachment 1 Page 8 of 46 – The Schedule 5A Tax-**
4 **Adjusted Weighted Average Cost of Capital Amounts by Components identifies a Net Plant**
5 **Value (Year Average) of \$15,949,000.00. This compares to a 2012 NPV (YA), from the 2012**
6 **GRA Schedule 5A of \$21,981,000.00:**

7
8 **a) Please provide the detailed asset adjustments calculation needed to reconcile these**
9 **two numbers.**

10
11 Response IR-9:

12
13 (a) The difference between these numbers is the activity that is expected to occur between
14 the time of the creation of the 2012 test year forecast for the 2012 GRA and the time of
15 the creation of the 2012 forecast for the 2013 GRA. Please refer to Attachment 1 for the
16 calculation of the \$21.981 million from the 2012 GRA.

17
18 The detailed calculation of the \$15.949 million consists of these three steps.

19

20	1.	2011 Gross Plant Value of Non-LED Streetlights	\$52,615,649
21		2012 Additions of Non-LED Streetlights	217,282
22		2012 Retirements of Non-LED Streetlights	<u>(398,830)</u>
23		2012 Gross Plant Value of Non-LED Streetlights	\$52,434,101
24		Less: Accumulated Depreciation	
25		2011 Accumulated Depreciation	30,651,780
26		2012 Depreciation	2,806,693
27		2012 Retirements	(398,830)
28		2012 Removal/Salvage	<u>(111,165)</u>
29		2012 Accumulated Depreciation	32,948,478 <u>(32,948,478)</u>

2013 General Rate Application (NSUARB P-893)
NSPI Responses to Halifax Regional Municipality Information Requests

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1	2012 non-LED Net Plant Value		<u>\$19,485,623</u>
2			
3			
4	2. 2012 Gross Plant Value of Non-LED Streetlights		\$52,434,101
5	2013 Additions of Non-LED Streetlights		109,254
6	2013 Retirements of Non-LED Streetlights		<u>(12,124,112)</u>
7	2013 Gross Plant Value of Non-LED Streetlights		40,419,243
8	Less: Accumulated Depreciation		
9	2012 Accumulated Depreciation	32,948,478	
10	2013 Depreciation	2,317,611	
11	2013 Retirements	(12,124,112)	
12	2013 Removal/Salvage	(346,977)	
13	2013 LED Deferral (of non-LED fixtures)	<u>5,211,196</u>	
14	2013 Accumulated Depreciation	28,006,195	<u>(28,006,195)</u>
15	2013 non-LED Net Plant Value		<u>\$12,413,048</u>
16			
17	3. Arithmetic average of 2012 and 2013 is calculated:		
18			$(\$19,485,623 + \$12,413,048) / 2 = \$15,949,336$

2012 General Rate Application (NSUARB P-892)
NSPI Responses to Multeese Information Requests

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1 **Request IR-13:**

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3 **With respect to DE-03 – DE-04, Appendix G, Schedule 5A:**

4

5 **(a) Please provide the derivation of the Gross Plant Values and Net Plant Values for**
6 **non-LED and LED.**

7

8 **(b) Please provide the derivation of the depreciation expenses of \$2,189.4 and \$682.9.**

9

10 Response IR-13:

11

12 (a) Derivation of Gross Plant Values and Net Plant Values for non-LED

13

14 Please refer to Multeese IR-10 for the derivation of the non-LED gross plant value of
15 \$46.669 million.

16

17 The non-LED net plant value of \$21.981 million represents a difference between the total
18 net plant value of streetlights of \$30.821 million and the LED net plant value of \$8.840
19 million. The detailed calculation consists of these three steps.

20

21 1. 2011 non-LED Net Plant Value

22

2011 Gross Plant Value		\$54,506,168
2010 Accumulated Depreciation	28,874,169	
2011 Depreciation	2,455,295	
2011 Accumulated Depreciation	31,329,464	(31,329,464)
2011 Net Plant Value (before CWIP)		23,176,704
2011 CWIP Adjustment		480,000
2011 Non-LED Net Plant Value		\$23,656,704

2012 General Rate Application (NSUARB P-892)
NSPI Responses to Multeese Information Requests

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1			
2	2.	2012 Non-LED Net Plant Value	
3			
		2012 Gross Plant Value	\$70,988,791
		2011 Accumulated Depreciation	31,329,464
		2012 Depreciation	2,872,281
		2012 Retirements	(27,728)
		2012 Accumulated Depreciation and Retirements	<u>34,174,017</u> (34,174,017)
		2012 Net Plant Value (before CWIP)	<u>36,814,774</u>
		2012 CWIP Adjustment	=
		2012 LED Additions	(16,510,351)
		2012 non-LED Net Plant Value	<u><u>\$20,304,423</u></u>

4

5

3. Arithmetic average of 2011 and 2012 is calculated:

6

7

$$(\$23,656,704 + \$20,304,423) \div 2 = \$21,980,564$$

8

9

Derivation of Gross Plant Values and Net Plant Values for LED

10

11

The \$17.68 million, which represents the LED gross plant value, is the budgeted capital spend in 2012 from our financial systems for the LED streetlight conversion. The figure represents a year-end gross plant value and as such is incorrectly displayed, as DE-03 – DE-04, Appendix G, Schedule 5 intends to show a year-average figure. The displayed figure should have been \$8.84 million, half of the year-end value given its starting balance of \$0 at the beginning of the year. The LED net plant value of \$8.84 million represents half of its year-end gross plant value and as such is also incorrect. The figure should have been \$8.604 million in reflection of the depreciation effect in that year. This figure is calculated using the following formula:

12

13

14

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2012 General Rate Application (NSUARB P-892)
 NSPI Responses to Multeese Information Requests

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$$\$8.840 \text{ M} * (1 - 5.33\%/2) = \$8.604 \text{ M}$$

Please refer to Multeese IR-11 for the discussion of the implications of this adjustment on revenue responsibility allocation.

- (b) The depreciation of LED streetlights is derived by multiplying the year-average gross plant value of \$8.84 million by the depreciation rate of 5.33 percent.

$$\text{Depreciation amount } \$8.840 \text{ M} \times 5.33\% = \$0.4712 \text{ M}$$

This amount is then grossed up for tax purposes, by the corporate tax rate of 31 percent.

$$\text{Gross up for tax purposes } \$0.4712 \text{ M} / (1-31\%) = \$0.6829 \text{ M}$$

The depreciation of non-LED streetlights is derived by taking the total depreciation forecasted for streetlights in 2012, from our financial systems, and subtracting the amount calculated for LED streetlights (thousands).

$$\$2.8723 \text{ M} - \$0.6829 \text{ M} = \$2.1894 \text{ M}$$

In preparing a response to this question, NSPI realized that it was not appropriate to deduct the grossed up amount of \$0.6829 million from the total streetlight depreciation of \$2.8723 million. Rather, the depreciation amount of \$0.4712 million should have been subtracted as the \$2.8723 million total does not include the grossed up tax amount.

$$\$2.8723 \text{ M} - \$0.4712 \text{ M} = \$2.4011 \text{ M}$$

2012 General Rate Application (NSUARB P-892)
NSPI Responses to Multeese Information Requests

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1 As a result the amount of depreciation expense allocated to non-LED streetlights, was
2 under-estimated by \$211,700. Please refer to Attachment 1 for the modified Schedule
3 5A.

4
5 The gross up amount of \$211,700 should have been directly assigned and deducted from
6 the corporate taxes for the cost allocation purposes to the COSS-based rate classes (line
7 42, SR-01 Attachment 1, Exhibit 4).

STREET / CROSSWALK LIGHTING STUDY

**Tax-Adjusted Weighted Average Cost of Capital Amounts by Components
 For 2012 Street Light Rates**

**Capital Cost Expenses (Net Plant Value)
 For 2012 Street Light Rates**

In thousands of dollars

Depreciation Rate

5.33%

Gross-up factor for tax purposes (LED only)

31.00%

	<u>Non LED</u>	<u>LED</u>	<u>Non LED</u>	<u>LED</u>
Gross Plant Value (YA)			\$46,669	\$17,680
Net Plant Value (YA)			\$21,981	\$8,840

a) Weighted Average Cost of Capital - Pretax

ST Debt	0.21%	0.21%		\$19.0
LT Debt	3.94%	3.94%		<u>\$348.6</u>
Subtotal			728	<u>\$367.5</u>
Preferred	0.22%	0.22%	\$48.5	\$19.1
Common	<u>3.60%</u>	<u>3.60%</u>	<u>\$767.7</u>	<u>\$318.2</u>
WACC - pretax cost	7.97%	7.97%	\$1,543.8	\$704.9

b) Additional income tax for common equity

WACC - equity tax cost	1.62%	1.62%		\$143.2
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c) Large Corporations Tax

WACC - Large Corporations Tax	0.03%	0.03%		<u>\$2.7</u>
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Subtotal

\$248.0 \$145.9

d) Grants in Lieu of Property Tax

WACC - Grants in Lieu of Property Tax	1.09%		<u>\$213.3</u>	<u>\$0.0</u>
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Subtotal Financing Expense	10.71%	9.62%	<u>\$2,005.1</u>	<u>\$850.8</u>
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Depreciation Expense			<u>\$2,401.1</u>	<u>\$471.2</u>
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Gross up for Tax Purposes			N/A	<u>\$211.7</u>
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Total Depreciation Expense including Gross Up for Tax Purposes			N/A	<u>\$682.9</u>
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CCA			N/A	<u>-\$219.2</u>
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TOTAL CAPITAL COST EXPENSE			<u>\$4,406.2</u>	<u>\$1,314.4</u>
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NON-CONFIDENTIAL

1 **Request IR-10:**

2

3 **Please provide an electronic file, in excel or compatible format of Appendix I, contained in**
4 **the 2013 Unmetered Class Cost of Service and Pricing Study which states and identifies all**
5 **formulas.**

6

7 Response IR-10:

8

9 Please refer to Attachment 1 and Attachment 2, filed electronically.

STREET / CROSSWALK LIGHTING STUDY

Inventory Level as of MARCH 2011

Rate Code	Description	MARCH 2011 Adjusted (Quantity)				FORECAST 2013 (Quantity)				Full Charge Adj. for LED Conv.
		Full Charge	Energy & Maint	Energy Only	Total	Full Charge	Energy & Maint	Energy Only	Total	
001/003	Incandescent < 300 Watts	27	0	7	34	27	0	7	34	27
002	Incandescent > 300 Watts	2	0	0	2	2	0	0	2	2
		29	0	7	36	29	0	7	36	29
100	Mercury Vapour 100 Watts	251	0	0	251	251	0	0	251	234
101/201/301	Mercury Vapour 125 Watts	10,349	7	11	10,367	10349	7	11	10367	9635
102/202/302	Mercury Vapour 175 Watts	2,474	21	157	2,652	2474	21	157	2652	2303
103/203/303	Mercury Vapour 250 Watts	953	35	54	1,042	953	35	54	1042	887
104/204/304	Mercury Vapour 400 Watts	926	9	15	950	926	9	15	950	862
105/205/305	Mercury Vapour 700 Watts	11	0	1	12	11	0	1	12	11
106/206/306	Mercury Vapour 1000 Watts	86	22	7	115	86	22	7	115	86
107	Mercury Vapour 250 Watt Cont. Oper.	3	0	0	3	3	0	0	3	3
		15,053	94	245	15,392	15053	94	245	15392	14021
110	Fluorescent 2x24" 70 Watts	897	0	0	897	897	0	0	897	897
111	Fluorescent 2x48" 220 Watts	114	0	0	114	114	0	0	114	114
112	Fluorescent 2x72" 300 Watts	67	0	0	67	67	0	0	67	67
113/213	Fluorescent 4x72" 600 Watts	15	0	0	15	15	0	0	15	15
114/214	Fluorescent 1x96" 110 Watts	5	26	0	31	5	26	0	31	5
115/215	Fluorescent 1x72" 150 Watts	1	3	0	4	1	3	0	4	1
116	Fluorescent 4x48" 440 Watts	2	0	0	2	2	0	0	2	2
217	Fluorescent 1x48"	0	1	0	1	0	1	0	1	0
218	Fluorescent 2x48"	0	0	0	0	0	0	0	0	0
330	Fluorescent 4x35"	0	0	2	2	0	0	2	2	0
350	Fluorescent 4x96"	0	0	76	76	0	0	76	76	0
		1,101	30	78	1,209	1101	30	78	1209	1,101
117	Fluorescent Crosswalk Cont. 4x72"	0	0	1	1	0	0	1	1	0
118	Fluorescent Crosswalk Cont. 2x24"	0	0	17	17	0	0	17	17	0
119	Fluorescent Crosswalk Cont. 4x48"	0	0	23	23	0	0	23	23	0
120	Fluorescent Crosswalk Cont. 2x96"	0	0	30	30	0	0	30	30	0
150	Fluorescent Crosswalk Cont. 4x96"	0	0	21	21	0	0	21	21	0
		0	0	92	92	0	0	92	92	0
310	Fluorescent Crosswalk 2x24"	0	0	2	2	0	0	2	2	0
311	Fluorescent Crosswalk 4x48"	0	0	5	5	0	0	5	5	0
312	Fluorescent Crosswalk 2x72"	0	0	1	1	0	0	1	1	0
313	Fluorescent Crosswalk 4x72"	0	0	0	0	0	0	0	0	0
314	Fluorescent Crosswalk 1x96"	0	0	25	25	0	0	25	25	0
315	Fluorescent Crosswalk 1x72"	0	0	0	0	0	0	0	0	0
		0	0	33	33	0	0	33	33	0
121/221/321	High Pressure Sodium 250 Watts	4,317	171	964	5,452	4317	171	964	5452	4,019
122/326	High Pressure Sodium 400 Watts	2,910	0	89	2,999	2910	0	89	2999	2,709
123/222/322	High Pressure Sodium 70 Watts	35,979	258	5,978	42,215	35979	258	5978	42215	33,496
124/223/323	High Pressure Sodium 100 Watts	43,398	135	2,377	45,910	43398	135	2377	45910	40,402
125/224/324	High Pressure Sodium 150 Watts	5,241	230	125	5,596	5241	230	125	5596	4,879
126	HP Sodium 100 Watts - Cont. Oper.	15	0	0	15	15	0	0	15	15
327	High Pressure Sodium 500 Watts	0	0	3	3	0	0	3	3	0
328	High Pressure Sodium 1000 Watts	0	0	14	14	0	0	14	14	0
329	High Pressure Sodium 1500 Watts	0	0	1	1	0	0	1	1	0
		91,860	794	9,551	102,205	91860	794	9551	102205	85,520
130	Low Pressure Sodium 135 Watts	53	0	0	53	53	0	0	53	49
131/231/331	Low Pressure Sodium 180 Watts	485	39	37	561	485	39	37	561	452
132	Low Pressure Sodium 90 Watts	0	0	0	0	0	0	0	0	0
		538	39	37	614	538	39	37	614	501
140/342	Metallic Arc 400 Watts	1,213	0	159	1,372	1213	0	159	1372	1,129
141/341	Metallic Arc 1000 Watts	981	0	22	1,003	981	0	22	1003	981
142/343	Metallic Arc 250 Watts	100	0	84	184	100	0	84	184	93
143	Metallic Arc 150 Watts	4	0	0	4	4	0	0	4	4
144	Metallic Arc 100 Watts	7	0	0	7	7	0	0	7	7
344	Metallic Arc 175 Watts	0	0	112	112	0	0	112	112	0
345	Metallic Arc 150 Watts	0	0	20	20	0	0	20	20	0
346	Metallic Arc 100 Watts	0	0	0	0	0	0	0	0	0
		2,305	0	397	2,702	2305	0	397	2702	2,214
532/538	LED 44 Watts	0	0	1,732	1,732	0	0	1732	1732	0
539	LED 110 Watts	0	0	2,609	2,609	0	0	2609	2609	0
533	LED 66 Watts	0	0	138	138	0	0	138	138	0
534	LED 88 Watts	0	0	513	513	0	0	513	513	0
537	LED 173 Watts	0	0	38	38	0	0	38	38	0
540	LED 65 Watts	0	0	464	464	0	0	464	464	0
541	LED 55 Watts	0	0	736	736	0	0	736	736	0
542	LED 83 Watts	0	0	1,039	1,039	0	0	1039	1039	0
543	LED 48 Watts	0	0	72	72	0	0	72	72	0
544	LED 72 Watts	0	0	308	308	0	0	308	308	0
	Total	0	0	7,649	7,649	0	0	7649	7649	0
SAT-48		7801	0	0	7801	7801	0	0	7801	14,187
SAT-72		989	0	0	989	989	0	0	989	1,798
SAT-96		373	0	0	373	373	0	0	373	678
	Total	9163	0	0	9163	9163	0	0	9163	16,663
Total		120,049	957	18,089	139,095	120,049	957	18,089	139,095	120,049

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

(A) <u>Code</u>	(B) <u>Lamp Type</u>	(C) <u>Service Life (Years)</u>	(D) <u>Maintenance Weighting Factors</u>	(E) <u># of Full Chg & Eng.+Maint. Fixtures</u>	(F) <u>Weighting Total</u>	(G) <u>Cost Per Year</u>	(H) <u>Cost Per Month</u>
A	Mercury Vapour	6.000	1.0000	4,502	4,502	\$50.94	\$4.25
B	Mercury Vapour - 125W	4.500	1.3333	9,642	12,856	\$67.92	\$5.66
C	Fluorescent	3.000	2.0000	1,131	2,262	\$101.89	\$8.49
D	High Pressure Sodium (Note1)	6.000	1.0000	86,329	86,329	\$50.94	\$4.25
E	Metallic Arc 100W, 150W & 250W	2.500	2.4000	103	248	\$122.26	\$10.19
F	Metallic Arc 400W	3.750	1.6000	1,129	1,807	\$81.51	\$6.79
G	Metallic Arc 1000W	2.500	2.4000	981	2,354	\$122.26	\$10.19
H	Low Pressure Sodium	2.000	3.0000	540	1,620	\$152.83	\$12.74
I	LED	20.000	0.3000	<u>0</u>	<u>0</u>	\$15.28	\$1.27
				104,358	111,978		

Street Lighting Maint. Expenses

(from 2013 COSS, Exhibit 6A)

\$5,704,509

Annual Cost of High Pressure Sodium

(\$5,704,508.92 / 111978.336007024 weighted fixtures)

\$50.94

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

STREET / CROSSWALK LIGHTING STUDY

CAPITAL COST

Gross Plant Value (including installation costs) less Retirements of
 Non-LED Street Lighting Equipment, 2013 Average ----->

Total
\$43,821,074

Description	Unit Cost Mar/1977	Unit Cost Mar-11	Historical 11-Mar Fixtures	Average # of Fixtures bfr LED	Average # of Fixtures aft LED	Total Value
Incandescent < 300 Watts	\$51.36	\$64.20	27	27	27	\$1,733
Incandescent > 300 Watts	\$63.62	\$79.53	2	2	2	\$159
Mercury Vapour 100 Watts	\$76.55	\$229.55	251	251	234	\$57,616
Mercury Vapour 125 Watts	\$77.16	\$204.78	10,349	10,349	9,635	\$2,119,288
Mercury Vapour 175 Watts	\$85.30	\$201.27	2,474	2,474	2,303	\$497,946
Mercury Vapour 250 Watts	\$87.24	\$291.38	953	953	887	\$277,681
Mercury Vapour 400 Watts	\$107.82	\$301.45	926	926	862	\$279,143
Mercury Vapour 700 Watts	\$485.12	\$449.78	11	11	11	\$4,948
Mercury Vapour 1000 Watts	\$492.29	\$579.25	86	86	86	\$49,816
Mercury Vapour 250 Watt Cont. Oper.	\$87.24	\$291.38	3	3	3	\$874
Fluorescent 2x24" 70 Watts	\$106.44	\$133.05	897	897	897	\$119,346
Fluorescent 2x48" 220 Watts	\$131.91	\$164.89	114	114	114	\$18,797
Fluorescent 2x72" 300 Watts	\$178.72	\$223.40	67	67	67	\$14,968
Fluorescent 4x72" 600 Watts	\$293.72	\$367.15	15	15	15	\$5,507
Fluorescent 1x96" 110 Watts	\$160.00	\$200.00	5	5	5	\$1,000
Fluorescent 1x72" 150 Watts	\$121.22	\$151.53	1	1	1	\$152
Fluorescent 4x48" 440 Watts	\$188.91	\$236.14	2	2	2	\$472
High Pressure Sodium 70 Watts	N/A	\$207.51	35,979	35,979	33,496	\$7,465,995
High Pressure Sodium 100 Watts	N/A	\$210.65	43,413	43,413	40,417	\$9,144,775
High Pressure Sodium 150 Watts	N/A	\$232.66	5,241	5,241	4,879	\$1,219,396
High Pressure Sodium 250 Watts	\$156.49	\$231.67	4,317	4,317	4,019	\$1,000,140
High Pressure Sodium 400 Watts	\$173.73	\$246.21	2,910	2,910	2,709	\$716,479
High Pressure Sodium 1000 Watts	N/A	\$615.53	0	0	0	\$0
Low Pressure Sodium 90 Watts	N/A	\$554.53	0	0	0	\$0
Low Pressure Sodium 135 Watts	\$371.69	\$554.53	53	53	49	\$29,390
Low Pressure Sodium 180 Watts	\$226.10	\$880.14	485	485	452	\$426,867
Metallic Additive 250 Watts	N/A	\$298.33	104	104	97	\$31,026
Metallic Additive 400 Watts	\$358.84	\$305.76	1,213	1,213	1,129	\$370,885
Metallic Additive 1000 Watts	\$560.49	\$526.16	981	981	981	\$516,159
Metallic Additive 100 Watts	N/A		7	7	7	\$0
			110,886	110,886	103,386	24,370,558

\$19,450,516

\$188.13

Total # of light types being displaced by LED

108,675	108,675	101,175
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Total Installation Costs (Labour)

Installation Costs per Fixture

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

Note: 2007 costs are based on stores material inventory cost as of June 2007 with the exception of Incandescent and fluorescent which have been assumed at 130% of 1977 costs.

Sample Material Cost - 100 Watt High Intensity (Pressure) Sodium :

Inventory Prices as of March 2011

Fixture, Ballast & Photocell	\$124.02
Bracket Assembly (Davit)	67.32
Wire	16.71
Miscellaneous Hardware	2.60
Lamp Replacement	<u>8.62</u>
TOTAL	<u>\$219.27</u>

Depreciation Rate for 2013
 # of Years
 Tax Adjusted Weighted Average Cost of Capital
 Pre-tax WACC
 Tax-related Gross-up Depreciation factor
 Salvage Rate (% of Depreciation)
 Salvage Rate incl in Depr. Rate for 2013
 # of Years

	Non Led	LED
Depreciation Rate for 2013	5.33%	5.33%
# of Years	18.76	18.76
Tax Adjusted Weighted Average Cost of Capital	10.40%	9.31%
Pre-tax WACC	7.76%	7.76%
Tax-related Gross-up Depreciation factor	31.00%	31.00%
Salvage Rate (% of Depreciation)	0.00%	0.00%
Salvage Rate incl in Depr. Rate for 2013	0.00%	0.00%
# of Years	N/A	N/A

Simulated at current meth.
 Total cost per COSS (and adjusted for energy)
 Revenue Correction Factor

	Non LED	LED
Revenue Correction factor	\$7,646,756	\$1,905,943
	\$3,899,055	\$1,962,839
	0.5099	1.0299

	Material Cost		Labour Cost	Total	Before Correction Factor				Correction Factor	Aligned with COSS results		2013 Forecast					
	January 2010				Depreciation Expense	Cost of Capital	CCA Benefit	Total Cost		Annual Cost	Monthly Cost	# of fixtures	depreciation		CCA	revenue	Annual scaled
	January 2010	Cost											expense	cost of capital			
Incandescent < 300 Watts	\$64.20	188.13	188.13	\$252.33	\$19.49	\$26.24	\$0.00	\$45.73	0.510	\$23.32	\$1.94	27	526.28	708.56	1,234.84	629.64	
Incandescent > 300 Watts	79.53	188.13	188.13	267.66	\$20.68	\$27.84	\$0.00	48.51	0.510	\$24.74	2.06	2	41.35	55.67	97.02	49.47	
Mercury Vapour 100 Watts	229.55	188.13	188.13	417.68	\$32.26	\$43.44	\$0.00	75.70	0.510	\$38.60	3.22	234	7,539.48	10,150.72	17,690.20	9,020.17	
Mercury Vapour 125 Watts	204.78	188.13	188.13	392.92	\$30.35	\$40.86	\$0.00	71.21	0.510	\$36.31	3.03	9,635	292,429.19	393,709.55	686,138.74	349,859.82	
Mercury Vapour 175 Watts	201.27	188.13	188.13	389.41	\$30.08	\$40.50	\$0.00	70.58	0.510	\$35.99	3.00	2,303	69,282.67	93,278.13	162,560.81	82,889.20	
Mercury Vapour 250 Watts	291.38	188.13	188.13	479.51	\$37.04	\$49.87	\$0.00	86.91	0.510	\$44.31	3.69	887	32,863.40	44,245.36	77,108.76	39,317.49	
Mercury Vapour 400 Watts	301.45	188.13	188.13	489.58	\$37.82	\$50.92	\$0.00	88.74	0.510	\$45.25	3.77	862	32,603.24	43,895.09	76,498.33	39,006.24	
Mercury Vapour 700 Watts	449.78	188.13	188.13	637.92	\$49.28	\$66.34	\$0.00	115.62	0.510	\$58.95	4.91	11	542.04	729.78	1,271.82	648.50	
Mercury Vapour 1000 Watts	579.25	188.13	188.13	767.39	\$59.28	\$79.81	\$0.00	139.09	0.510	\$70.92	5.91	86	5,097.90	6,863.52	11,961.42	6,099.09	
Mercury Vapour 250 Watt Cont. Oper.	291.38	188.13	188.13	479.51	\$37.04	\$49.87	\$0.00	86.91	0.510	\$44.31	3.69	3	111.12	149.61	260.73	132.94	
Fluorescent 2x24" 70 Watts	133.05	188.13	188.13	321.18	\$24.81	\$33.40	\$0.00	58.21	0.510	\$29.68	2.47	897	22,254.90	29,962.70	52,217.60	26,625.58	
Fluorescent 2x48" 220 Watts	164.89	188.13	188.13	353.02	\$27.27	\$36.71	\$0.00	63.98	0.510	\$32.63	2.72	114	3,108.75	4,185.43	7,294.18	3,719.28	
Fluorescent 2x72" 300 Watts	223.40	188.13	188.13	411.53	\$31.79	\$42.80	\$0.00	74.59	0.510	\$38.03	3.17	67	2,129.90	2,867.58	4,997.48	2,548.20	
Fluorescent 4x72" 600 Watts	367.15	188.13	188.13	555.28	\$42.89	\$57.75	\$0.00	100.64	0.510	\$51.32	4.28	15	643.41	866.24	1,509.65	769.77	
Fluorescent 1x96" 110 Watts	200.00	188.13	188.13	388.13	\$29.98	\$40.37	\$0.00	70.35	0.510	\$35.87	2.99	5	149.91	201.83	351.74	179.35	
Fluorescent 1x72" 150 Watts	151.53	188.13	188.13	339.66	\$26.24	\$35.32	\$0.00	61.56	0.510	\$31.39	2.62	1	26.24	35.32	61.56	31.39	
Fluorescent 4x48" 440 Watts	236.14	188.13	188.13	424.27	\$32.77	\$44.12	\$0.00	76.90	0.510	\$39.21	3.27	2	65.55	88.25	153.80	78.42	
High Pressure Sodium 70 Watts	207.51	188.13	188.13	395.64	\$30.56	\$41.15	\$0.00	71.71	0.510	\$36.56	3.05	33,496	1,023,708.19	1,378,260.79	2,401,968.98	1,224,755.84	
High Pressure Sodium 100 Watts	210.65	188.13	188.13	398.78	\$30.80	\$41.47	\$0.00	72.28	0.510	\$36.85	3.07	40,417	1,245,018.73	1,676,220.34	2,921,239.08	1,489,529.90	
High Pressure Sodium 150 Watts	232.66	188.13	188.13	420.80	\$32.51	\$43.76	\$0.00	76.27	0.510	\$38.89	3.24	4,879	158,602.93	213,533.71	372,136.64	189,751.21	
High Pressure Sodium 250 Watts	231.67	188.13	188.13	419.81	\$32.43	\$43.66	\$0.00	76.09	0.510	\$38.80	3.23	4,019	130,333.56	175,473.48	305,807.04	155,929.97	
High Pressure Sodium 400 Watts	246.21	188.13	188.13	434.35	\$33.55	\$45.17	\$0.00	78.72	0.510	\$40.14	3.35	2,709	90,897.55	122,379.13	213,276.68	108,749.06	
High Pressure Sodium 1000 Watts	615.53	188.13	188.13	803.67	\$62.08	\$83.58	\$0.00	145.66	0.510	\$74.27	6.19	-	-	-	-	-	
Low Pressure Sodium 90 Watts	554.53	188.13	188.13	742.67	\$57.37	\$77.24	\$0.00	134.61	0.510	\$68.63	5.72	-	-	-	-	-	
Low Pressure Sodium 135 Watts	554.53	188.13	188.13	742.67	\$57.37	\$77.24	\$0.00	134.61	0.510	\$68.63	5.72	49	2,830.68	3,811.06	6,641.74	3,386.60	
Low Pressure Sodium 180 Watts	880.14	188.13	188.13	1,068.27	\$82.52	\$111.10	\$0.00	193.62	0.510	\$98.73	8.23	452	37,260.27	50,165.05	87,425.31	44,577.87	
Metallic Arc 250 Watts	298.33	188.13	188.13	486.46	\$37.58	\$50.59	\$0.00	88.17	0.510	\$44.96	3.75	97	3,638.35	4,898.46	8,536.80	4,352.89	
Metallic Arc 400 Watts	305.76	188.13	188.13	493.89	\$38.15	\$51.36	\$0.00	89.52	0.510	\$45.64	3.80	1,129	43,083.98	58,005.75	101,089.74	51,545.31	
Metallic Arc 1000 Watts	\$526.16	188.13	188.13	\$714.29	\$55.18	\$74.29	\$0.00	\$129.46	0.510	\$66.01	\$5.50	981	54,128.04	72,874.82	127,002.86	64,758.33	
Metallic Additive 100 Watts	\$0.00	188.13	188.13	\$188.13	\$14.53	\$19.57	\$0.00	\$34.10	0.510	\$17.39	\$1.45	7	94.71	127.51	222.22	113.31	
Total												103,386	\$3,259,012	\$4,387,743	\$7,646,756	\$3,899,055	

	Material Cost		Labour Cost	Total	Before Correction Factor				Correction Factor	Aligned with COSS results		2013 Forecast					
	January 2010				Depreciation Expense	Cost of Capital	CCA Benefit	Total Cost		Annual Cost	Monthly Cost	# of fixtures	depreciation		CCA	revenue	Annual scaled
	January 2010	Cost											expense	cost of capital			
LED A	\$420.00	\$325.40	188.13	\$745.40	\$57.58	\$69.40	-\$12.59	114.38	1.030	\$117.80	9.82	14,187	816,878.94	984,530.70	(178,682.77)	1,622,726.86	1,671,168.38
LED B	\$420.00	\$325.40	188.13	\$745.40	\$57.58	\$69.40	-\$12.59	114.38	1.030	\$117.80	9.82	1,798	103,538.14	124,787.75	(22,647.77)	205,678.13	211,818.01
LED C	\$420.00	\$325.40	188.13	\$745.40	\$57.58	\$69.40	-\$12.59	114.38	1.030	\$117.80	9.82	678	39,032.37	47,043.16	(8,537.88)	77,537.66	79,852.31
Total												16,663	\$959,449	\$1,156,362	-\$209,868	\$1,905,943	\$1,962,839

STREET / CROSSWALK LIGHTING STUDY

**Tax-Adjusted Weighted Average Cost of Capital Rate by Components
For 2013 Street Light Rates**

a) Weighted Average Cost of Capital - Pretax				Non-LED		LED
	Proportion	Cost	Extended		Extended	
ST Debt	6.3%	4.1%	0.3%	0.26%	0.3%	0.26%
LT Debt	52.5%	7.3%	3.8%	3.83%	3.8%	3.83%
Preferred	3.7%	6.0%	0.2%	0.22%	0.2%	0.22%
Common	37.5%	9.2%	3.5%	3.45%	3.5%	3.45%
	<u>100.0%</u>		<u>7.8%</u>		<u>7.8%</u>	
WACC - pretax cost				7.76%		7.76%
b) Additional income tax for common equity						
			Extended equity cost	3.45%	3.45%	
			Effective tax rate (excluding surtax)	31.0%	31.0%	
			Income tax	1.55%	1.55%	
WACC - equity tax cost				1.55%		1.55%
c) Large Corporations Tax						
			Provincial capital tax (2013)	0.000%	0.000%	
			Federal capital tax (2013)	0.000%	0.000%	
			Ave. NBV - Street Lighting	\$15.949	\$8.148	
			Ave. NBV - Assigned GP Plt.	1.239	0.633	
			Ave. Deferred Chgs & W/C	<u>1.530</u>	<u>0.782</u>	
			NPV - Total Street Lighting	\$18.718	\$9.563	
			Provincial capital tax	\$0.000	\$0.000	
			Federal capital tax	\$0.000	\$0.000	
			Total	\$0.000	\$0.000	
			Percentage of NBV	0.00%	0.00%	
WACC - Large Corporations Tax				0.00%		0.00%
d) Grants in Lieu of Property Tax						
			Total 2013 Forecasted Expense	\$37.500	N/A	
			St. Lgts. % of Total Electric Plant	0.55%	N/A	
			St. Lgts. Allocated Amount	\$0.205	N/A	
			Percentage of NBV	1.09%	N/A	
WACC - Grants in Lieu of Property Tax				1.09%		0.00%
Total WACC - Interest / Carrying Cost				10.40%		9.31%

STREET / CROSSWALK LIGHTING STUDY

Tax-Adjusted Weighted Average Cost of Capital Amounts by Components

For 2013 Street Light Rates

Depreciation Rate	5.33%
Salvage Rate	0.00%
Salvage Incl. in Depreciation Rate	0.00%
Gross-up factor for tax purposes (LED only)	31.00%

	<u>Non LED</u>	<u>Non LED</u>	<u>LED</u>	<u>LED Deferral</u>
Gross Plant Value (YA)		\$43,821	\$11,334	
Net Plant Value (YA)		\$15,949	\$11,020	\$2,606

a) Weighted Average Cost of Capital - Pretax

ST Debt	0.26%		28	7
LT Debt	3.83%		422	100
Subtotal		589	451	107
Preferred	0.22%	\$35.7	25	6
Common	3.45%	\$534.9	380	90
WACC - pretax cost	7.76%	\$1,159.2	\$855	\$202

b) Additional income tax for common equity

WACC - equity tax cost	1.55%		171	40
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c) Large Corporations Tax

WACC - Large Corporations Tax	0.00%		0	0
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Subtotal

\$233.4	171	40
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d) Grants in Lieu of Property Tax

WACC - Grants in Lieu of Property Tax	1.09%	\$164.2	0	28
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Subtotal Financing Expense	10.40%	\$1,556.8	\$1,026.1	\$271.0
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Depreciation Expense		\$2,342.2	\$604.121	\$0.0
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Gross up for Tax Purposes			\$271.4	\$0.0
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Total Depreciation Expense including Gross up for Tax Purposes		\$2,342.2	\$875.5	\$0.0
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CCA		\$0.0	-\$209.9	
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TOTAL CAPITAL COST EXPENSE		\$3,899.1	\$1,691.8	\$271.025
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STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
 March 2011

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	\$229.55	\$122.41	\$15.99	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 125 Watts	\$204.78	\$102.95	\$10.68	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 175 Watts	\$201.27	\$102.95	\$7.17	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$301.45	\$198.75	\$8.98	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 700 Watts	\$449.78	\$318.97	\$37.10	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$579.25	\$439.19	\$46.35	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watt Cont. Oper.	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
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	\$207.51	\$120.88	\$8.81	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 100W	\$210.65	\$124.02	\$8.62	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 150W	\$232.66	\$146.03	\$8.67	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 250 Watts	\$231.67	\$142.48	\$10.59	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
High Pressure Sodium 400 Watts	\$246.21	\$157.02	\$13.19	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 90W	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 135 Watts	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 180 Watts	\$880.14	\$788.99	\$54.77	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Metallic Additive 250W	\$298.33	\$190.30	\$18.83	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 400 Watts	\$305.76	\$201.63	\$14.93	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$526.16	\$405.65	\$31.31	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
LED A	\$420.00							
LED B	\$420.00							
LED C	\$420.00							

Light Type Flood Lights	Material Cost	Fixture	Lamp	Photocell	Davit	Wire	Connectors	Fasteners
Mercury Vapour 175 Watts	\$67.32	\$53.03	\$7.17	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$412.88	\$397.90	\$7.86	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$297.27	\$281.17	\$8.98	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$507.90	\$439.19	\$46.35	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
HIS 150W	\$215.75	\$183.39	\$25.23	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 250 Watts	\$202.12	\$184.41	\$10.59	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 400 Watts	\$215.26	\$194.95	\$13.19	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Additive 250W	\$216.25	\$190.30	\$18.83	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 400 Watts	\$223.69	\$201.63	\$14.93	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$459.33	\$405.65	\$31.31	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 70W HPS	\$197.77	\$195.17	\$8.81	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 100W HPS	\$143.10	\$140.50	\$8.62	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0000386440	LAMP FLUORESCENT 40W 48	1.35	
0000386450	LAMP FLUORESCENT 40W 48	1.36	
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	3.19	
0000387360	LAMP FLUORESCENT 85W 72	6.54	
0000388000	LAMP 100 WATT M.V.	15.99	
0000388180	LAMP 125 WATT M.V.	10.68	
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	46.35	
0000388990	LAMP 70 WATT H.P.S.	8.81	
0000389000	LAMP 100 WATT H.P.S.	8.62	
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.	10.59	
0000389400	LAMP 400 WATT H.P.S.	13.19	
0000389450	LAMP 1000W HPS	60.32	
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"	4.36	
0050091540	BOLT LAG 1/2"X 4" GALV	0.46	
0050103120	BOLT MACHINE 5/8" X 12"	1.05	
0054223510	CRIMPIT #2/0- #8 WR139	0.55	
0057151000	BRACKET 10'L	101.45	
0057152040	BRACKET 1 1/4"X4' FIXED	60.02	
0057152220	BRACKET 4'X 2' 16" TEN	27.46	
0057154060	BRACKET 1 1/4"X6' LOWER	67.32	
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'	69.88	
0057156080	BRACKET FIXED 2" X 8'	87.48	
0057157010	BRACKET TAPERED 12'L	173.80	
0057158140	PLATE POLE ST LITE 1 1/	9.46	
0057158220	PLATE POLE ST LIGHT 2"	26.24	
0057350350	LUMINAIRE LPS 135W	463.38	
0057350720	LUM LPS 180W 120/240/347 V	788.99	R04B
0057350750	LUMINAIRE LPS 180W 240V	493.30	XX
0057350800	LUMINAIRE LPS 180W 347V	780.20	XX

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057350830	LUMINAIRE HPS 70W POLY	73.33	XX
0057350835	LUM. 70W POLY C/W LAMP	99.23	XX
0057350836	LUM 70W POLY ALUM.ALLOY	97.70	XX
0057350837	LUMINAIRE 70W HPS CWA ACRYLIC	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 CWA	124.02	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 GLASS	146.03	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 GLASS	142.48	C07A
0057351400	LUMINAIRE 250W HPS CWI 347V	160.68	C05A
0057351710	LUMINAIRE HPS 400W GLAS	109.60	XX
0057351715	LUMINAIRE 400W HPS CWI 120/240	157.02	M12A
0057351720	LUMINAIRE HPS 400W 240V	204.30	XX
0057351730	LUMINAIRE HPS 400W 347V	196.00	XX
0057351760	LUMINAIRE 400W 600V HPS CWI GL	172.33	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	195.17	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	183.39	C17A
0057402240	FLOODLIGHT M.V. 175W	53.03	
0057403330	FLOODLIGHT M V 250 W	397.90	XX
0057403500	FLOODLIGHT 250W HPS CWI	184.41	
0057404050	FLOODLIGHT M V 400 W	281.17	XX
0057404600	FLOODLIGHT 400W HPS CWI	194.95	C11A
0057408250	FLOODLIGHT MTL HAL.250W	190.30	D05B
0057408500	FLOODLIGHT 400W MTL-HAL CWI	201.63	D03A
0057409000	FLOODLIGHT 1000W MH CWI	405.65	
0057409380	FLOODLIGHT M V 1000 W	439.19	XX
0057600450	BRACKET & ADAPTORS	9.40	
0057601010	CAP SHORTING TWIST LOCK	4.87	

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057601200	CONTROL 120 V PHOTO	7.05	
0057601400	CONTROL ELECT 120V PHOTOCELL	4.52	
0057602000	PHOTO CONTROL 120V HD	19.77	
0057602400	CONTROL 240V ELECT PHOTOCELL	10.96	
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	18.99	
0057604240	REFRACTOR GLASS OV15	16.00	
0057604250	REFRACTOR POLY LUM OV15	24.00	
0057604255	REFRACTOR STREETLIGHT OV	18.12	
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	214.85	
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	1.03	

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 IES Lighting Handbook, 1981 Edition
 (IES = Illuminating Engineering Society)

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.**
 This is gives a life that is consistent with previous rate calculations.

Nova Scotia Power Inc.
LED Streetlights
CCA Schedule
Millions of dollars

	1	2	3	4	5	6	7	8	9	10	11	12
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023
<u>Beginning UCC</u>												
8%	-	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304
	-	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304
<u>Additions</u>												
8%		16,924,872	17,322,621	-	-	-	-	-	-	-	-	-
	-	16,924,872	17,322,621	-	-	-	-	-	-	-	-	-
<u>CCA</u>												
8%	-	676,995	1,992,735	2,526,221	2,324,123	2,138,193	1,967,138	1,809,767	1,664,986	1,531,787	1,409,244	1,296,504
	-	676,995	1,992,735	2,526,221	2,324,123	2,138,193	1,967,138	1,809,767	1,664,986	1,531,787	1,409,244	1,296,504
<u>Ending UCC</u>												
8%	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800
	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800
Tax Rate:	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%
Tax Savings from CCA :	-	209,868	617,748	783,129	720,478	662,840	609,813	561,028	516,146	474,854	436,866	401,916

13 2024 12/31/2024	14 2025 12/31/2025	15 2026 12/31/2026	16 2027 12/31/2027	17 2028 12/31/2028	18 2029 12/31/2029	19 2030 12/31/2030	20 2031 1/1/2031	21 2032 1/2/2031	22 2033 1/3/2031	23 2034 1/4/2031	24 2035 1/5/2031	25 2036 1/6/2031	26 2037 1/7/2031	27 2038 1/8/2031	Total
14,909,800	13,717,016	12,619,654	11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	357,611,954
14,909,800	13,717,016	12,619,654	11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	357,611,954
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,247,493
1,192,784	1,097,361	1,009,572	928,807	854,502	786,142	723,251	665,390	612,159	563,187	518,132	476,681	438,547	403,463	371,186	29,978,856
1,192,784	1,097,361	1,009,572	928,807	854,502	786,142	723,251	665,390	612,159	563,187	518,132	476,681	438,547	403,463	371,186	29,978,856
13,717,016	12,619,654	11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	4,268,637	361,880,591
13,717,016	12,619,654	11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	4,268,637	361,880,591
31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	8
369,763	340,182	312,967	287,930	264,896	243,704	224,208	206,271	189,769	174,588	160,621	147,771	135,949	125,073	115,068	9,293,445

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2013

Description	Rate	Power				2013 New Proposed	2013 New Proposed	2012 Current	Percent	2013	Revenue	Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
Incandescent :														
Incandescent < 300 Watts - Note 1	001	97	\$14.43	4.25	\$1.94	\$20.62	\$6,680	\$17.54	17.5%	27	\$997	0.291	7.857	
Incandescent > 300 Watts - Note 1	002	154	22.91	4.25	2.06	\$29.22	701	\$24.55	19.0%	2	112	0.462	0.924	
Incandescent < 300 Watts - Note 1	003	97	14.43	0.00	0.00	\$14.43	<u>1,212</u> 8,594	\$11.68	23.5%	<u>7</u> 36	<u>231</u> 1,340	0.291	2.037	
Mercury Vapour :														
Mercury Vapour 100 Watts	100	43	6.40	4.25	3.22	\$13.86	38,871	\$12.71	9.1%	234	3,239	0.129	30.144	
Mercury Vapour 125 Watts	101	52	7.74	5.66	3.03	\$16.43	1,899,171	\$14.74	11.5%	9,635	195,547	0.156	1,503.026	
Mercury Vapour 175 Watts	102	69	10.27	4.25	3.00	\$17.51	484,078	\$15.52	12.8%	2,303	55,020	0.207	476.775	
Mercury Vapour 250 Watts	103	97	14.43	4.25	3.69	\$22.37	238,149	\$19.82	12.9%	887	27,173	0.291	258.184	
Mercury Vapour 400 Watts	104	154	22.91	4.25	3.77	\$30.93	319,931	\$26.78	15.5%	862	42,921	0.462	398.287	
Mercury Vapour 700 Watts	105	260	38.68	4.25	4.91	\$47.84	6,315	\$41.04	16.6%	11	897	0.780	8.580	
Mercury Vapour 1000 Watts	106	363	54.01	4.25	5.91	\$64.17	66,219	\$54.75	17.2%	86	9,718	1.089	93.654	
Mercury Vapour 250 Watt Cont. Oper.	107	212	24.49	8.49	3.69	\$36.67	1,320	\$31.61	16.0%	3	182	0.291	0.873	0.873
Mercury Vapour 125 Watts	201	52	7.74	5.66	0.00	\$13.40	1,126	\$11.12	20.6%	7	192	0.156	1.092	
Mercury Vapour 175 Watts	202	69	10.27	4.25	0.00	\$14.52	3,658	\$11.94	21.6%	21	649	0.207	4.347	
Mercury Vapour 250 Watts	203	97	14.43	4.25	0.00	\$18.68	7,844	\$15.33	21.8%	35	1,405	0.291	10.185	
Mercury Vapour 400 Watts	204	154	22.91	4.25	0.00	\$27.16	2,933	\$22.19	22.4%	9	536	0.462	4.158	
Mercury Vapour 700 Watts	205	260	38.68	4.25	0.00	\$42.93	0	\$34.97	22.8%	0	0	0.780	0.000	
Mercury Vapour 1000 Watts	206	363	54.01	4.25	0.00	\$58.26	15,379	\$47.38	23.0%	22	2,871	1.089	23.958	
Mercury Vapour 125 Watts	301	52	7.74	0.00	0.00	\$7.74	1,022	\$6.25	23.8%	11	197	0.156	1.716	
Mercury Vapour 175 Watts	302	69	10.27	0.00	0.00	\$10.27	19,349	\$8.29	23.9%	157	3,730	0.207	32.499	
Mercury Vapour 250 Watts	303	97	14.43	0.00	0.00	\$14.43	9,351	\$11.68	23.5%	54	1,782	0.291	15.714	
Mercury Vapour 400 Watts	304	154	22.91	0.00	0.00	\$22.91	4,124	\$18.54	23.6%	15	787	0.462	6.930	
Mercury Vapour 700 Watts	305	260	38.68	0.00	0.00	\$38.68	464	\$31.32	23.5%	1	88	0.780	0.780	
Mercury Vapour 1000 Watts	306	363	54.01	0.00	0.00	\$54.01	<u>4,537</u> 3,123,838	\$43.73	23.5%	7	<u>864</u> 347,798	1.089	7.623	
Fluorescent :														
Fluorescent 2x24" 70 Watts	110	30	4.46	8.49	2.47	\$15.42	166,025	\$13.82	11.6%	897	17,275	0.091	81.627	
Fluorescent 2x48" 220 Watts	111	85	12.65	8.49	2.72	\$23.86	32,639	\$20.76	14.9%	114	4,242	0.254	28.956	
Fluorescent 2x72" 300 Watts	112	116	17.26	8.49	3.17	\$28.92	23,252	\$25.09	15.2%	67	3,076	0.348	23.316	
Fluorescent 4x72" 600 Watts	113	222	33.03	8.49	4.28	\$45.80	8,243	\$39.26	16.6%	15	1,176	0.665	9.975	
Fluorescent 1x96" 110 Watts	114	47	6.99	8.49	2.99	\$18.47	1,108	\$16.52	11.8%	5	117	0.141	0.705	
Fluorescent 1x72" 150 Watts	115	60	8.93	8.49	2.62	\$20.04	240	\$17.61	13.8%	1	29	0.180	0.180	
Fluorescent 4x48" 440 Watts	116	166	24.70	8.49	3.27	\$36.46	<u>875</u> 232,383	\$31.25	16.7%	2	<u>125</u> 26,040	0.499	0.998	
Fluorescent 4x72" 600 Watts	213	222	33.03	8.49	0.00	\$41.52	0	\$34.02	22.1%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	214	47	6.99	8.49	0.00	\$15.48	4,830	\$12.95	19.6%	26	790	0.141	3.666	
Fluorescent 1x72" 150 Watts	215	60	8.93	8.49	0.00	\$17.42	627	\$14.53	19.9%	3	104	0.180	0.540	
Fluorescent 4x48" 440 Watts	216	166	24.70	8.49	0.00	\$33.19	0	\$27.32	21.5%	0	0	0.499	0.000	
Fluorescent 1x48" 120 Watts	217	49	7.29	8.49	0.00	\$15.78	189	\$13.18	19.8%	1	31	0.146	0.146	
Fluorescent 2x48" 220 Watts	218	85	12.65	8.49	0.00	\$21.14	0	\$17.54	20.5%	0	0	0.254	0.000	
Fluorescent 4x35"	330	47	6.99	0.00	0.00	\$6.99	<u>168</u>	\$5.65	23.7%	<u>2</u>	<u>32</u>	0.140	0.280	

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2013

Description	Rate	Power				2013 New Proposed	2013 New Proposed	2012 Current	Percent	2013	Revenue	Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
							5,814			32	957			
Fluorescent Crosswalk - Continuous Burning - Customer Owned :														
Fluorescent 4x72" 600 Watts	117	486	56.15	0.00	0.00	\$56.15	674	\$45.45	23.5%	1	128	0.665	0.665	0.665
Fluorescent 2x24" 70 Watts	118	66	7.62	0.00	0.00	\$7.62	1,554	\$6.16	23.7%	17	298	0.091	1.547	1.547
Fluorescent 4x48" 440 Watts	119	364	42.05	0.00	0.00	\$42.05	11,606	\$34.06	23.5%	23	2,205	0.499	11.477	11.477
Fluorescent 2x96"	120	254	29.34	0.00	0.00	\$29.34	10,562	\$23.77	23.4%	30	2,005	0.348	10.440	10.440
Fluorescent 4x96"	150	613	70.82	0.00	0.00	\$70.82	<u>17,847</u>	\$57.34	23.5%	21	<u>3,397</u>	0.840	17.640	17.640
							42,243			92	8,033			
Fluorescent Crosswalk - Photocell Burning - Customer Owned :														
Fluorescent 2x24" 70 Watts	310	30	4.46	0.00	0.00	\$4.46	107	\$3.62	23.2%	2	20	0.091	0.182	
Fluorescent 4x48" 440 Watts	311	166	24.70	0.00	0.00	\$24.70	1,482	\$20.02	23.4%	5	281	0.499	2.495	
Fluorescent 2x72" 300 Watts	312	116	17.26	0.00	0.00	\$17.26	207	\$13.99	23.4%	1	39	0.348	0.348	
Fluorescent 4x72" 600 Watts	313	222	33.03	0.00	0.00	\$33.03	0	\$26.72	23.6%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	314	47	6.99	0.00	0.00	\$6.99	2,097	\$5.65	23.7%	25	402	0.142	3.550	
Fluorescent 1x72" 150 Watts	315	60	8.93	0.00	0.00	\$8.93	0	\$7.23	23.5%	0	0	0.180	0.000	
Fluorescent 4x96"	350	280	41.66	0.00	0.00	\$41.66	<u>37,994</u>	\$33.74	23.5%	76	<u>7,223</u>	0.841	63.916	
							41,887			109	7,965			
Low Pressure Sodium :														
Low Pressure Sodium 135 Watts	130	60	8.93	12.74	5.72	\$27.39	16,215	\$25.30	8.2%	49	1,235	0.180	8.882	
Low Pressure Sodium 180 Watts	131	80	11.90	12.74	8.23	\$32.86	178,063	\$30.97	6.1%	452	10,258	0.240	108.367	
Low Pressure Sodium 90 Watts	132	45	6.70	12.74	5.72	\$25.16	0	\$23.48	7.1%	0	0	0.135	0.000	
Low Pressure Sodium 180 Watts E&M	231	80	11.90	12.74	0.00	\$24.64	11,530	\$20.59	19.7%	39	1,895	0.240	9.360	
Low Pressure Sodium 180 Watts E/O	331	80	11.90	0.00	0.00	\$11.90	<u>5,284</u>	\$9.64	23.4%	<u>37</u>	<u>1,003</u>	0.240	8.880	
							211,091			577	14,391			
High Pressure Sodium :														
High Pressure Sodium 250 Watts	121	100	14.88	4.25	3.23	\$22.36	1,078,319	\$19.59	14.1%	4,019	133,609	0.300	1,205.721	
High Pressure Sodium 400 Watts	122	150	22.32	4.25	3.35	\$29.91	972,387	\$25.75	16.1%	2,709	135,134	0.450	1,219.128	
High Pressure Sodium 70 Watts	123	32	4.76	4.25	3.05	\$12.05	4,844,431	\$11.14	8.2%	33,496	368,274	0.096	3,215.614	
High Pressure Sodium 100 Watts	124	45	6.70	4.25	3.07	\$14.02	6,795,488	\$12.74	10.0%	40,402	620,069	0.135	5,454.262	
High Pressure Sodium 150 Watts	125	65	9.67	4.25	3.24	\$17.16	1,004,512	\$15.38	11.6%	4,879	104,106	0.195	951.464	
HP Sodium 100 Watts - Cont. Oper.	126	99	11.44	8.49	3.07	\$23.00	4,140	\$20.22	13.8%	15	501	0.135	2.025	2.025
High Pressure Sodium 250 Watts	221	100	14.88	4.25	0.00	\$19.13	39,245	\$15.70	21.8%	171	7,031	0.300	51.300	
High Pressure Sodium 70 Watts	222	32	4.76	4.25	0.00	\$9.01	27,880	\$7.49	20.2%	258	4,695	0.096	24.768	
High Pressure Sodium 100 Watts	223	45	6.70	4.25	0.00	\$10.95	17,731	\$9.06	20.8%	135	3,056	0.135	18.225	
High Pressure Sodium 150 Watts	224	65	9.67	4.25	0.00	\$13.92	38,406	\$11.48	21.2%	230	6,725	0.195	44.850	
High Pressure Sodium 250 Watts	321	100	14.88	0.00	0.00	\$14.88	172,132	\$12.05	23.5%	964	32,737	0.300	289.200	
High Pressure Sodium 70 Watts	322	32	4.76	0.00	0.00	\$4.76	341,463	\$3.84	24.0%	5,978	65,997	0.096	573.888	
High Pressure Sodium 100 Watts	323	45	6.70	0.00	0.00	\$6.70	191,111	\$5.41	23.8%	2,377	36,796	0.135	320.895	
High Pressure Sodium 150 Watts	324	65	9.67	0.00	0.00	\$9.67	14,505	\$7.83	23.5%	125	2,760	0.195	24.375	
High Pressure Sodium 400 Watts	326	150	22.32	0.00	0.00	\$22.32	23,838	\$18.07	23.5%	89	4,539	0.450	40.050	
High Pressure Sodium 500 Watts	327	183	27.23	0.00	0.00	\$27.23	980	\$22.05	23.5%	3	186	0.550	1.650	
High Pressure Sodium 1000 Watts	328	363	54.01	0.00	0.00	\$54.01	9,074	\$43.74	23.5%	14	1,725	1.090	15.260	
High Pressure Sodium 1500 Watts	329	500	74.39	0.00	0.00	\$74.39	893	\$60.23	23.5%	<u>1</u>	<u>170</u>	1.090	1.090	
							15,576,535			95,865	1,527,940			

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2013

Description	Rate	Power				2013 New Proposed	2013 New Proposed	2012 Current	Percent	2013	Revenue	Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
Metallic Additive :														
Metallic Arc 400 Watts	140	150	22.32	6.79	3.80	\$32.92	446,060	\$28.54	15.3%	1,129	59,312	0.450	508.179	
Metallic Arc 1000 Watts	141	360	53.56	10.19	5.50	\$69.25	815,207	\$58.97	17.4%	981	121,065	1.080	1,059.480	
Metallic Arc 250 Watts	142	100	14.88	10.19	3.75	\$28.82	32,096	\$25.36	13.6%	93	3,844	0.300	27.847	
Metallic Arc 150 Watts	143	67	9.97	10.19	3.75	\$23.91	1,147	\$21.37	11.8%	4	121	0.200	0.800	
Metallic Arc 100 Watts	144	50	7.44	10.19	3.75	\$21.38	1,672	\$19.33	10.6%	7	160	0.150	0.978	
Metallic Arc 1000 Watts	341	360	53.56	0	0	\$53.56	14,140	\$43.37	23.5%	22	2,690	1.080	23.760	
Metallic Arc 400 Watts	342	150	22.32	0	0	\$22.32	42,587	\$18.07	23.5%	159	8,109	0.450	71.550	
Metallic Arc 250 Watts	343	100	14.88	0	0	\$14.88	14,999	\$12.05	23.5%	84	2,853	0.300	25.200	
Metallic Arc 175 Watts	344	75	11.16	0	0	\$11.16	14,999	\$9.03	23.6%	112	2,863	0.225	25.200	
Metallic Arc 150 Watts	345	67	9.97	0	0	\$9.97	2,393	\$8.06	23.7%	20	458	0.200	4.000	
Metallic Arc 100 Watts	346	50	7.44	0	0	\$7.44	0	\$6.02	23.6%	0	0	0.150	0.000	
							1,385,300			2,611	201,475			
Light Emitting Diode - Traffic Lights														
Light Emitting Diode 4.6 Watts	530	3	0.36	0	0	\$0.36	0	\$0.29	24.1%		0		0.000	
Light Emitting Diode 7.5 Watts	531	5	0.61	0	0	\$0.61	0	\$0.49	24.5%		0		0.000	
							0							
Light Emitting Diode (Energy Only)														
Lighting Emitting Diode 44 Watts	532	15	2.23	0	0	\$2.23	46,348	\$1.81	23.2%	1,732	8,729	0.440	762.080	
Lighting Emitting Diode 66 Watts	533	22	3.27	0	0	\$3.27	5,415	\$2.65	23.4%	138	1,027	0.660	91.080	
Lighting Emitting Diode 88 Watts	534	29	4.31	0	0	\$4.31	26,532	\$3.49	23.5%	513	5,048	0.880	451.440	
Lighting Emitting Diode 92 Watts	535	31	4.61	0	0	\$4.61	0	\$3.73	23.6%	0	0	0.920	0.000	
Lighting Emitting Diode 105 Watts	536	35	5.21	0	0	\$5.21	0	\$4.22	23.5%	0	0	0.105	0.000	
Lighting Emitting Diode 170 Watts	537	57	8.48	0	0	\$8.48	0	\$6.87	23.4%	0	0	0.170	0.000	
Lighting Emitting Diode 110 Watts	539	37	5.50	0	0	\$5.50	172,194	\$4.46	23.3%	2,609	32,560	0.110	286.990	
Lighting Emitting Diode 65 Watts	540	22	3.27	0	0	\$3.27	18,207	\$2.65	23.4%	464	3,452	0.650	301.600	
Lighting Emitting Diode 55 Watts	541	18	2.68	0	0	\$2.68	23,670	2.17	23.5%	736	4,504	0.550	404.800	
Lighting Emitting Diode 83 Watts	542	28	4.17	0	0	\$4.17	51,992	3.37	23.7%	1,039	9,974	0.830	862.370	
Lighting Emitting Diode 48 Watts	543	16	2.38	0	0	\$2.38	2,056	1.93	23.3%	72	389	0.830	59.760	
Lighting Emitting Diode 72 Watts	544	24	3.57	0	0	\$3.57	13,195	2.89	23.5%	308	2,513	0.830	255.640	
							359,610			7,611				
Light Emitting Diode (Energy & Capital)														
LED A1	615	15	2.23	0	9.82	\$12.05	803,024	8.65	39.2%	5,555	226,262	0.830	4,610.728	
LED A2	616	18	2.68	0	9.82	\$12.50	238,111	9.04	38.2%	1,588	65,818	0.830	1,317.933	
LED A4	617	25	3.72	0	9.82	\$13.54	61,618	9.97	35.7%	379	16,224	0.830	314.848	
LED A3	618	29	4.31	0	9.82	\$14.13	1,378	10.49	34.6%	8	354	0.830	6.745	
LED B1	619	22	3.27	0	9.82	\$13.09	1,045,305	11.75	11.4%	6,656	106,946	0.830	5,524.856	
LED C1	620	29	4.31	0	9.82	\$14.13	173,599	13.82	2.2%	1,024	3,716	0.830	849.988	
LED C3	621	37	5.50	0	9.82	\$15.32	142,287	14.88	2.9%	774	4,017	0.830	642.549	
LED C2	622	58	8.63	0	9.82	\$18.45	150,050	17.65	4.5%	678	6,446	0.830	562.628	
							2,615,372			16,663				
TOTALS							\$23,602,666			139,057			35,794.276	44.667

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE JANUARY 1, 2013

Description	Rate		Power			2013 New Proposed	2013 New Proposed	2012 Current	Percent Change	2013	Revenue Variance	Connected Load (kW)	Total Load (kW)	Continuous Load (kW)
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates		Units				
										122,394				
Non LED										114,783				
LED										<u>24,274</u>				
Total										139,057				
Non LED														
Energy Only										103,386				
Maintenance										957				
Capital										10,440				
Total										114,783				
LED														
Energy Only										7,611				
Capital										<u>16,663</u>				
Total										24,274				
Grand Total										139,057				

Count = 105

Note 1 - Red highlighted P&E charges relate to calculated rounding differences using Misc. Small Loads Tariff.
Note 2 - 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			
Miscellaneous Small Loads Rate			
Demand Charge	\$/kW	9.339	
Block 1 Energy			
Base cost of fuel	c/kWh	5.087	
Non-fuel	c/kWh	5.593	
AA	c/kWh	-	
BA	c/kWh	-	
Total Energy Charge, block 1 (first 200kWh * dem	c/kWh	10.680	
Block 2 Energy			
Base cost of fuel	c/kWh	5.087	
Non-fuel	c/kWh	2.004	
AA	c/kWh	-	
BA	c/kWh	-	
Total Energy Charge, block 2	c/kWh	7.091	
Photocell Operation (4000 burning hours per year)			
Demand Charge \$/kW (annual)		11.534	\$138.41
Energy Charge :			
1st Block : 1st 200 kW.h (annual)		2,400	0.13191 316.58
2nd Block : All additional (annual)		1,600	0.08758 <u>140.13</u>
			\$595.12
Rate per kW.h		4,000	<u>\$0.1487808</u>
Continuous Burning (8760 burning hours per year)			
Demand Charge \$/kW (annual)		11.534	\$138.41
Energy Charge :			
1st Block : 1st 200 kW.h (annual)		2,400	0.13191 316.58
2nd Block : All additional (annual)		6,360	0.08758 <u>557.01</u>
			\$1,012.00
Rate per kW.h		8,760	<u>\$0.1155256</u>

STREET / CROSSWALK LIGHTING STUDY

Rate Code	Description	MARCH 2013 (Quantity)				FORECAST 2014 (Quantity)				Full Charge Adj. for LED Conv.
		Full Charge	Energy & Maint	Energy Only	Total	Full Charge	Energy & Maint	Energy Only	Total	
001/003	Incandescent < 300 Watts	27	0	7	34	27	0	7	34	27
002	Incandescent > 300 Watts	2	0	0	2	2	0	0	2	2
		29	0	7	36	29	0	7	36	29
100	Mercury Vapour 100 Watts	216	0	0	216	216	0	0	216	189
101/201/301	Mercury Vapour 125 Watts	8,921	7	11	11,240	8921	7	11	8939	7778
102/202/302	Mercury Vapour 175 Watts	2,133	21	157	2,861	2133	21	157	2311	1859
103/203/303	Mercury Vapour 250 Watts	821	35	54	1,122	821	35	54	910	716
104/204/304	Mercury Vapour 400 Watts	798	9	15	1,028	798	9	15	822	696
105/205/305	Mercury Vapour 700 Watts	11	0	1	12	11	0	1	12	11
106/206/306	Mercury Vapour 1000 Watts	86	22	7	115	86	22	7	115	86
107	Mercury Vapour 250 Watt Cont. Oper.	3	0	0	3	3	0	0	3	3
		12,989	94	245	16,653	12989	94	245	13328	11338
110	Fluorescent 2x24" 70 Watts	897	0	0	897	897	0	0	897	897
111	Fluorescent 2x48" 220 Watts	114	0	0	114	114	0	0	114	114
112	Fluorescent 2x72" 300 Watts	67	0	0	67	67	0	0	67	67
113/213	Fluorescent 4x72" 600 Watts	15	0	0	15	15	0	0	15	15
114/214	Fluorescent 1x96" 110 Watts	5	26	0	31	5	26	0	31	5
115/215	Fluorescent 1x72" 150 Watts	1	3	0	4	1	3	0	4	1
116	Fluorescent 4x48" 440 Watts	2	0	0	2	2	0	0	2	2
217	Fluorescent 1x48"	0	1	0	1	0	1	0	1	0
218	Fluorescent 2x48"	0	0	0	0	0	0	0	0	0
330	Fluorescent 4x35"	0	0	2	2	0	0	2	2	0
350	Fluorescent 4x96"	0	0	76	76	0	0	76	76	0
		1,101	30	78	1,209	1101	30	78	1209	1,101
117	Fluorescent Crosswalk Cont. 4x72"	0	0	1	1	0	0	1	1	0
118	Fluorescent Crosswalk Cont. 2x24"	0	0	17	17	0	0	17	17	0
119	Fluorescent Crosswalk Cont. 4x48"	0	0	23	23	0	0	23	23	0
120	Fluorescent Crosswalk Cont. 2x96"	0	0	30	30	0	0	30	30	0
150	Fluorescent Crosswalk Cont. 4x96"	0	0	21	21	0	0	21	21	0
		0	0	92	92	0	0	92	92	0
310	Fluorescent Crosswalk 2x24"	0	0	2	2	0	0	2	2	0
311	Fluorescent Crosswalk 4x48"	0	0	5	5	0	0	5	5	0
312	Fluorescent Crosswalk 2x72"	0	0	1	1	0	0	1	1	0
313	Fluorescent Crosswalk 4x72"	0	0	0	0	0	0	0	0	0
314	Fluorescent Crosswalk 1x96"	0	0	25	25	0	0	25	25	0
315	Fluorescent Crosswalk 1x72"	0	0	0	0	0	0	0	0	0
		0	0	33	33	0	0	33	33	0
121/221/321	High Pressure Sodium 250 Watts	3,721	171	964	5,816	3721	171	964	4856	3,244
122/326	High Pressure Sodium 400 Watts	2,508	0	89	3,244	2508	0	89	2597	2,187
123/222/322	High Pressure Sodium 70 Watts	31,013	258	5,978	45,249	31013	258	5978	37249	27,040
124/223/323	High Pressure Sodium 100 Watts	37,406	135	2,377	49,570	37406	135	2377	39918	32,612
125/224/324	High Pressure Sodium 150 Watts	4,518	230	125	6,038	4518	230	125	4873	3,939
126	HP Sodium 100 Watts - Cont. Oper.	15	0	0	15	15	0	0	15	15
327	High Pressure Sodium 500 Watts	0	0	3	3	0	0	3	3	0
328	High Pressure Sodium 1000 Watts	0	0	14	14	0	0	14	14	0
329	High Pressure Sodium 1500 Watts	0	0	1	1	0	0	1	1	0
		79,181	794	9,551	109,950	79181	794	9551	89526	69,038
130	Low Pressure Sodium 135 Watts	46	0	0	58	46	0	0	46	40
131/231/331	Low Pressure Sodium 180 Watts	418	39	37	602	418	39	37	494	365
132	Low Pressure Sodium 90 Watts	0	0	0	0	0	0	0	0	0
		464	39	37	660	464	39	37	540	404
140/342	Metallic Arc 400 Watts	1,046	0	159	1,474	1046	0	159	1205	912
141/341	Metallic Arc 1000 Watts	981	0	22	1,003	981	0	22	1003	981
142/343	Metallic Arc 250 Watts	86	0	84	193	86	0	84	170	74
143	Metallic Arc 150 Watts	4	0	0	4	4	0	0	4	4
144	Metallic Arc 100 Watts	5	0	0	7	5	0	0	5	4
344	Metallic Arc 175 Watts	0	0	112	112	0	0	112	112	0
345	Metallic Arc 150 Watts	0	0	20	20	0	0	20	20	0
346	Metallic Arc 100 Watts	0	0	0	0	0	0	0	0	0
		2,121	0	397	2,813	2121	0	397	2518	1,975
532/538	LED 44 Watts	0	0	1,732	1,732	0	0	1732	1732	0
539	LED 110 Watts	0	0	2,609	2,609	0	0	2609	2609	0
533	LED 66 Watts	0	0	138	138	0	0	138	138	0
534	LED 88 Watts	0	0	513	513	0	0	513	513	0
537	LED 173 Watts	0	0	38	38	0	0	38	38	0
540	LED 65 Watts	0	0	464	464	0	0	464	464	0
541	LED 55 Watts	0	0	736	736	0	0	736	736	0
542	LED 83 Watts	0	0	1,039	1,039	0	0	1039	1039	0
543	LED 48 Watts	0	0	72	72	0	0	72	72	0
544	LED 72 Watts	0	0	308	308	0	0	308	308	0
	Total	0	0	7,649	7,649	0	0	7649	7649	0
SAT-48		20,572	0	0	0	20,572	0	0	20572	30,789
SAT-72		2,608	0	0	0	2,608	0	0	2608	3,903
SAT-96		983	0	0	0	983	0	0	983	1,471
Total		24,163	0	0	0	24,163	0	0	24163	36,163
Total		120,048	957	18,089	139,095	120,048	957	18,089	139,094	120,048

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

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
<u>Code</u>	<u>Lamp Type</u>	<u>Service Life (Years)</u>	<u>Maintenance Weighting Factors</u>	<u># of Full Chg & Eng.+Maint. Fixtures</u>	<u>Weighting Total</u>	<u>Cost Per Year</u>	<u>Cost Per Month</u>
A	Mercury Vapour	6.000	1.0000	3,676	3,676	\$63.68	\$5.31
B	Mercury Vapour - 125W	4.500	1.3333	7,785	10,380	\$84.90	\$7.08
C	Fluorescent	3.000	2.0000	1,131	2,262	\$127.35	\$10.61
D	High Pressure Sodium (Note1)	6.000	1.0000	69,847	69,847	\$63.68	\$5.31
E	Metallic Arc 100W, 150W & 250W	2.500	2.4000	83	198	\$152.82	\$12.74
F	Metallic Arc 400W	3.750	1.6000	912	1,459	\$101.88	\$8.49
G	Metallic Arc 1000W	2.500	2.4000	981	2,354	\$152.82	\$12.74
H	Low Pressure Sodium	2.000	3.0000	443	1,330	\$191.03	\$15.92
I	LED	20.000	0.3000	<u>0</u>	<u>0</u>	\$19.10	\$1.59
				84,857	91,506		

Street Lighting Maint. Expenses

(from 2014 COSS, Exhibit 6A) **\$5,826,697**

Annual Cost of High Pressure Sodium

(\$5,826,697.32 / 91505.5890121691 weighted fixtures) **\$63.68**

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

STREET / CROSSWALK LIGHTING STUDY

CAPITAL COST

Gross Plant Value (including installation costs) less Retirements of
 Non-LED Street Lighting Equipment, 2013 Average ----->

Total
\$35,521,858

Description	Unit Cost Mar/1977	Unit Cost Mar-11	Historical 11-Mar Fixtures	Average # of Fixtures beginning of Year	Avg # of Fixtures End of Year	Total Value
Incandescent < 300 Watts	\$51.36	\$64.20	27	27	27	\$1,733
Incandescent > 300 Watts	\$63.62	\$79.53	2	2	2	\$159
Mercury Vapour 100 Watts	\$76.55	\$229.55	216	216	189	\$49,664
Mercury Vapour 125 Watts	\$77.16	\$204.78	8,921	8,921	7,778	\$1,826,771
Mercury Vapour 175 Watts	\$85.30	\$201.27	2,133	2,133	1,859	\$429,217
Mercury Vapour 250 Watts	\$87.24	\$291.38	821	821	716	\$239,354
Mercury Vapour 400 Watts	\$107.82	\$301.45	798	798	696	\$240,614
Mercury Vapour 700 Watts	\$485.12	\$449.78	11	11	11	\$4,948
Mercury Vapour 1000 Watts	\$492.29	\$579.25	86	86	86	\$49,816
Mercury Vapour 250 Watt Cont. Oper.	\$87.24	\$291.38	3	3	3	\$874
Fluorescent 2x24" 70 Watts	\$106.44	\$133.05	897	897	897	\$119,346
Fluorescent 2x48" 220 Watts	\$131.91	\$164.89	114	114	114	\$18,797
Fluorescent 2x72" 300 Watts	\$178.72	\$223.40	67	67	67	\$14,968
Fluorescent 4x72" 600 Watts	\$293.72	\$367.15	15	15	15	\$5,507
Fluorescent 1x96" 110 Watts	\$160.00	\$200.00	5	5	5	\$1,000
Fluorescent 1x72" 150 Watts	\$121.22	\$151.53	1	1	1	\$152
Fluorescent 4x48" 440 Watts	\$188.91	\$236.14	2	2	2	\$472
High Pressure Sodium 70 Watts	N/A	\$207.51	31,013	31,013	27,040	\$6,435,494
High Pressure Sodium 100 Watts	N/A	\$210.65	37,421	37,421	32,627	\$7,882,559
High Pressure Sodium 150 Watts	N/A	\$232.66	4,518	4,518	3,939	\$1,051,088
High Pressure Sodium 250 Watts	\$156.49	\$231.67	3,721	3,721	3,244	\$862,095
High Pressure Sodium 400 Watts	\$173.73	\$246.21	2,508	2,508	2,187	\$617,586
High Pressure Sodium 1000 Watts	N/A	\$615.53	0	0	0	\$0
Low Pressure Sodium 90 Watts	N/A	\$554.53	0	0	0	\$0
Low Pressure Sodium 135 Watts	\$371.69	\$554.53	46	46	40	\$25,334
Low Pressure Sodium 180 Watts	\$226.10	\$880.14	418	418	365	\$367,949
Metallic Additive 250 Watts	N/A	\$298.33	90	90	78	\$26,744
Metallic Additive 400 Watts	\$358.84	\$305.76	1,046	1,046	912	\$319,693
Metallic Additive 1000 Watts	\$560.49	\$526.16	981	981	981	\$516,159
Metallic Additive 100 Watts	N/A		5	5	4	\$0
			95,885	95,885	83,885	21,108,091
						\$14,413,767
						\$171.83

Total # of light types being displaced by LED 93,674 93,674
 Total Installation Costs (Labour)

Installation Costs per Fixture

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

Note: 2007 costs are based on stores material inventory cost as of June 2007 with the exception
 of Incandescent and fluorescent which have been assumed at 130% of 1977 costs.

Sample Material Cost - 100 Watt High Intensity (Pressure) Sodium :
 Inventory Prices as of March 2011

Fixture, Ballast & Photocell	\$124.02
Bracket Assembly (Davit)	67.32
Wire	16.71
Miscellaneous Hardware	2.60
Lamp Replacement	8.62
TOTAL	\$219.27

STREET / CROSSWALK LIGHTING STUDY

Capital Cost Rate Component Calculation

	Non Led	LED
Depreciation Rate for 2013	5.33%	5.33%
# of Years	18.76	18.76
Tax Adjusted Weighted Average Cost of Capital	10.47%	9.38%
Pre-tax WACC	7.83%	7.83%
Tax-related Gross-up Depreciation factor	31.00%	31.00%
Salvage Rate (% of Depreciation)	0.00%	0.00%
Salvage Rate incl in Depr. Rate for 2013	0.00%	0.00%
# of Years	N/A	N/A

	Revenue Correction factor Non LED	LED
Simulated at current meth.	\$5,988,194	\$3,846,850
Total cost per COSS (and adjusted for energy)	\$3,274,850	\$4,340,815
Revenue Correction Factor	0.5469	1.1284

	Before Correction Factor			Correction Factor	Aligned with COSS results		2013 Forecast									
	Material Cost January 2010	Labour Cost	Total		Depreciation Expense	Cost of Capital	CCA Benefit	Total Cost	Total		Total					
									Annual Cost	Monthly Cost	# of fixtures	depreciation expense	cost of capital	CCA	revenue	Annual scaled
Incandescent < 300 Watts	\$64.20	171.83	\$236.03	\$18.23	\$24.71	\$0.00	\$42.94	0.547	\$23.49	\$1.96	27	492.27	667.23		1,159.50	634.11
Incandescent > 300 Watts	79.53	171.83	251.35	\$19.42	\$26.32	\$0.00	45.73	0.547	\$25.01	2.08	2	38.83	52.63		91.47	50.02
Mercury Vapour 100 Watts	229.55	171.83	401.37	\$31.00	\$42.02	\$0.00	73.03	0.547	\$39.94	3.33	189	5,848.73	7,927.38		13,776.11	7,533.94
Mercury Vapour 125 Watts	204.78	171.83	376.61	\$29.09	\$39.43	\$0.00	68.52	0.547	\$37.47	3.12	7,778	226,270.05	306,687.19		532,957.23	291,466.00
Mercury Vapour 175 Watts	201.27	171.83	373.10	\$28.82	\$39.06	\$0.00	67.88	0.547	\$37.12	3.09	1,859	53,587.24	72,632.33		126,219.58	69,027.52
Mercury Vapour 250 Watts	291.38	171.83	463.20	\$35.78	\$48.50	\$0.00	84.28	0.547	\$46.09	3.84	716	25,627.23	34,735.23		60,362.45	33,011.28
Mercury Vapour 400 Watts	301.45	171.83	473.28	\$36.56	\$49.55	\$0.00	86.11	0.547	\$47.09	3.92	696	25,442.77	34,485.21		59,927.98	32,773.68
Mercury Vapour 700 Watts	449.78	171.83	621.61	\$48.02	\$65.08	\$0.00	113.10	0.547	\$61.85	5.15	11	528.19	715.91		1,244.09	680.38
Mercury Vapour 1000 Watts	579.25	171.83	751.08	\$58.02	\$78.64	\$0.00	136.66	0.547	\$74.74	6.23	86	4,989.57	6,762.88		11,752.45	6,427.23
Mercury Vapour 250 Watt Cont. Oper.	291.38	171.83	463.20	\$35.78	\$48.50	\$0.00	84.28	0.547	\$46.09	3.84	3	107.34	145.49		252.83	138.27
Fluorescent 2x24" 70 Watts	133.05	171.83	304.88	\$23.55	\$31.92	\$0.00	55.47	0.547	\$30.34	2.53	897	21,124.97	28,632.85		49,757.82	27,211.77
Fluorescent 2x48" 220 Watts	164.89	171.83	336.72	\$26.01	\$35.25	\$0.00	61.26	0.547	\$33.50	2.79	114	2,965.14	4,018.96		6,984.11	3,819.50
Fluorescent 2x72" 300 Watts	223.40	171.83	395.23	\$30.53	\$41.38	\$0.00	71.91	0.547	\$39.33	3.28	67	2,045.50	2,772.48		4,817.98	2,634.88
Fluorescent 4x72" 600 Watts	367.15	171.83	538.98	\$41.63	\$56.43	\$0.00	98.07	0.547	\$53.63	4.47	15	624.51	846.46		1,470.98	804.45
Fluorescent 1x96" 110 Watts	200.00	171.83	371.83	\$28.72	\$38.93	\$0.00	67.65	0.547	\$37.00	3.08	5	143.61	194.65		338.26	184.99
Fluorescent 1x72" 150 Watts	151.53	171.83	323.35	\$24.98	\$33.86	\$0.00	58.83	0.547	\$32.17	2.68	1	24.98	33.86		58.83	32.17
Fluorescent 4x48" 440 Watts	236.14	171.83	407.97	\$31.51	\$42.71	\$0.00	74.23	0.547	\$40.59	3.38	2	63.03	85.43		148.46	81.19
High Pressure Sodium 70 Watts	207.51	171.83	379.34	\$29.30	\$39.72	\$0.00	69.02	0.547	\$37.75	3.15	27,040	792,341.06	1,073,941.75		1,866,282.81	1,020,640.98
High Pressure Sodium 100 Watts	210.65	171.83	382.47	\$29.54	\$40.04	\$0.00	69.59	0.547	\$38.06	3.17	32,627	963,959.25	1,306,553.62		2,270,512.86	1,241,708.09
High Pressure Sodium 150 Watts	232.66	171.83	404.49	\$31.25	\$42.35	\$0.00	73.60	0.547	\$40.25	3.35	3,939	123,072.73	166,813.19		289,885.92	158,534.09
High Pressure Sodium 250 Watts	231.67	171.83	403.50	\$31.17	\$42.25	\$0.00	73.42	0.547	\$40.15	3.35	3,244	101,126.64	137,067.39		238,194.03	130,264.60
High Pressure Sodium 400 Watts	246.21	171.83	418.04	\$32.29	\$43.77	\$0.00	76.06	0.547	\$41.60	3.47	2,187	70,623.39	95,723.18		166,346.57	90,972.35
High Pressure Sodium 1000 Watts	615.53	171.83	787.36	\$60.82	\$82.44	\$0.00	143.26	0.547	\$78.35	6.53	-	-	-		-	-
Low Pressure Sodium 90 Watts	554.53	171.83	726.36	\$56.11	\$76.05	\$0.00	132.16	0.547	\$72.28	6.02	-	-	-		-	-
Low Pressure Sodium 135 Watts	554.53	171.83	726.36	\$56.11	\$76.05	\$0.00	132.16	0.547	\$72.28	6.02	40	2,234.93	3,029.23		5,264.16	2,878.89
Low Pressure Sodium 180 Watts	880.14	171.83	1,051.97	\$81.26	\$110.14	\$0.00	191.40	0.547	\$104.67	8.72	365	29,619.72	40,146.67		69,766.40	38,154.16
Metallic Arc 250 Watts	298.33	171.83	470.15	\$36.32	\$49.23	\$0.00	85.54	0.547	\$46.78	3.90	78	2,838.65	3,847.51		6,686.16	3,656.56
Metallic Arc 400 Watts	305.76	171.83	477.59	\$36.89	\$50.00	\$0.00	86.90	0.547	\$47.52	3.96	912	33,631.79	45,584.64		79,216.43	43,322.23
Metallic Arc 1000 Watts	\$526.16	171.83	\$697.98	\$53.92	\$73.08	\$0.00	\$127.00	0.547	\$69.45	\$5.79	981	52,892.29	71,690.39		124,582.68	68,132.33
Metallic Additive 100 Watts	\$0.00	171.83	\$171.83	\$13.27	\$17.99	\$0.00	\$31.26	0.547	\$17.10	\$1.42	4	57.86	78.43		136.29	74.54
Total											83,885	\$2,542,322	\$3,445,872		\$5,988,194	\$3,274,850

	Before Correction Factor			Correction Factor	Aligned with COSS results		2013 Forecast									
	Material Cost January 2010	Labour Cost	Total		Depreciation Expense	Cost of Capital	CCA Benefit	Total Cost	Total		Total					
									Annual Cost	Monthly Cost	# of fixtures	depreciation expense	cost of capital	CCA	revenue	Annual scaled
LED A	\$420.00	\$301.78	\$721.78	\$55.75	\$67.70	-\$17.08	106.38	1.128	\$120.03	10.00	30,789	1,716,622.46	2,084,488.53	(525,943.92)	3,275,167.07	3,695,723.86
LED B	\$420.00	\$301.78	\$721.78	\$55.75	\$67.70	-\$17.08	106.38	1.128	\$120.03	10.00	3,903	217,612.68	264,246.31	(66,672.82)	415,186.16	468,499.28
LED C	\$420.00	\$301.78	\$721.78	\$55.75	\$67.70	-\$17.08	106.38	1.128	\$120.03	10.00	1,471	82,025.13	99,602.82	(25,131.10)	156,496.85	176,592.26
Total											36,163	\$2,016,260	\$2,448,338	-\$617,748	\$3,846,850	\$4,340,815

STREET / CROSSWALK LIGHTING STUDY

**Tax-Adjusted Weighted Average Cost of Capital Rate by Components
For 2014 Street Light Rates**

a) Weighted Average Cost of Capital - Pretax				Non-LED		LED
	Proportion	Cost	Extended		Extended	
ST Debt	6.7%	6.1%	0.4%	0.41%	0.4%	0.41%
LT Debt	52.1%	7.2%	3.8%	3.75%	3.8%	3.75%
Preferred	3.7%	6.0%	0.2%	0.22%	0.2%	0.22%
Common	37.5%	9.2%	3.5%	3.45%	3.5%	3.45%
	100.0%		7.8%		7.8%	
WACC - pretax cost				7.83%		7.83%
b) Additional income tax for common equity						
			3.45%		3.45%	
			31.0%		31.0%	
			1.55%		1.55%	
WACC - equity tax cost				1.55%		1.55%
c) Large Corporations Tax						
			0.000%		0.000%	
			0.000%		0.000%	
			\$10,251		\$24,256	
			718.137		1,699.360	
			<u>710.082</u>		<u>1,680.297</u>	
			\$11,678.828		\$27,636.116	
			\$0.000		\$0.000	
			\$0.000		\$0.000	
			\$0.000		\$0.000	
			0.00%		0.00%	
WACC - Large Corporations Tax				0.00%		0.00%
d) Grants in Lieu of Property Tax						
			\$38.400		N/A	
			331.58%		N/A	
			\$127.327		N/A	
			1.09%		N/A	
WACC - Grants in Lieu of Property Tax				1.09%		0.00%
Total WACC - Interest / Carrying Cost				10.47%		9.38%

STREET / CROSSWALK LIGHTING STUDY

Tax-Adjusted Weighted Average Cost of Capital Amounts by Components

For 2014 Street Light Rates

Depreciation Rate	5.33%
Salvage Rate	0.00%
Salvage Incl. in Depreciation Rate	0.00%
Gross-up factor for tax purposes (LED only)	31.00%

	<u>Non LED</u>	<u>Non LED</u>	<u>LED</u>	<u>Year 2</u>
Gross Plant Value (YA)		\$35,522	\$25,586	
Net Plant Value (YA)		\$10,251	\$24,256	6,749
a) Weighted Average Cost of Capital - Pretax				
ST Debt	0.41%		99	27
LT Debt	3.75%		<u>910</u>	<u>253</u>
Subtotal		400	1,009	281
Preferred	0.22%	\$22.8	54	15
Common	<u>3.45%</u>	<u>\$344.5</u>	<u>837</u>	<u>233</u>
WACC - pretax cost	7.83%	\$766.9	\$1,899	\$529
b) Additional income tax for common equity				
WACC - equity tax cost	1.55%		376	105
c) Large Corporations Tax				
WACC - Large Corporations Tax	0.00%		0	0
Subtotal		\$161.2	376	105
d) Grants in Lieu of Property Tax				
WACC - Grants in Lieu of Property Tax	1.09%	\$106.5	0	74
Subtotal Financing Expense	10.47%	\$1,034.5	\$2,275.4	\$706.7
Depreciation Expense		\$2,240.326	\$1,364	\$0.0
Gross up for Tax Purposes			\$612.7	\$0.0
Total Depreciation Expense including Gross up for Tax Purposes		\$2,240.3	\$1,976.4	\$0.0
CCA		\$0.0	-\$617.7	\$0.0
TOTAL CAPITAL COST EXPENSE		\$3,274.9	\$3,634.101	\$706.715

STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
 March 2011

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	\$229.55	\$122.41	\$15.99	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 125 Watts	\$204.78	\$102.95	\$10.68	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 175 Watts	\$201.27	\$102.95	\$7.17	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$301.45	\$198.75	\$8.98	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 700 Watts	\$449.78	\$318.97	\$37.10	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$579.25	\$439.19	\$46.35	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watt Cont. Oper.	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
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	\$207.51	\$120.88	\$8.81	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 100W	\$210.65	\$124.02	\$8.62	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 150W	\$232.66	\$146.03	\$8.67	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 250 Watts	\$231.67	\$142.48	\$10.59	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
High Pressure Sodium 400 Watts	\$246.21	\$157.02	\$13.19	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 90W	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 135 Watts	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 180 Watts	\$880.14	\$788.99	\$54.77	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Metallic Additive 250W	\$298.33	\$190.30	\$18.83	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 400 Watts	\$305.76	\$201.63	\$14.93	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$526.16	\$405.65	\$31.31	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
LED A	\$420.00							
LED B	\$420.00							
LED C	\$420.00							

Light Type Flood Lights	Material Cost	Fixture	Lamp	Photocell	Davit	Wire	Connectors	Fasteners
Mercury Vapour 175 Watts	\$67.32	\$53.03	\$7.17	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$412.88	\$397.90	\$7.86	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$297.27	\$281.17	\$8.98	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$507.90	\$439.19	\$46.35	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
HIS 150W	\$215.75	\$183.39	\$25.23	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 250 Watts	\$202.12	\$184.41	\$10.59	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 400 Watts	\$215.26	\$194.95	\$13.19	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Additive 250W	\$216.25	\$190.30	\$18.83	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 400 Watts	\$223.69	\$201.63	\$14.93	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$459.33	\$405.65	\$31.31	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 70W HPS	\$197.77	\$195.17	\$8.81	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 100W HPS	\$143.10	\$140.50	\$8.62	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0000386440	LAMP FLUORESCENT 40W 48	1.35	
0000386450	LAMP FLUORESCENT 40W 48	1.36	
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	3.19	
0000387360	LAMP FLUORESCENT 85W 72	6.54	
0000388000	LAMP 100 WATT M.V.	15.99	
0000388180	LAMP 125 WATT M.V.	10.68	
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	46.35	
0000388990	LAMP 70 WATT H.P.S.	8.81	
0000389000	LAMP 100 WATT H.P.S.	8.62	
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.	10.59	
0000389400	LAMP 400 WATT H.P.S.	13.19	
0000389450	LAMP 1000W HPS	60.32	
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"	4.36	
0050091540	BOLT LAG 1/2"X 4" GALV	0.46	
0050103120	BOLT MACHINE 5/8" X 12"	1.05	
0054223510	CRIMPIT #2/0- #8 WR139	0.55	
0057151000	BRACKET 10'L	101.45	
0057152040	BRACKET 1 1/4"X4' FIXED	60.02	
0057152220	BRACKET 4'X 2' 16" TEN	27.46	
0057154060	BRACKET 1 1/4"X6' LOWER	67.32	
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'	69.88	
0057156080	BRACKET FIXED 2" X 8'	87.48	
0057157010	BRACKET TAPERED 12'L	173.80	
0057158140	PLATE POLE ST LITE 1 1/	9.46	
0057158220	PLATE POLE ST LIGHT 2"	26.24	
0057350350	LUMINAIRE LPS 135W	463.38	
0057350720	LUM LPS 180W 120/240/347 V	788.99	R04B
0057350750	LUMINAIRE LPS 180W 240V	493.30	XX
0057350800	LUMINAIRE LPS 180W 347V	780.20	XX

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057350830	LUMINAIRE HPS 70W POLY	73.33	XX
0057350835	LUM. 70W POLY C/W LAMP	99.23	XX
0057350836	LUM 70W POLY ALUM.ALLOY	97.70	XX
0057350837	LUMINAIRE 70W HPS CWA ACRYLIC	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 CWA	124.02	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 GLASS	146.03	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 GLASS	142.48	C07A
0057351400	LUMINAIRE 250W HPS CWI 347V	160.68	C05A
0057351710	LUMINAIRE HPS 400W GLAS	109.60	XX
0057351715	LUMINAIRE 400W HPS CWI 120/240	157.02	M12A
0057351720	LUMINAIRE HPS 400W 240V	204.30	XX
0057351730	LUMINAIRE HPS 400W 347V	196.00	XX
0057351760	LUMINAIRE 400W 600V HPS CWI GL	172.33	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	195.17	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	183.39	C17A
0057402240	FLOODLIGHT M.V. 175W	53.03	
0057403330	FLOODLIGHT M V 250 W	397.90	XX
0057403500	FLOODLIGHT 250W HPS CWI	184.41	
0057404050	FLOODLIGHT M V 400 W	281.17	XX
0057404600	FLOODLIGHT 400W HPS CWI	194.95	C11A
0057408250	FLOODLIGHT MTL HAL.250W	190.30	D05B
0057408500	FLOODLIGHT 400W MTL-HAL CWI	201.63	D03A
0057409000	FLOODLIGHT 1000W MH CWI	405.65	
0057409380	FLOODLIGHT M V 1000 W	439.19	XX
0057600450	BRACKET & ADAPTORS	9.40	
0057601010	CAP SHORTING TWIST LOCK	4.87	

STREET / CROSSWALK LIGHTING STUDY

AREA LIGHTING MATERIAL COST ANALYSIS

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057601200	CONTROL 120 V PHOTO	7.05	
0057601400	CONTROL ELECT 120V PHOTOCELL	4.52	
0057602000	PHOTO CONTROL 120V HD	19.77	
0057602400	CONTROL 240V ELECT PHOTOCELL	10.96	
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	18.99	
0057604240	REFRACTOR GLASS OV15	16.00	
0057604250	REFRACTOR POLY LUM OV15	24.00	
0057604255	REFRACTOR STREETLIGHT OV	18.12	
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	214.85	
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	1.03	

**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 IES Lighting Handbook, 1981 Edition
 (IES = Illuminating Engineering Society)

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.
 This is gives a life that is consistent with previous rate calculations.

Nova Scotia Power Inc.
LED Streetlights
CCA Schedule
Millions of dollars

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026
<u>Beginning UCC</u>															
8%	-	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800	13,717,016	12,619,654
	-	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800	13,717,016	12,619,654
<u>Additions</u>															
8%		16,924,872	17,322,621	-	-	-	-	-	-	-	-	-	-	-	-
	-	16,924,872	17,322,621	-	-	-	-	-	-	-	-	-	-	-	-
<u>CCA</u>															
8%	-	676,995	1,992,735	2,526,221	2,324,123	2,138,193	1,967,138	1,809,767	1,664,986	1,531,787	1,409,244	1,296,504	1,192,784	1,097,361	1,009,572
	-	676,995	1,992,735	2,526,221	2,324,123	2,138,193	1,967,138	1,809,767	1,664,986	1,531,787	1,409,244	1,296,504	1,192,784	1,097,361	1,009,572
<u>Ending UCC</u>															
8%	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800	13,717,016	12,619,654	11,610,082
	-	16,247,877	31,577,763	29,051,542	26,727,419	24,589,225	22,622,087	20,812,320	19,147,335	17,615,548	16,206,304	14,909,800	13,717,016	12,619,654	11,610,082
Tax Rate:	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%
Tax Savings from CCA :	-	209,868	617,748	783,129	720,478	662,840	609,813	561,028	516,146	474,854	436,866	401,916	369,763	340,182	312,967

Schedule 9

16	17	18	19	20	21	22	23	24	25	26	27	
2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
12/31/2027	12/31/2028	12/31/2029	12/31/2030	1/1/2031	1/2/2031	1/3/2031	1/4/2031	1/5/2031	1/6/2031	1/7/2031	1/8/2031	
11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	357,611,954
11,610,082	10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	357,611,954
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	34,247,493
928,807	854,502	786,142	723,251	665,390	612,159	563,187	518,132	476,681	438,547	403,463	371,186	29,978,856
928,807	854,502	786,142	723,251	665,390	612,159	563,187	518,132	476,681	438,547	403,463	371,186	29,978,856
10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	4,268,637	361,880,591
10,681,276	9,826,773	9,040,632	8,317,381	7,651,991	7,039,831	6,476,645	5,958,513	5,481,832	5,043,286	4,639,823	4,268,637	361,880,591
31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	8
287,930	264,896	243,704	224,208	206,271	189,769	174,588	160,621	147,771	135,949	125,073	115,068	9,293,445

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE JANUARY 1, 2014

Description	Rate Code	Power				2014 New Proposed	2014 New Proposed	2013 Current	Percent Change	2014		Connected Load (kW)	Total Load (kW)	Continuous Load (kW)
		kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates		Units	Revenue Variance			
Incandescent :														
Incandescent < 300 Watts - Note 1	001	97	\$15.32	5.31	\$1.96	\$22.58	\$7,317	\$20.62	9.5%	27	\$637	0.291	7.857	
Incandescent > 300 Watts - Note 1	002	154	24.32	5.31	2.08	\$31.71	761	\$29.22	8.5%	2	60	0.462	0.924	
Incandescent < 300 Watts - Note 1	003	97	15.32	0.00	0.00	\$15.32	<u>1,287</u> 9,365	\$14.43	6.2%	<u>7</u> 36	<u>75</u> 772	0.291	2.037	
Mercury Vapour :														
Mercury Vapour 100 Watts	100	43	6.80	5.31	3.33	\$15.43	34,939	\$13.86	11.3%	189	3,560	0.129	24.335	
Mercury Vapour 125 Watts	101	52	8.20	7.08	3.12	\$18.40	1,717,149	\$16.43	12.0%	7,778	184,016	0.156	1,213.339	
Mercury Vapour 175 Watts	102	69	10.88	5.31	3.09	\$19.28	430,178	\$17.51	10.1%	1,859	39,399	0.207	384.884	
Mercury Vapour 250 Watts	103	97	15.32	5.31	3.84	\$24.47	210,289	\$22.37	9.4%	716	18,041	0.291	208.423	
Mercury Vapour 400 Watts	104	154	24.32	5.31	3.92	\$33.55	280,191	\$30.93	8.5%	696	21,922	0.462	321.523	
Mercury Vapour 700 Watts	105	260	41.07	5.31	5.15	\$51.53	6,802	\$47.84	7.7%	11	487	0.780	8.580	
Mercury Vapour 1000 Watts	106	363	57.34	5.31	6.23	\$68.87	71,078	\$64.17	7.3%	86	4,860	1.089	93.654	
Mercury Vapour 250 Watt Cont. Oper.	107	212	26.00	10.61	3.84	\$40.45	1,456	\$36.67	10.3%	3	136	0.291	0.873	0.873
Mercury Vapour 125 Watts	201	52	8.20	7.08	0.00	\$15.28	1,283	\$13.40	14.0%	7	157	0.156	1.092	
Mercury Vapour 175 Watts	202	69	10.88	5.31	0.00	\$16.19	4,079	\$14.52	11.5%	21	421	0.207	4.347	
Mercury Vapour 250 Watts	203	97	15.32	5.31	0.00	\$20.63	8,663	\$18.68	10.4%	35	819	0.291	10.185	
Mercury Vapour 400 Watts	204	154	24.32	5.31	0.00	\$29.63	3,200	\$27.16	9.1%	9	267	0.462	4.158	
Mercury Vapour 700 Watts	205	260	41.07	5.31	0.00	\$46.38	0	\$42.93	8.0%	0	0	0.780	0.000	
Mercury Vapour 1000 Watts	206	363	57.34	5.31	0.00	\$62.65	16,539	\$58.26	7.5%	22	1,159	1.089	23.958	
Mercury Vapour 125 Watts	301	52	8.20	0.00	0.00	\$8.20	1,082	\$7.74	5.9%	11	61	0.156	1.716	
Mercury Vapour 175 Watts	302	69	10.88	0.00	0.00	\$10.88	20,498	\$10.27	5.9%	157	1,149	0.207	32.499	
Mercury Vapour 250 Watts	303	97	15.32	0.00	0.00	\$15.32	9,927	\$14.43	6.2%	54	577	0.291	15.714	
Mercury Vapour 400 Watts	304	154	24.32	0.00	0.00	\$24.32	4,378	\$22.91	6.2%	15	254	0.462	6.930	
Mercury Vapour 700 Watts	305	260	41.07	0.00	0.00	\$41.07	493	\$38.68	6.2%	1	29	0.780	0.780	
Mercury Vapour 1000 Watts	306	363	57.34	0.00	0.00	\$57.34	<u>4,817</u> 2,827,040	\$54.01	6.2%	<u>7</u> 11,677	<u>280</u> 277,594	1.089	7.623	
Fluorescent :														
Fluorescent 2x24" 70 Watts	110	30	4.75	10.61	2.53	\$17.89	192,575	\$15.42	16.0%	897	26,551	0.091	81.627	
Fluorescent 2x48" 220 Watts	111	85	13.43	10.61	2.79	\$26.83	36,710	\$23.86	12.5%	114	4,070	0.254	28.956	
Fluorescent 2x72" 300 Watts	112	116	18.34	10.61	3.28	\$32.23	25,913	\$28.92	11.4%	67	2,661	0.348	23.316	
Fluorescent 4x72" 600 Watts	113	222	35.05	10.61	4.47	\$50.13	9,024	\$45.80	9.5%	15	780	0.665	9.975	
Fluorescent 1x96" 110 Watts	114	47	7.41	10.61	3.08	\$21.11	1,266	\$18.47	14.3%	5	158	0.141	0.705	
Fluorescent 1x72" 150 Watts	115	60	9.48	10.61	2.68	\$22.77	273	\$20.04	13.7%	1	33	0.180	0.180	
Fluorescent 4x48" 440 Watts	116	166	26.24	10.61	3.38	\$40.24	<u>966</u> 266,727	\$36.46	10.4%	<u>2</u> 1,101	<u>91</u> 34,344	0.499	0.998	
Fluorescent 4x72" 600 Watts	213	222	35.05	10.61	0.00	\$45.66	0	\$41.52	10.0%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	214	47	7.41	10.61	0.00	\$18.02	5,623	\$15.48	16.4%	26	793	0.141	3.666	
Fluorescent 1x72" 150 Watts	215	60	9.48	10.61	0.00	\$20.09	723	\$17.42	15.3%	3	96	0.180	0.540	
Fluorescent 4x48" 440 Watts	216	166	26.24	10.61	0.00	\$36.85	0	\$33.19	11.0%	0	0	0.499	0.000	
Fluorescent 1x48" 120 Watts	217	49	7.72	10.61	0.00	\$18.33	220	\$15.78	16.2%	1	31	0.146	0.146	
Fluorescent 2x48" 220 Watts	218	85	13.43	10.61	0.00	\$24.04	0	\$21.14	13.7%	0	0	0.254	0.000	
Fluorescent 4x35"	330	47	7.41	0.00	0.00	\$7.41	<u>178</u> 6,744	\$6.99	6.0%	<u>2</u> 32	<u>10</u> 930	0.140	0.280	

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2014

Description	Rate Code	Power				2014 New Proposed	2014 New Proposed	2013 Current	Percent	2014		Connected	Total	Continuous
		kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Revenue Variance	Load (kW)	Load (kW)	Load (kW)
Fluorescent Crosswalk - Continuous Burning - Customer Owned :														
Fluorescent 4x72" 600 Watts	117	486	59.60	0.00	0.00	\$59.60	715	\$56.15	6.1%	1	41	0.665	0.665	0.665
Fluorescent 2x24" 70 Watts	118	66	8.08	0.00	0.00	\$8.08	1,648	\$7.62	6.0%	17	94	0.091	1.547	1.547
Fluorescent 4x48" 440 Watts	119	364	44.65	0.00	0.00	\$44.65	12,323	\$42.05	6.2%	23	718	0.499	11.477	11.477
Fluorescent 2x96"	120	254	31.16	0.00	0.00	\$31.16	11,218	\$29.34	6.2%	30	655	0.348	10.440	10.440
Fluorescent 4x96"	150	613	75.18	0.00	0.00	\$75.18	<u>18,945</u>	\$70.82	6.2%	21	<u>1,099</u>	0.840	17.640	17.640
							44,850			92	2,607			
Fluorescent Crosswalk - Photocell Burning - Customer Owned :														
Fluorescent 2x24" 70 Watts	310	30	4.75	0.00	0.00	\$4.75	114	\$4.46	6.5%	2	7	0.091	0.182	
Fluorescent 4x48" 440 Watts	311	166	26.24	0.00	0.00	\$26.24	1,574	\$24.70	6.2%	5	92	0.499	2.495	
Fluorescent 2x72" 300 Watts	312	116	18.34	0.00	0.00	\$18.34	220	\$17.26	6.3%	1	13	0.348	0.348	
Fluorescent 4x72" 600 Watts	313	222	35.05	0.00	0.00	\$35.05	0	\$33.03	6.1%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	314	47	7.41	0.00	0.00	\$7.41	2,223	\$6.99	6.0%	25	126	0.142	3.550	
Fluorescent 1x72" 150 Watts	315	60	9.48	0.00	0.00	\$9.48	0	\$8.93	6.2%	0	0	0.180	0.000	
Fluorescent 4x96"	350	280	44.24	0.00	0.00	\$44.24	<u>40,347</u>	\$41.66	6.2%	76	<u>2,353</u>	0.841	63.916	
							44,478			109	2,591			
Low Pressure Sodium :														
Low Pressure Sodium 135 Watts	130	60	9.48	15.92	6.02	\$31.42	15,019	\$27.39	14.7%	40	1,929	0.180	7.170	
Low Pressure Sodium 180 Watts	131	80	12.64	15.92	8.72	\$37.28	163,072	\$32.86	13.4%	365	19,328	0.240	87.481	
Low Pressure Sodium 90 Watts	132	45	7.10	15.92	6.02	\$29.04	0	\$25.16	15.5%	0	0	0.135	0.000	
Low Pressure Sodium 180 Watts E&M	231	80	12.64	15.92	0.00	\$28.56	13,366	\$24.64	15.9%	39	1,836	0.240	9.360	
Low Pressure Sodium 180 Watts E/O	331	80	12.64	0.00	0.00	\$12.64	<u>5,612</u>	\$11.90	6.2%	<u>37</u>	<u>329</u>	0.240	8.880	
							197,069			480	23,422			
High Pressure Sodium :														
High Pressure Sodium 250 Watts	121	100	15.80	5.31	3.35	\$24.45	952,006	\$22.36	9.4%	3,244	81,518	0.300	973.336	
High Pressure Sodium 400 Watts	122	150	23.69	5.31	3.47	\$32.46	851,958	\$29.91	8.5%	2,187	66,985	0.450	984.158	
High Pressure Sodium 70 Watts	123	32	5.04	5.31	3.15	\$13.49	4,377,829	\$12.05	11.9%	27,040	467,093	0.096	2,595.850	
High Pressure Sodium 100 Watts	124	45	7.10	5.31	3.17	\$15.58	6,096,299	\$14.02	11.1%	32,612	611,031	0.135	4,402.640	
High Pressure Sodium 150 Watts	125	65	10.27	5.31	3.35	\$18.93	894,775	\$17.16	10.3%	3,939	83,868	0.195	768.083	
HP Sodium 100 Watts - Cont. Oper.	126	99	12.12	10.61	3.17	\$25.90	4,663	\$23.00	12.6%	15	522	0.135	2.025	2.025
High Pressure Sodium 250 Watts	221	100	15.80	5.31	0.00	\$21.11	43,310	\$19.13	10.4%	171	4,065	0.300	51.300	
High Pressure Sodium 70 Watts	222	32	5.04	5.31	0.00	\$10.35	32,032	\$9.01	14.9%	258	4,152	0.096	24.768	
High Pressure Sodium 100 Watts	223	45	7.10	5.31	0.00	\$12.41	20,098	\$10.95	13.3%	135	2,367	0.135	18.225	
High Pressure Sodium 150 Watts	224	65	10.27	5.31	0.00	\$15.58	42,991	\$13.92	11.9%	230	4,585	0.195	44.850	
High Pressure Sodium 250 Watts	321	100	15.80	0.00	0.00	\$15.80	182,774	\$14.88	6.2%	964	10,643	0.300	289.200	
High Pressure Sodium 70 Watts	322	32	5.04	0.00	0.00	\$5.04	361,549	\$4.76	5.9%	5,978	20,086	0.096	573.888	
High Pressure Sodium 100 Watts	323	45	7.10	0.00	0.00	\$7.10	202,520	\$6.70	6.0%	2,377	11,410	0.135	320.895	
High Pressure Sodium 150 Watts	324	65	10.27	0.00	0.00	\$10.27	15,405	\$9.67	6.2%	125	900	0.195	24.375	
High Pressure Sodium 400 Watts	326	150	23.69	0.00	0.00	\$23.69	25,301	\$22.32	6.1%	89	1,463	0.450	40.050	
High Pressure Sodium 500 Watts	327	183	28.92	0.00	0.00	\$28.92	1,041	\$27.23	6.2%	3	61	0.550	1.650	
High Pressure Sodium 1000 Watts	328	363	57.35	0.00	0.00	\$57.35	9,635	\$54.01	6.2%	14	561	1.090	15.260	
High Pressure Sodium 1500 Watts	329	500	78.98	0.00	0.00	\$78.98	948	\$74.39	6.2%	1	55	1.090	1.090	
							14,115,135			79,383	1,371,310			

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2014

Description	Rate Code	Power				2014 New Proposed	2014 New Proposed	2013 Current	Percent Change	2014		Connected Load (kW)	Total Load (kW)	Continuous Load (kW)
		kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates		Units	Revenue Variance			
Metallic Additive :														
Metallic Arc 400 Watts	140	150	23.69	8.49	3.96	\$36.14	395,360	\$32.92	9.8%	912	35,271	0.450	410,235	
Metallic Arc 1000 Watts	141	360	56.87	12.74	5.79	\$75.39	887,524	\$69.25	8.9%	981	72,318	1.080	1,059,480	
Metallic Arc 250 Watts	142	100	15.80	12.74	3.90	\$32.43	28,864	\$28.82	12.6%	74	3,220	0.300	22,248	
Metallic Arc 150 Watts	143	67	10.57	12.74	3.90	\$27.20	1,306	\$23.91	13.8%	4	158	0.200	0.800	
Metallic Arc 100 Watts	144	50	7.90	12.74	3.90	\$24.53	1,283	\$21.38	14.8%	4	165	0.150	0.654	
Metallic Arc 1000 Watts	341	360	56.87	0	0	\$56.87	15,014	\$53.56	6.2%	22	874	1.080	23,760	
Metallic Arc 400 Watts	342	150	23.69	0	0	\$23.69	45,201	\$22.32	6.1%	159	2,614	0.450	71,550	
Metallic Arc 250 Watts	343	100	15.80	0	0	\$15.80	15,926	\$14.88	6.2%	84	927	0.300	25,200	
Metallic Arc 175 Watts	344	75	11.85	0	0	\$11.85	15,926	\$11.16	6.2%	112	927	0.225	25,200	
Metallic Arc 150 Watts	345	67	10.57	0	0	\$10.57	2,537	\$9.97	6.0%	20	144	0.200	4,000	
Metallic Arc 100 Watts	346	50	7.90	0	0	\$7.90	0	\$7.44	6.2%	0	0	0.150	0.000	
							1,408,941			2,372	116,618			
Light Emitting Diode - Traffic Lights														
Light Emitting Diode 4.6 Watts	530	3	0.39	0	0	\$0.39	0	\$0.36	8.3%		0		0.000	
Light Emitting Diode 7.5 Watts	531	5	0.65	0	0	\$0.65	0	\$0.61	6.6%		0		0.000	
							0							
Light Emitting Diode (Energy Only)														
Lighting Emitting Diode 44 Watts	532	15	2.37	0	0	\$2.37	49,258	\$2.23	6.3%	1,732	2,910	0.440	762,080	
Lighting Emitting Diode 66 Watts	533	22	3.48	0	0	\$3.48	5,763	\$3.27	6.4%	138	348	0.660	91,080	
Lighting Emitting Diode 88 Watts	534	29	4.58	0	0	\$4.58	28,194	\$4.31	6.3%	513	1,662	0.880	451,440	
Lighting Emitting Diode 92 Watts	535	31	4.90	0	0	\$4.90	0	\$4.61	6.3%	0	0	0.920	0.000	
Lighting Emitting Diode 105 Watts	536	35	5.53	0	0	\$5.53	0	\$5.21	6.1%	0	0	1.050	0.000	
Lighting Emitting Diode 170 Watts	537	57	9.00	0	0	\$9.00	0	\$8.48	6.1%	0	0	0.170	0.000	
Lighting Emitting Diode 110 Watts	539	37	5.84	0	0	\$5.84	182,839	\$5.50	6.2%	2,609	10,645	0.110	286,990	
Lighting Emitting Diode 65 Watts	540	22	3.48	0	0	\$3.48	19,377	\$3.27	6.4%	464	1,169	0.650	301,600	
Lighting Emitting Diode 55 Watts	541	18	2.84	0	0	\$2.84	25,083	\$2.68	6.0%	736	1,413	0.550	404,800	
Lighting Emitting Diode 83 Watts	542	28	4.42	0	0	\$4.42	55,109	\$4.17	6.0%	1,039	3,117	0.830	862,370	
Lighting Emitting Diode 48 Watts	543	16	2.53	0	0	\$2.53	2,186	\$2.38	6.3%	72	130	0.830	59,760	
Lighting Emitting Diode 72 Watts	544	24	3.79	0	0	\$3.79	14,008	\$3.57	6.2%	308	813	0.830	255,640	
							381,816			7,611				
Light Emitting Diode (Energy & Capital)														
LED A1	615	15	2.37	0	10.00	\$12.37	1,790,030	\$12.05	2.7%	12,056	47,243	0.830	10,006,569	
LED A2	616	18	2.84	0	10.00	\$12.84	531,038	\$12.50	2.8%	3,446	14,329	0.830	2,859,951	
LED A4	617	25	3.95	0	10.00	\$13.95	137,843	\$13.54	3.1%	823	4,115	0.830	683,308	
LED A3	618	29	4.58	0	10.00	\$14.58	3,086	\$14.13	3.2%	18	97	0.830	14,638	
LED B1	619	22	3.48	0	10.00	\$13.48	2,337,349	\$13.09	3.0%	14,446	68,744	0.830	11,990,483	
LED C1	620	29	4.58	0	10.00	\$14.58	388,934	\$14.13	3.2%	2,223	12,176	0.830	1,844,711	
LED C3	621	37	5.84	0	10.00	\$15.84	319,419	\$15.32	3.4%	1,680	10,616	0.830	1,394,512	
LED C2	622	58	9.16	0	10.00	\$19.16	338,300	\$18.45	3.9%	1,471	12,650	0.830	1,221,061	
							5,845,998			36,163				
TOTALS							\$25,148,164			139,056			49,016,734	44,667

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE JANUARY 1, 2014

Description	Rate		Power			2014 New Proposed	2014 New Proposed	2013 Current	Percent	2014	Revenue	Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
										102,893				
Non LED										95,282				
LED										43,774				
Total										139,056				
Non LED														
Energy Only										83,885				
Maintenance										957				
Capital										10,440				
Total										95,282				
LED														
Energy Only										7,611				
Capital										36,163				
Total										43,774				
Grand Total										139,056				

Count = 93

Note 1 - Red highlighted P&E charges relate to calculated rounding differences using Misc. Small Loads Tariff.
Note 2 - Incandescent rates were set at 250W and 400W Mercury Vapour

Miscellaneous Small Loads Rate			Calculation of Power & Energy Rate :			
			Based on Misc. Small Loads Tariff Rate Components & 1kW lighting load			
Demand Charge	\$/kW	11.534	Photocell Operation (4000 burning hours per year)			
Block 1 Energy			Demand Charge \$/kW (annual) 12.246 \$146.95			
Base cost of fuel	¢/kWh	4.876	Energy Charge :			
Non-fuel	¢/kWh	8.315	1st Block : 1st 200 kW.h			
AA	¢/kWh	-	2,400	0.14005	336.12	
BA	¢/kWh	-	2nd Block : All additional			
Total Energy Charge, block 1 (first 200kWh)	¢/kWh	13.191	1,600	0.09298	<u>148.77</u>	
			(annual) \$631.84			
			Rate per kW.h 4,000 \$0.1579590			
Block 2 Energy			Continuous Burning (8760 burning hours per year)			
Base cost of fuel	¢/kWh	4.876	Demand Charge \$/kW (annual) 12.246 \$146.95			
Non-fuel	¢/kWh	3.882	Energy Charge :			
AA	¢/kWh	-	1st Block : 1st 200 kW.h			
BA	¢/kWh	-	2,400	0.14005	336.12	
Total Energy Charge, block 2	¢/kWh	8.758	2nd Block : All additional			
			6,360	0.09298	<u>591.35</u>	
			(annual) \$1,074.42			
			Rate per kW.h 8,760 \$0.1226508			

NON-CONFIDENTIAL

1 **Request IR-11:**

2

3 **Please provide an electronic file, in excel or compatible format of Appendix G, contained in**
4 **the 2012 Unmetered Class Cost of Service and Pricing Study which states and identifies all**
5 **formulas.**

6

7 Response IR-11:

8

9 Please refer to the Attachment 1, filed electronically. This file incorporates the changes
10 proposed and accepted during the 2012 GRA IR process and forms the basis of the 2012 GRA
11 Compliance Filing¹.

¹ NSPI 2012 General Rate Application, Compliance Filing, NSUARB-NSPI-P-892, December 09, 2011.

STREET / CROSSWALK LIGHTING STUDY

Inventory Level as of MARCH 2011

Rate Code	Description	MARCH 2011 (Quantity)				FORECAST 2012 (Quantity)			
		Full Charge	Energy & Maint	Energy Only	Total	Full Charge	Energy & Maint	Energy Only	Total
001/003	Incandescent < 300 Watts	27	0	7	34	27	0	7	34
002	Incandescent > 300 Watts	2	0	0	2	2	0	0	2
		29	0	7	36	29	0	7	36
100	Mercury Vapour 100 Watts	272	0	0	272	271	0	0	271
101/201/301	Mercury Vapour 125 Watts	11,222	7	11	11,240	11185	7	11	11203
102/202/302	Mercury Vapour 175 Watts	2,684	21	157	2,862	2675	21	156	2853
103/203/303	Mercury Vapour 250 Watts	1,033	35	54	1,122	1030	35	54	1118
104/204/304	Mercury Vapour 400 Watts	1,413	9	15	1,437	1408	9	15	1432
105/205/305	Mercury Vapour 700 Watts	11	0	1	12	11	0	1	12
106/206/306	Mercury Vapour 1000 Watts	86	22	7	115	86	22	7	115
107	Mercury Vapour 250 Watt Cont. Oper.	3	0	0	3	3	0	0	3
		16,724	94	245	17,063	16669	94	244	17007
110	Fluorescent 2x24" 70 Watts	897	0	0	897	894	0	0	894
111	Fluorescent 2x48" 220 Watts	114	0	0	114	114	0	0	114
112	Fluorescent 2x72" 300 Watts	67	0	0	67	67	0	0	67
113/213	Fluorescent 4x72" 600 Watts	15	0	0	15	15	0	0	15
114/214	Fluorescent 1x96" 110 Watts	5	26	0	31	5	26	0	31
115/215	Fluorescent 1x72" 150 Watts	1	3	0	4	1	3	0	4
116	Fluorescent 4x48" 440 Watts	2	0	0	2	2	0	0	2
217	Fluorescent 1x48"	0	1	0	1	0	1	0	1
218	Fluorescent 2x48"	0	0	0	0	0	0	0	0
330	Fluorescent 4x35"	0	0	2	2	0	0	2	2
350	Fluorescent 4x96"	0	0	76	76	0	0	76	76
		1,101	30	78	1,209	1097	30	78	1205
117	Fluorescent Crosswalk Cont. 4x72"	0	0	1	1	0	0	1	1
118	Fluorescent Crosswalk Cont. 2x24"	0	0	17	17	0	0	17	17
119	Fluorescent Crosswalk Cont. 4x48"	0	0	23	23	0	0	23	23
120	Fluorescent Crosswalk Cont. 2x96"	0	0	30	30	0	0	30	30
150	Fluorescent Crosswalk Cont. 4x96"	0	0	21	21	0	0	21	21
		0	0	92	92	0	0	92	92
310	Fluorescent Crosswalk 2x24"	0	0	2	2	0	0	2	2
311	Fluorescent Crosswalk 4x48"	0	0	5	5	0	0	5	5
312	Fluorescent Crosswalk 2x72"	0	0	1	1	0	0	1	1
313	Fluorescent Crosswalk 4x72"	0	0	0	0	0	0	0	0
314	Fluorescent Crosswalk 1x96"	0	0	25	25	0	0	25	25
315	Fluorescent Crosswalk 1x72"	0	0	0	0	0	0	0	0
		0	0	33	33	0	0	33	33
121/221/321	High Pressure Sodium 250 Watts	5,550	171	1,699	7,420	5532	170	1693	7395
122/326	High Pressure Sodium 400 Watts	3,664	0	89	3,753	3652	0	89	3741
123/222/322	High Pressure Sodium 70 Watts	40,531	258	6,324	47,113	40397	257	6303	46957
124/223/323	High Pressure Sodium 100 Watts	47,219	135	2,584	49,938	47063	135	2575	49773
125/224/324	High Pressure Sodium 150 Watts	5,730	230	1,163	7,123	5711	229	1159	7099
126	HP Sodium 100 Watts - Cont. Oper.	15	0	0	15	15	0	0	15
327	High Pressure Sodium 500 Watts	0	0	3	3	0	0	3	3
328	High Pressure Sodium 1000 Watts	0	0	16	16	0	0	16	16
329	High Pressure Sodium 1500 Watts	0	0	1	1	0	0	1	1
		102,709	794	11,879	115,382	102370	791	11840	115001
130	Low Pressure Sodium 135 Watts	58	0	0	58	58	0	0	58
131/231/331	Low Pressure Sodium 180 Watts	806	39	37	882	803	39	37	879
132	Low Pressure Sodium 90 Watts	0	0	0	0	0	0	0	0
		864	39	37	940	861	39	37	937
140/342	Metallic Arc 400 Watts	1,315	0	159	1,474	1311	0	158	1469
141/341	Metallic Arc 1000 Watts	981	0	22	1,003	978	0	22	1000
142/343	Metallic Arc 250 Watts	109	0	84	193	109	0	84	192
143	Metallic Arc 150 Watts	4	0	0	4	4	0	0	4
144	Metallic Arc 100 Watts	7	0	0	7	7	0	0	7
344	Metallic Arc 175 Watts	0	0	112	112	0	0	112	112
345	Metallic Arc 150 Watts	0	0	20	20	0	0	20	20
346	Metallic Arc 100 Watts	0	0	0	0	0	0	0	0
		2,416	0	397	2,813	2408	0	396	2804
532/538	LED 44 Watts	0	0	96	96	0	0	96	96
539	LED 110 Watts	0	0	104	104	0	0	104	104
533	LED 66 Watts	0	0	69	69	0	0	69	69
534	LED 88 Watts	0	0	291	291	0	0	290	290
540	LED 65 Watts	0	0	305	305	0	0	304	304
541	LED 55 Watts	0	0	198	198	0	0	197	197
542	LED 83 Watts	0	0	82	82	0	0	82	82
543	LED 48 Watts	0	0	72	72	0	0	72	72
544	LED 72 Watts	0	0	308	308	0	0	307	307
	Total	0	0	1,525	1,525	0	0	1520	1520
Total		123,843	957	14,293	139,093	123,434	954	14,246	138,634

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

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
<u>Code</u>	<u>Lamp Type</u>	<u>Service Life (Years)</u>	<u>Maintenance Weighting Factors</u>	<u># of Full Chg & Eng.+Maint. Fixtures</u>	<u>Weighting Total</u>	<u>Cost Per Year</u>	<u>Cost Per Month</u>
A	Mercury Vapour	6.000	1.0000	5,599	5,599	\$43.79	\$3.65
B	Mercury Vapour - 125W	4.500	1.3333	11,192	14,923	\$58.38	\$4.87
C	Fluorescent	3.000	2.0000	1,127	2,255	\$87.57	\$7.30
D	High Pressure Sodium (Note1)	6.000	1.0000	103,176	103,176	\$43.79	\$3.65
E	Metallic Arc 100W, 150W & 250W	2.500	2.4000	120	287	\$105.09	\$8.76
F	Metallic Arc 400W	3.750	1.6000	1,311	2,097	\$70.06	\$5.84
G	Metallic Arc 1000W	2.500	2.4000	978	2,347	\$105.09	\$8.76
H	Low Pressure Sodium	2.000	3.0000	900	2,700	\$131.36	\$10.95
I	LED	20.000	0.3000	0	0	\$13.14	\$1.09
				124,403	133,383		

Street Lighting Maint. Expenses

(from 2012 COSS, Exhibit 6A)

\$5,840,314

Annual Cost of High Pressure Sodium

(\$5,840,313.69 / 133383.320152719 weighted fixtures)

\$43.79

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

STREET / CROSSWALK LIGHTING STUDY

CAPITAL COST

54.51
\$60.34
(12.30)
\$17.68

Gross Plant Value (including installation costs) less Retirements of
Non-LED Street Lighting Equipment, 2012 Average ----->

Total
\$46,669,571 \$17,679,729

Assumed Growth Factor in 2012 ----->

Description	Unit Cost Mar/1977	Unit Cost June 2007	Forecast		Total Value
			Jul-05 Fixtures		
Incandescent < 300 Watts	\$51.36	\$64.20	27		\$1,728
Incandescent > 300 Watts	\$63.62	\$79.53	2		\$159
Mercury Vapour 100 Watts	\$76.55	\$229.55	271		\$62,231
Mercury Vapour 125 Watts	\$77.16	\$204.78	11,185		\$2,290,471
Mercury Vapour 175 Watts	\$85.30	\$201.27	2,675		\$538,428
Mercury Vapour 250 Watts	\$87.24	\$291.38	1,030		\$299,996
Mercury Vapour 400 Watts	\$107.82	\$301.45	1,408		\$424,542
Mercury Vapour 700 Watts	\$485.12	\$449.78	11		\$4,931
Mercury Vapour 1000 Watts	\$492.29	\$579.25	86		\$49,651
Mercury Vapour 250 Watt Cont. Oper.	\$87.24	\$291.38	3		\$871
Fluorescent 2x24" 70 Watts	\$106.44	\$133.05	894		\$118,952
Fluorescent 2x48" 220 Watts	\$131.91	\$164.89	114		\$18,735
Fluorescent 2x72" 300 Watts	\$178.72	\$223.40	67		\$14,918
Fluorescent 4x72" 600 Watts	\$293.72	\$367.15	15		\$5,489
Fluorescent 1x96" 110 Watts	\$160.00	\$200.00	5		\$997
Fluorescent 1x72" 150 Watts	\$121.22	\$151.53	1		\$151
Fluorescent 4x48" 440 Watts	\$188.91	\$236.14	2		\$471
High Pressure Sodium 70 Watts	N/A	\$207.51	40,397		\$8,382,796
High Pressure Sodium 100 Watts	N/A	\$210.65	47,078		\$9,916,785
High Pressure Sodium 150 Watts	N/A	\$232.66	5,711		\$1,328,765
High Pressure Sodium 250 Watts	\$156.49	\$231.67	5,532		\$1,281,548
High Pressure Sodium 400 Watts	\$173.73	\$246.21	3,652		\$899,143
High Pressure Sodium 1000 Watts	N/A	\$615.53	0		\$0
Low Pressure Sodium 90 Watts	N/A	\$554.53	0		\$0
Low Pressure Sodium 135 Watts	\$371.69	\$554.53	58		\$32,057
Low Pressure Sodium 180 Watts	\$226.10	\$880.14	803		\$707,048
Metallic Additive 250 Watts	N/A	\$298.33	113		\$33,600
Metallic Additive 400 Watts	\$358.84	\$305.76	1,311		\$400,744
Metallic Additive 1000 Watts	\$560.49	\$526.16	978		\$514,454
Metallic Additive 100 Watts	N/A		7		\$0
			123,434		27,329,661
					\$19,339,910
					\$156.68

Total # of light types being displaced by LED
Total Installation Costs (Labour)

121,230

Installation Costs per Fixture

Escalation Factor (Incandescent)
Escalation Factor (Fluorescent)

125%

125%

Note: 2007 costs are based on stores material inventory cost as of June 2007 with the exception of Incandescent and fluorescent which have been assumed at 130% of 1977 costs.

Sample Material Cost - 100 Watt High Intensity (Pressure) Sodium :
Inventory Prices as of March 2011

Fixture, Ballast & Photocell \$124.02
Bracket Assembly (Davit) 67.32
Wire 16.71
Miscellaneous Hardware 2.60
Lamp Replacement 8.62

TOTAL \$219.27

STREET / CROSSWALK LIGHTING STUDY

Capital Cost Rate Component Calculation

	Non Led
Depreciation Rate for 2012	5.33%
# of Years	18.76
Tax Adjusted Weighted Average Cost of Capital	10.56%
Pre-tax WACC	7.88%
Tax-related Gross-up Depreciation factor	31.00%
Salvage Rate (% of Depreciation)	0.00%
Salvage Rate incl in Depr. Rate for 2012	0.00%
# of Years	N/A

Simulated at current meth.	\$8,533,362
Total cost per COSS (and adjusted for energy)	\$5,608,509
Revenue Correction Factor	0.6572

	Material Cost January 2010	Labour Cost	Total	Before Correction Factor				Correction Factor	Aligned with COSS results		2012 Forecast					
				Depreciation Expense	Cost of Capital	CCA Benefit	Total Cost		Annual Cost	Monthly Cost	# of fixtures	depreciation expense	cost of capital	CCA	revenue	Total Annual scaled
Incandescent < 300 Watts	\$64.20	156.68	\$220.88	\$17.06	\$23.33	\$0.00	\$40.39	0.657	\$26.54	\$2.21	27	459.16	627.70		1,086.86	714.33
Incandescent > 300 Watts	79.53	156.68	236.21	\$18.25	\$24.94	\$0.00	43.19	0.657	\$28.39	2.37	2	36.37	49.72		86.09	56.58
Mercury Vapour 100 Watts	229.55	156.68	386.23	\$29.83	\$40.79	\$0.00	70.62	0.657	\$46.42	3.87	271	8,088.27	11,057.10		19,145.37	12,583.20
Mercury Vapour 125 Watts	204.78	156.68	361.46	\$27.92	\$38.17	\$0.00	66.09	0.657	\$43.44	3.62	11,185	312,303.38	426,935.71		739,239.09	485,861.13
Mercury Vapour 175 Watts	201.27	156.68	357.95	\$27.65	\$37.80	\$0.00	65.45	0.657	\$43.02	3.58	2,675	73,969.17	101,119.88		175,089.05	115,076.38
Mercury Vapour 250 Watts	291.38	156.68	448.06	\$34.61	\$47.31	\$0.00	81.93	0.657	\$53.85	4.49	1,030	35,634.88	48,714.82		84,349.70	55,438.41
Mercury Vapour 400 Watts	301.45	156.68	458.13	\$35.39	\$48.38	\$0.00	83.77	0.657	\$55.06	4.59	1,408	49,839.56	68,133.39		117,972.95	77,537.12
Mercury Vapour 700 Watts	449.78	156.68	606.46	\$46.85	\$64.04	\$0.00	110.89	0.657	\$72.88	6.07	11	513.62	702.14		1,215.76	799.05
Mercury Vapour 1000 Watts	579.25	156.68	735.94	\$56.85	\$77.71	\$0.00	134.56	0.657	\$88.44	7.37	86	4,872.81	6,661.39		11,534.20	7,580.79
Mercury Vapour 250 Watt Cont. Oper.	291.38	156.68	448.06	\$34.61	\$47.31	\$0.00	81.93	0.657	\$53.85	4.49	3	103.49	141.48		244.97	161.00
Fluorescent 2x24" 70 Watts	133.05	156.68	289.73	\$22.38	\$30.60	\$0.00	52.98	0.657	\$34.82	2.90	894	20,009.24	27,353.71		47,362.95	31,129.06
Fluorescent 2x48" 220 Watts	164.89	156.68	321.57	\$24.84	\$33.96	\$0.00	58.80	0.657	\$38.64	3.22	114	2,822.42	3,858.40		6,680.82	4,390.93
Fluorescent 2x72" 300 Watts	223.40	156.68	380.08	\$29.36	\$40.14	\$0.00	69.50	0.657	\$45.68	3.81	67	1,960.62	2,680.28		4,640.90	3,050.21
Fluorescent 4x72" 600 Watts	367.15	156.68	523.83	\$40.46	\$55.32	\$0.00	95.78	0.657	\$62.95	5.25	15	604.96	827.01		1,431.97	941.15
Fluorescent 1x96" 110 Watts	200.00	156.68	356.68	\$27.55	\$37.67	\$0.00	65.22	0.657	\$42.86	3.57	5	137.31	187.71		325.01	213.61
Fluorescent 1x72" 150 Watts	151.53	156.68	308.21	\$23.81	\$32.55	\$0.00	56.35	0.657	\$37.04	3.09	1	23.73	32.44		56.17	36.92
Fluorescent 4x48" 440 Watts	236.14	156.68	392.82	\$30.34	\$41.48	\$0.00	71.83	0.657	\$47.21	3.93	2	60.49	82.69		143.18	94.10
High Pressure Sodium 70 Watts	207.51	156.68	364.19	\$28.13	\$38.46	\$0.00	66.59	0.657	\$43.77	3.65	40,397	1,136,472.59	1,553,619.87		2,690,092.46	1,768,049.58
High Pressure Sodium 100 Watts	210.65	156.68	367.33	\$28.37	\$38.79	\$0.00	67.16	0.657	\$44.14	3.68	47,078	1,335,827.07	1,826,148.29		3,161,975.36	2,078,192.21
High Pressure Sodium 150 Watts	232.66	156.68	389.35	\$30.08	\$41.12	\$0.00	71.19	0.657	\$46.79	3.90	5,711	171,764.17	234,810.97		406,575.14	267,219.44
High Pressure Sodium 250 Watts	231.67	156.68	388.36	\$30.00	\$41.01	\$0.00	71.01	0.657	\$46.67	3.89	5,532	165,945.45	226,856.46		392,801.92	258,167.06
High Pressure Sodium 400 Watts	246.21	156.68	402.90	\$31.12	\$42.55	\$0.00	73.67	0.657	\$48.42	4.03	3,652	113,654.98	155,372.54		269,027.52	176,816.97
High Pressure Sodium 1000 Watts	615.53	156.68	772.21	\$59.65	\$81.55	\$0.00	141.20	0.657	\$92.80	7.73	-	-	-		-	-
Low Pressure Sodium 90 Watts	554.53	156.68	711.21	\$54.94	\$75.10	\$0.00	130.04	0.657	\$85.47	7.12	-	-	-		-	-
Low Pressure Sodium 135 Watts	554.53	156.68	711.21	\$54.94	\$75.10	\$0.00	130.04	0.657	\$85.47	7.12	58	3,175.91	4,341.65		7,517.56	4,940.88
Low Pressure Sodium 180 Watts	880.14	156.68	1,036.82	\$80.09	\$109.49	\$0.00	189.58	0.657	\$124.60	10.38	803	64,339.83	87,956.05		152,295.89	100,095.70
Metallic Arc 250 Watts	298.33	156.68	455.01	\$35.15	\$48.05	\$0.00	83.20	0.657	\$54.68	4.56	113	3,958.58	5,411.60		9,370.19	6,158.51
Metallic Arc 400 Watts	305.76	156.68	462.44	\$35.72	\$48.83	\$0.00	84.56	0.657	\$55.57	4.63	1,311	46,819.11	64,004.26		110,823.37	72,838.10
Metallic Arc 1000 Watts	\$526.16	156.68	\$682.84	\$52.75	\$72.11	\$0.00	\$124.85	0.657	\$82.06	\$6.84	978	51,573.67	70,504.02		122,077.69	80,234.94
Metallic Additive 100 Watts	\$0.00	156.68	\$156.68	\$12.10	\$16.55	\$0.00	\$28.65	0.657	\$18.83	\$1.57	7	84.44	115.44		199.88	131.37
Total											123,434	\$3,605,055	\$4,928,307		\$8,533,362	\$5,608,509

SCHEDULE 5

STREET / CROSSWALK LIGHTING STUDY

**Tax-Adjusted Weighted Average Cost of Capital Rate by Components
For 2012 Street Light Rates**

a) Weighted Average Cost of Capital - Pretax			Non-LED
	Proportion	Cost	Extended
ST Debt	7.5%	2.0%	0.1%
LT Debt	51.0%	8.0%	4.1%
Preferred	3.8%	5.9%	0.2%
Common	37.5%	9.2%	3.5%
	<u>99.9%</u>		<u>7.9%</u>
WACC - pretax cost			7.88%
b) Additional income tax for common equity			
Extended equity cost			3.45%
Effective tax rate (excluding surtax)			31.0%
Income tax			1.55%
WACC - equity tax cost			1.55%
c) Large Corporations Tax			
Provincial capital tax (2011)			0.025%
Federal capital tax (2011)			0.000%
Ave. NBV - Street Lighting			\$21.741
Ave. NBV - Assigned GP Plt.			1.758
Ave. Deferred Chgs & W/C			<u>2.716</u>
NPV - Total Street Lighting			\$26.214
Provincial capital tax			\$0.007
Federal capital tax			\$0.000
Total			\$0.007
Percentage of NBV			0.03%
WACC - Large Corporations Tax			0.03%
d) Grants in Lieu of Property Tax			
Total 2012 Forecasted Expense			\$36.400
St. Lgts. % of Total Electric Plant			0.80%
St. Lgts. Allocated Amount			\$0.290
Percentage of NBV			1.10%
WACC - Grants in Lieu of Property Tax			1.10%
Total WACC - Interest / Carrying Cost			10.56%

SCHEDULE 5A

STREET / CROSSWALK LIGHTING STUDY

Tax-Adjusted Weighted Average Cost of Capital Amounts by Components
For 2012 Street Light RatesCapital Cost Expenses (Net Plant Value)
For 2012 Street Light Rates

Depreciation Rate
Salvage Rate
Salvage Incl. in Depreciation Rate
Gross-up factor for tax purposes (LED only)

5.33%
0.00%
0.00%
0.00%

	<u>Non LED</u>	<u>Non LED</u>
Gross Plant Value (YA)		\$46,670
Net Plant Value (YA)		\$21,741

a) Weighted Average Cost of Capital - Pretax

ST Debt	0.15%	
LT Debt	4.06%	
<i>Subtotal</i>		768
Preferred	0.23%	\$50.4
Common	<u>3.45%</u>	<u>\$733.9</u>
WACC - pretax cost	7.88%	\$1,552.0

b) Additional income tax for common equity

WACC - equity tax cost	1.55%	
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c) Large Corporations Tax

WACC - Large Corporations Tax	0.03%	
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Subtotal

\$212.9

d) Grants in Lieu of Property Tax

WACC - Grants in Lieu of Property Tax	1.10%	<u>\$223.9</u>
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Subtotal Financing Expense	10.56%	<u>\$1,988.8</u>
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Depreciation Expense		<u>\$2,426.8</u>
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Gross up for Tax Purposes

Total Depreciation Expense including Gross up for Tax Purposes

CCA		<u>\$0.0</u>
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TOTAL CAPITAL COST EXPENSE		<u>\$4,415.6</u>
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SCHEDULE 6

**STREET / CROSSWALK LIGHTING STUDY
AREA LIGHTING MATERIAL COST ANALYSIS
March 2011**

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	\$229.55	\$122.41	\$15.99	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 125 Watts	\$204.78	\$102.95	\$10.68	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 175 Watts	\$201.27	\$102.95	\$7.17	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$301.45	\$198.75	\$8.98	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 700 Watts	\$449.78	\$318.97	\$37.10	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$579.25	\$439.19	\$46.35	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Mercury Vapour 250 Watt Cont. Oper.	\$291.38	\$189.80	\$7.86	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
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	\$207.51	\$120.88	\$8.81	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 100W	\$210.65	\$124.02	\$8.62	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 150W	\$232.66	\$146.03	\$8.67	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
High Pressure Sodium 250 Watts	\$231.67	\$142.48	\$10.59	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
High Pressure Sodium 400 Watts	\$246.21	\$157.02	\$13.19	\$4.52	\$69.88	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 90W	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 135 Watts	\$554.53	\$463.38	\$44.00	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Low Pressure Sodium 180 Watts	\$880.14	\$788.99	\$54.77	\$4.52	\$67.32	\$16.71	\$1.09	\$1.51
Metallic Additive 250W	\$298.33	\$190.30	\$18.83	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 400 Watts	\$305.76	\$201.63	\$14.93	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$526.16	\$405.65	\$31.31	\$0.00	\$69.88	\$16.71	\$1.09	\$1.51

Light Type Flood Lights	Material Cost	Fixture	Lamp	Photocell	Davit	Wire	Connectors	Fasteners
Mercury Vapour 175 Watts	\$67.32	\$53.03	\$7.17	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 250 Watts	\$412.88	\$397.90	\$7.86	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 400 Watts	\$297.27	\$281.17	\$8.98	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Mercury Vapour 1000 Watts	\$507.90	\$439.19	\$46.35	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
HIS 150W	\$215.75	\$183.39	\$25.23	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 250 Watts	\$202.12	\$184.41	\$10.59	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
High Intensity Sodium 400 Watts	\$215.26	\$194.95	\$13.19	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Additive 250W	\$216.25	\$190.30	\$18.83	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 400 Watts	\$223.69	\$201.63	\$14.93	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Metallic Arc 1000 Watts	\$459.33	\$405.65	\$31.31	\$19.77	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 70W HPS	\$197.77	\$195.17	\$8.81	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51
Dusk-to-Dawn 100W HPS	\$143.10	\$140.50	\$8.62	\$4.52	\$0.00	\$0.00	\$1.09	\$1.51

SCHEDULE 7

STREET / CROSSWALK LIGHTING STUDY**AREA LIGHTING MATERIAL COST ANALYSIS**

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0000386440	LAMP FLUORESCENT 40W 48	1.35	
0000386450	LAMP FLUORESCENT 40W 48	1.36	
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	3.19	
0000387360	LAMP FLUORESCENT 85W 72	6.54	
0000388000	LAMP 100 WATT M.V.	15.99	
0000388180	LAMP 125 WATT M.V.	10.68	
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	46.35	
0000388990	LAMP 70 WATT H.P.S.	8.81	
0000389000	LAMP 100 WATT H.P.S.	8.62	
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.	10.59	
0000389400	LAMP 400 WATT H.P.S.	13.19	
0000389450	LAMP 1000W HPS	60.32	
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"	4.36	
0050091540	BOLT LAG 1/2"X 4" GALV	0.46	
0050103120	BOLT MACHINE 5/8" X 12"	1.05	
0054223510	CRIMPIT #2/0- #8 WR139	0.55	
0057151000	BRACKET 10'L	101.45	
0057152040	BRACKET 1 1/4"X4' FIXED	60.02	
0057152220	BRACKET 4'X 2' 16" TEN	27.46	
0057154060	BRACKET 1 1/4"X6' LOWER	67.32	
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'	69.88	
0057156080	BRACKET FIXED 2" X 8'	87.48	
0057157010	BRACKET TAPERED 12'L	173.80	
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**

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057350720	LUM LPS 180W 120/240/347 V	788.99	R04B
0057350750	LUMINAIRE LPS 180W 240V	493.30	XX
0057350800	LUMINAIRE LPS 180W 347V	780.20	XX
0057350830	LUMINAIRE HPS 70W POLY	73.33	XX
0057350835	LUM. 70W POLY C/W LAMP	99.23	XX
0057350836	LUM 70W POLY ALUM.ALLOY	97.70	XX
0057350837	LUMINAIRE 70W HPS CWA ACRYLIC	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 CWA	124.02	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 GLASS	146.03	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 GLASS	142.48	C07A
0057351400	LUMINAIRE 250W HPS CWI 347V	160.68	C05A
0057351710	LUMINAIRE HPS 400W GLAS	109.60	XX
0057351715	LUMINAIRE 400W HPS CWI 120/240	157.02	M12A
0057351720	LUMINAIRE HPS 400W 240V	204.30	XX
0057351730	LUMINAIRE HPS 400W 347V	196.00	XX
0057351760	LUMINAIRE 400W 600V HPS CWI GL	172.33	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	195.17	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	183.39	C17A
0057402240	FLOODLIGHT M.V. 175W	53.03	
0057403330	FLOODLIGHT M V 250 W	397.90	XX
0057403500	FLOODLIGHT 250W HPS CWI	184.41	
0057404050	FLOODLIGHT M V 400 W	281.17	XX
0057404600	FLOODLIGHT 400W HPS CWI	194.95	C11A

SCHEDULE 7

STREET / CROSSWALK LIGHTING STUDY**AREA LIGHTING MATERIAL COST ANALYSIS**

March 2011

ITEM	DESCRIPTION	AVG COST 2011	Location
0057408250	FLOODLIGHT MTL HAL.250W	190.30	D05B
0057408500	FLOODLIGHT 400W MTL-HAL CWI	201.63	D03A
0057409000	FLOODLIGHT 1000W MH CWI	405.65	
0057409380	FLOODLIGHT M V 1000 W	439.19	XX
0057600450	BRACKET & ADAPTORS	9.40	
0057601010	CAP SHORTING TWIST LOCK	4.87	
0057601200	CONTROL 120 V PHOTO	7.05	
0057601400	CONTROL ELECT 120V PHOTOCELL	4.52	
0057602000	PHOTO CONTROL 120V HD	19.77	
0057602400	CONTROL 240V ELECT PHOTOCELL	10.96	
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	18.99	
0057604240	REFRACTOR GLASS OV15	16.00	
0057604250	REFRACTOR POLY LUM OV15	24.00	
0057604255	REFRACTOR STREETLIGHT OV	18.12	
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	214.85	
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	1.03	

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 IES Lighting Handbook, 1981 Edition
(IES = Illuminating Engineering Society)

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. This is gives a life that is consistent with previous rate calculations.

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE JANUARY 1, 2012

Description	Rate	Power				2012 New Proposed	2012 New Proposed	2011 Current	Percent	2012		Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
Incandescent < 300 Watts - Note 1	001	97	\$11.68	3.65	\$2.21	\$17.54	\$5,664	\$20.18	-13.1%	27	(\$851)	0.291	7.831	
Incandescent > 300 Watts - Note 1	002	154	18.54	3.65	2.37	\$24.55	587	\$26.56	-7.5%	2	(48)	0.462	0.921	
Incandescent < 300 Watts - Note 1	003	97	11.68	0.00	0.00	\$11.68	<u>978</u> 7,230	\$10.64	9.8%	<u>7</u> 36	<u>87</u> (812)	0.291	2.030	
Mercury Vapour :														
Mercury Vapour 100 Watts	100	43	5.19	3.65	3.87	\$12.71	41,338	\$13.40	-5.2%	271	(2,247)	0.129	34.972	
Mercury Vapour 125 Watts	101	52	6.25	4.87	3.62	\$14.74	1,977,721	\$15.05	-2.1%	11,185	(42,153)	0.156	1,744.849	
Mercury Vapour 175 Watts	102	69	8.29	3.65	3.58	\$15.52	498,332	\$15.84	-2.0%	2,675	(10,212)	0.207	553.753	
Mercury Vapour 250 Watts	103	97	11.68	3.65	4.49	\$19.82	244,827	\$20.18	-1.8%	1,030	(4,455)	0.291	299.610	
Mercury Vapour 400 Watts	104	154	18.54	3.65	4.59	\$26.78	452,528	\$26.56	0.8%	1,408	3,728	0.462	650.650	
Mercury Vapour 700 Watts	105	260	31.32	3.65	6.07	\$41.04	5,400	\$40.20	2.1%	11	111	0.780	8.552	
Mercury Vapour 1000 Watts	106	363	43.73	3.65	7.37	\$54.75	56,314	\$53.19	2.9%	86	1,607	1.089	93.345	
Mercury Vapour 250 Watt Cont. Oper.	107	212	19.83	7.30	4.49	\$31.61	1,134	\$30.68	3.1%	3	34	0.291	0.870	0.870
Mercury Vapour 125 Watts	201	52	6.25	4.87	0.00	\$11.12	931	\$9.79	13.5%	7	111	0.156	1.088	
Mercury Vapour 175 Watts	202	69	8.29	3.65	0.00	\$11.94	2,999	\$10.63	12.3%	21	328	0.207	4.333	
Mercury Vapour 250 Watts	203	97	11.68	3.65	0.00	\$15.33	6,417	\$13.72	11.7%	35	674	0.291	10.151	
Mercury Vapour 400 Watts	204	154	18.54	3.65	0.00	\$22.19	2,388	\$19.96	11.1%	9	240	0.462	4.144	
Mercury Vapour 700 Watts	205	260	31.32	3.65	0.00	\$34.97	0	\$31.60	10.7%	0	0	0.780	0.000	
Mercury Vapour 1000 Watts	206	363	43.73	3.65	0.00	\$47.38	12,467	\$42.90	10.4%	22	1,178	1.089	23.879	
Mercury Vapour 125 Watts	301	52	6.25	0.00	0.00	\$6.25	822	\$5.69	9.8%	11	73	0.156	1.710	
Mercury Vapour 175 Watts	302	69	8.29	0.00	0.00	\$8.29	15,567	\$7.55	9.8%	156	1,386	0.207	32.392	
Mercury Vapour 250 Watts	303	97	11.68	0.00	0.00	\$11.68	7,544	\$10.64	9.8%	54	672	0.291	15.662	
Mercury Vapour 400 Watts	304	154	18.54	0.00	0.00	\$18.54	3,326	\$16.88	9.8%	15	297	0.462	6.907	
Mercury Vapour 700 Watts	305	260	31.32	0.00	0.00	\$31.32	375	\$28.52	9.8%	1	34	0.780	0.777	
Mercury Vapour 1000 Watts	306	363	43.73	0.00	0.00	\$43.73	<u>3,661</u> 3,334,090	\$39.82	9.8%	<u>7</u> 17,007	<u>327</u> (48,267)	1.089	7.598	
Fluorescent :														
Fluorescent 2x24" 70 Watts	110	30	3.62	7.30	2.90	\$13.82	148,258	\$13.74	0.6%	894	826	0.091	81.357	
Fluorescent 2x48" 220 Watts	111	85	10.24	7.30	3.22	\$20.76	28,303	\$20.20	2.8%	114	765	0.254	28.860	
Fluorescent 2x72" 300 Watts	112	116	13.99	7.30	3.81	\$25.09	20,109	\$24.41	2.8%	67	549	0.348	23.239	
Fluorescent 4x72" 600 Watts	113	222	26.72	7.30	5.25	\$39.26	7,044	\$37.95	3.5%	15	235	0.665	9.942	
Fluorescent 1x96" 110 Watts	114	47	5.65	7.30	3.57	\$16.52	988	\$16.50	0.1%	5	1	0.141	0.703	
Fluorescent 1x72" 150 Watts	115	60	7.23	7.30	3.09	\$17.61	211	\$17.28	1.9%	1	4	0.180	0.179	
Fluorescent 4x48" 440 Watts	116	166	20.02	7.30	3.93	\$31.25	<u>748</u> 205,661	\$30.07	3.9%	<u>2</u> 1,097	<u>28</u> 2,408	0.499	0.995	
Fluorescent 4x72" 600 Watts	213	222	26.72	7.30	0.00	\$34.02	0	\$30.48	11.6%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	214	47	5.65	7.30	0.00	\$12.95	4,026	\$11.30	14.6%	26	513	0.141	3.654	
Fluorescent 1x72" 150 Watts	215	60	7.23	7.30	0.00	\$14.53	521	\$12.74	14.1%	3	64	0.180	0.538	
Fluorescent 4x48" 440 Watts	216	166	20.02	7.30	0.00	\$27.32	0	\$24.38	12.0%	0	0	0.499	0.000	
Fluorescent 1x48" 120 Watts	217	49	5.88	7.30	0.00	\$13.18	158	\$11.51	14.5%	1	20	0.146	0.146	
Fluorescent 2x48" 220 Watts	218	85	10.24	7.30	0.00	\$17.54	0	\$15.47	13.4%	0	0	0.254	0.000	
Fluorescent 4x35"	330	47	5.65	0.00	0.00	\$5.65	<u>135</u> 4,840	\$5.15	9.7%	<u>2</u> 32	<u>12</u> 609	0.140	0.279	

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
EFFECTIVE JANUARY 1, 2012

Description	Rate	Power				2012 New Proposed	2012 New Proposed	2011 Current	Percent	2012	Revenue	Connected	Total	Continuous
	Code	kW.h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
Fluorescent Crosswalk - Continuous Burning - Customer Owned :														
Fluorescent 4x72" 600 Watts	117	486	45.45	0.00	0.00	\$45.45	544	\$41.39	9.8%	1	49	0.665	0.663	0.663
Fluorescent 2x24" 70 Watts	118	66	6.16	0.00	0.00	\$6.16	1,252	\$5.61	9.8%	17	112	0.091	1.542	1.542
Fluorescent 4x48" 440 Watts	119	364	34.06	0.00	0.00	\$34.06	9,370	\$31.01	9.8%	23	839	0.499	11.439	11.439
Fluorescent 2x96"	120	254	23.77	0.00	0.00	\$23.77	8,529	\$21.64	9.8%	30	763	0.348	10.406	10.406
Fluorescent 4x96"	150	613	57.34	0.00	0.00	\$57.34	<u>14,402</u>	\$52.21	9.8%	21	<u>1,288</u>	0.840	17.582	17.582
							34,096			92	3,051			
Fluorescent Crosswalk - Photocell Burning - Customer Owned :														
Fluorescent 2x24" 70 Watts	310	30	3.62	0.00	0.00	\$3.62	87	\$3.30	9.8%	2	8	0.091	0.181	
Fluorescent 4x48" 440 Watts	311	166	20.02	0.00	0.00	\$20.02	1,197	\$18.23	9.8%	5	107	0.499	2.487	
Fluorescent 2x72" 300 Watts	312	116	13.99	0.00	0.00	\$13.99	167	\$12.74	9.8%	1	15	0.348	0.347	
Fluorescent 4x72" 600 Watts	313	222	26.72	0.00	0.00	\$26.72	0	\$24.33	9.8%	0	0	0.665	0.000	
Fluorescent 1x96" 110 Watts	314	47	5.65	0.00	0.00	\$5.65	1,689	\$5.15	9.7%	25	150	0.142	3.538	
Fluorescent 1x72" 150 Watts	315	60	7.23	0.00	0.00	\$7.23	0	\$6.59	9.8%	0	0	0.180	0.000	
Fluorescent 4x96"	350	280	33.74	0.00	0.00	\$33.74	<u>30,669</u>	\$30.72	9.8%	76	<u>2,745</u>	0.841	63.705	
							33,810			109	3,025			
Low Pressure Sodium :														
Low Pressure Sodium 135 Watts	130	60	7.23	10.95	7.12	\$25.30	17,550	\$26.41	-4.2%	58	(769)	0.180	10.406	
Low Pressure Sodium 180 Watts	131	80	9.64	10.95	10.38	\$30.97	298,550	\$28.05	10.4%	803	28,174	0.240	192.801	
Low Pressure Sodium 90 Watts	132	45	5.41	10.95	7.12	\$23.48	0	\$24.75	-5.1%	0	0	0.135	0.000	
Low Pressure Sodium 180 Watts E&M	231	80	9.64	10.95	0.00	\$20.59	9,603	\$18.01	14.3%	39	1,202	0.240	9.329	
Low Pressure Sodium 180 Watts E/O	331	80	9.64	0.00	0.00	\$9.64	<u>4,266</u>	\$8.78	9.8%	<u>37</u>	<u>381</u>	0.240	8.851	
							329,969			937	28,988			
High Pressure Sodium :														
High Pressure Sodium 250 Watts	121	100	12.05	3.65	3.89	\$19.59	1,300,255	\$19.83	-1.2%	5,532	(16,053)	0.300	1,659.500	
High Pressure Sodium 400 Watts	122	150	18.07	3.65	4.03	\$25.75	1,128,596	\$25.48	1.1%	3,652	12,160	0.450	1,643.353	
High Pressure Sodium 70 Watts	123	32	3.84	3.65	3.65	\$11.14	5,398,374	\$11.78	-5.5%	40,397	(312,511)	0.096	3,878.123	
High Pressure Sodium 100 Watts	124	45	5.41	3.65	3.68	\$12.74	7,193,562	\$13.10	-2.8%	47,063	(205,997)	0.135	6,353.507	
High Pressure Sodium 150 Watts	125	65	7.83	3.65	3.90	\$15.38	1,053,896	\$15.35	0.2%	5,711	2,216	0.195	1,113.659	
HP Sodium 100 Watts - Cont. Oper.	126	99	9.24	7.30	3.68	\$20.22	3,627	\$19.67	2.8%	15	99	0.135	2.018	2.018
High Pressure Sodium 250 Watts	221	100	12.05	3.65	0.00	\$15.70	32,108	\$14.05	11.7%	170	3,371	0.300	51.131	
High Pressure Sodium 70 Watts	222	32	3.84	3.65	0.00	\$7.49	23,109	\$6.58	13.8%	257	2,806	0.096	24.686	
High Pressure Sodium 100 Watts	223	45	5.41	3.65	0.00	\$9.06	14,627	\$8.01	13.1%	135	1,698	0.135	18.165	
High Pressure Sodium 150 Watts	224	65	7.83	3.65	0.00	\$11.48	31,577	\$10.21	12.4%	229	3,492	0.195	44.702	
High Pressure Sodium 250 Watts	321	100	12.05	0.00	0.00	\$12.05	244,864	\$10.97	9.8%	1,693	21,930	0.300	508.016	
High Pressure Sodium 70 Watts	322	32	3.84	0.00	0.00	\$3.84	290,447	\$3.50	9.7%	6,303	25,758	0.096	605.098	
High Pressure Sodium 100 Watts	323	45	5.41	0.00	0.00	\$5.41	167,199	\$4.93	9.8%	2,575	14,916	0.135	347.688	
High Pressure Sodium 150 Watts	324	65	7.83	0.00	0.00	\$7.83	108,914	\$7.13	9.8%	1,159	9,744	0.195	226.036	
High Pressure Sodium 400 Watts	326	150	18.07	0.00	0.00	\$18.07	19,235	\$16.45	9.8%	89	1,723	0.450	39.918	
High Pressure Sodium 500 Watts	327	183	22.05	0.00	0.00	\$22.05	791	\$20.08	9.8%	3	71	0.550	1.645	
High Pressure Sodium 1000 Watts	328	363	43.74	0.00	0.00	\$43.74	8,370	\$39.83	9.8%	16	748	1.090	17.382	
High Pressure Sodium 1500 Watts	329	500	60.23	0.00	0.00	\$60.23	720	\$54.84	9.8%	<u>1</u>	<u>64</u>	1.090	1.086	
							17,020,271			115,001	(433,829)			

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2012

Description	Rate	Power				2012 New Proposed	2012 New Proposed	2011 Current	Percent	2012	Revenue	Connected	Total	Continuous
	Code	kW,h/Mo.	& Energy	Maintenance	Capital	Rates	Revenue	Rates	Change	Units	Variance	Load (kW)	Load (kW)	Load (kW)
Metallic Additive :														
Metallic Arc 400 Watts	140	150	18.07	5.84	4.63	\$28.54	448,862	\$28.00	1.9%	1,311	8,450	0.450	589.795	
Metallic Arc 1000 Watts	141	360	43.37	8.76	6.84	\$58.97	691,849	\$56.51	4.3%	978	28,778	1.080	1,055.980	
Metallic Arc 250 Watts	142	100	12.05	8.76	4.56	\$25.36	33,066	\$24.90	1.9%	109	604	0.300	32.592	
Metallic Arc 150 Watts	143	67	8.06	8.76	4.56	\$21.37	1,023	\$21.27	0.5%	4	5	0.200	0.797	
Metallic Arc 100 Watts	144	50	6.02	8.76	4.56	\$19.33	1,619	\$19.41	-0.4%	7	(6)	0.150	1.047	
Metallic Arc 1000 Watts	341	360	43.37	0	0	\$43.37	11,412	\$39.49	9.8%	22	1,021	1.080	23.682	
Metallic Arc 400 Watts	342	150	18.07	0	0	\$18.07	34,364	\$16.45	9.8%	158	3,078	0.450	71.314	
Metallic Arc 250 Watts	343	100	12.05	0	0	\$12.05	12,106	\$10.97	9.8%	84	1,084	0.300	25.117	
Metallic Arc 175 Watts	344	75	9.03	0	0	\$9.03	12,096	\$8.23	9.8%	112	1,078	0.225	25.117	
Metallic Arc 150 Watts	345	67	8.06	0	0	\$8.06	1,928	\$7.34	9.8%	20	172	0.200	3.987	
Metallic Arc 100 Watts	346	50	6.02	0	0	\$6.02	0	\$5.48	9.8%	0	0	0.150	0.000	
							1,248,325			2,804	44,264			
Light Emitting Diode - Traffic Lights														
Light Emitting Diode 4.6 Watts	530	3	0.29	0	0	\$0.29	0	\$0.27	7.4%		0		0.000	
Light Emitting Diode 7.5 Watts	531	5	0.49	0	0	\$0.49	0	\$0.44	11.4%		0		0.000	
							0							
Light Emitting Diode (Energy Only)														
Lighting Emitting Diode 44 Watts	532	15	1.81	0	0	\$1.81	2,078	\$1.63	11.1%	96	208	0.440	42.100	
Lighting Emitting Diode 66 Watts	533	22	2.65	0	0	\$2.65	2,187	\$2.41	9.8%	69	195	0.660	45.390	
Lighting Emitting Diode 88 Watts	534	29	3.49	0	0	\$3.49	12,147	\$3.21	8.8%	290	983	0.880	255.234	
Lighting Emitting Diode 92 Watts	535	31	3.73	0	0	\$3.73	0	\$3.37	10.7%	0	0	0.920	0.000	
Lighting Emitting Diode 105 Watts	536	35	4.22	0	0	\$4.22	0	\$3.84	9.9%	0	0	0.105	0.000	
Lighting Emitting Diode 170 Watts	537	57	6.87	0	0	\$6.87	0	\$6.24	10.0%	0	0	0.170	0.000	
Lighting Emitting Diode 110 Watts	539	37	4.46	0	0	\$4.46	5,548	\$4.05	10.1%	104	507	0.110	11.402	
Lighting Emitting Diode 65 Watts	540	22	2.65	0	0	\$2.65	9,667	\$2.40	10.3%	304	900	0.650	197.595	
Lighting Emitting Diode 55 Watts	541	18	2.17	0	0	\$2.17	5,139	1.99	9.0%	197	426	0.550	108.540	
Lighting Emitting Diode 83 Watts	542	28	3.37	0	0	\$3.37	3,305	3.07	9.8%	82	294	0.830	67.835	
Lighting Emitting Diode 48 Watts	543	16	1.93	0	0	\$1.93	1,662	1.77	9.0%	72	138	0.830	59.563	
Lighting Emitting Diode 72 Watts	544	24	2.89	0	0	\$2.89	10,646	2.62	10.3%	307	995	0.830	254.796	
		0	0.00				52,379			1,520				
TOTALS							\$22,270,671			138,634			23,396.786	44.519
										138,634				
Non LED										137,114				
LED										1,520				
Total										138,634				
Non LED														
Energy Only										123,434				
Maintenance										954				
Capital										12,726				
Total										137,114				

Count = 93

STREET / CROSSWALK LIGHTING STUDY

ANALYSIS & COMPARISON OF PROPOSED VS CURRENT STREET LIGHTING RATES
 EFFECTIVE JANUARY 1, 2012

Description	Rate Code	kW,h/Mo.	Power			2012 New Proposed	2012 New Proposed	2011 Current	Percent Change	2012	Revenue Variance	Connected Load (kW)	Total Load (kW)	Continuous Load (kW)
			& Energy	Maintenance	Capital	Rates	Revenue	Rates		Units				

Note 1 - Red highlighted P&E charges relate to calculated rounding differences using Misc. Small Loads Tariff.
 Note 2 - Incandescent rates were set at 250W and 400W Mercury Vapour

Miscellaneous Small Loads Rate			Calculation of Power & Energy Rate :		
Demand Charge	\$/kW	8.505	Based on Misc. Small Loads Tariff Rate Components & 1kW lighting load		
Block 1 Energy			Photocell Operation (4000 burning hours per year)		
Base cost of fuel	¢/kWh	4.816	Demand Charge \$/kW (annual) 9.339 \$112.07		
Non-fuel	¢/kWh	4.910	Energy Charge :		
AA	¢/kWh	-	1st Block : 1st 200 kW.h (annual) 2,400 0.10680 256.32		
BA	¢/kWh	-	2nd Block : All additional (annual) 1,600 0.07091 113.46		
Total Energy Charge, block 1 (first 200kWh *)	¢/kWh	9.726	481.85		
Block 2 Energy			Rate per kW.h 4,000 \$0.1204624		
Base cost of fuel	¢/kWh	4.816	Continuous Burning (8760 burning hours per year)		
Non-fuel	¢/kWh	1.641	Demand Charge \$/kW (annual) 9.339 \$112.07		
AA	¢/kWh	-	Energy Charge :		
BA	¢/kWh	-	1st Block : 1st 200 kW.h (annual) 2,400 0.10680 256.32		
Total Energy Charge, block 2	¢/kWh	6.457	2nd Block : All additional (annual) 6,360 0.07091 450.99		
			819.38		
			Rate per kW.h 8,760 \$0.0935366		

Appendix - Interim Full Service LED Streetlight Rates

Schedule 10

Description	Rate Code	kWh/Mo	Submission from May 13th				Compliance Filing			
			Power & Energy	Maintenance	Capital	2012 Proposed Rates	Power & Energy	Maintenance	Capital reduced by 15%	2012 Proposed Rates
LED Sat-48-44W	615	15	\$1.98	\$0.00	\$7.85	\$9.83	\$1.98	\$0.00	\$6.67	\$8.65
LED Sat-48-55W	616	18	\$2.37	\$0.00	\$7.85	\$10.22	\$2.37	\$0.00	\$6.67	\$9.04
LED Sat-48-74W	617	25	\$3.30	\$0.00	\$7.85	\$11.15	\$3.30	\$0.00	\$6.67	\$9.97
LED Sat-48-87W	618	29	\$3.82	\$0.00	\$7.85	\$11.67	\$3.82	\$0.00	\$6.67	\$10.49
LED Sat-72-65W	619	22	\$2.90	\$0.00	\$10.41	\$13.31	\$2.90	\$0.00	\$8.85	\$11.75
LED Sat-96-88W	620	29	\$3.82	\$0.00	\$11.77	\$15.59	\$3.82	\$0.00	\$10.00	\$13.82
LED Sat-96-110W	621	37	\$4.88	\$0.00	\$11.77	\$16.65	\$4.88	\$0.00	\$10.00	\$14.88
LED Sat-96-173W	622	58	\$7.65	\$0.00	\$11.77	\$19.42	\$7.65	\$0.00	\$10.00	\$17.65

NON-CONFIDENTIAL

1 **Request IR-12:**

2

3 **Please provide an electronic file, in excel or compatible format of the 2006 Unmetered**
4 **Class Cost of Service and Pricing Study which states and identifies all formulas.**

5

6 Response IR-12:

7

8 Please refer to Attachment 1, filed electronically.

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	<u>3</u>	0	<u>0</u>	<u>3</u>
		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.	<u>5</u>	<u>0</u>	<u>0</u>	<u>5</u>
		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"	<u>0</u>	<u>0</u>	<u>78</u>	<u>78</u>
		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"	<u>0</u>	<u>0</u>	<u>23</u>	<u>23</u>
		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"	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
		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
452 (Kent.)	High Pressure Sodium 1000 Watts	<u>7</u>	<u>0</u>	<u>0</u>	<u>7</u>
		98,381	726	11,872	110,979
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	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
		933	43	37	1,013
140/342	Metallic Arc 400 Watts	1,215	0	153	1,368
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	<u>0</u>	<u>0</u>	<u>3</u>	<u>3</u>
		2,112	1	305	2,418
TOTAL		<u>120,725</u>	<u>894</u>	<u>12,668</u>	<u>134,287</u>

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

(A) <u>Code</u>	(B) <u>Lamp Type</u>	(C) <u>Service Life (Years)</u>	(D) <u>Maintenance Weighting Factors</u>	(E) <u># of Full Chg & Eng.+Maint. Fixtures</u>	(F) <u>Weighted Total</u>	(G) <u>Cost Per Year</u>	(H) <u>Cost Per Month</u>
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	\$50.02	\$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	99,107	99,107	\$37.52	\$3.13
E	Incandescent	0.625	9.6000	34	326	\$360.18	\$30.01
G	Metallic Arc 150 & 250W	2.500	2.4000	65	156	\$90.04	\$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	\$90.04	\$7.50
J	Low Pressure Sodium	2.000	3.0000	<u>976</u>	<u>2,928</u>	\$112.56	\$9.38
				121,619	131,028		

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

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 Intensity Sodium 70 Watts	<i>N/A</i>	\$177.00	38,321	6,782,966
High Intensity Sodium 100 Watts	<i>N/A</i>	\$169.17	45,889	7,762,849
High Intensity Sodium 150 Watts	<i>N/A</i>	\$172.21	5,241	902,531
High Intensity Sodium 250 Watts	\$156.49	\$223.05	5,256	1,172,357
High Intensity Sodium 400 Watts	\$173.73	\$238.12	3,667	873,190
Low Pressure Sodium 90 Watts	<i>N/A</i>	\$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	<i>N/A</i>	\$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
			120,718	22,692,751

Total Installation Costs (Labour)

\$21,908,968

Installation Costs per Fixture

\$181.48Escalation Factor (Incandescent) Escalation Factor (Fluorescent)

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	<u>8.37</u>

TOTAL

\$169.17

SCHEDULE 4

STREET / CROSSWALK LIGHTING STUDY

Capital Cost Rate Component CalculationDepreciation 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	\$181.48	\$245.68	\$10.91	\$29.38	\$40.29	\$3.36
Incandescent > 300 Watts	79.53	181.48	261.00	11.59	31.22	42.80	3.57
Mercury Vapour 100 Watts	206.82	181.48	388.30	17.24	46.44	63.68	5.31
Mercury Vapour 125 Watts	182.05	181.48	363.52	16.14	43.48	59.62	4.97
Mercury Vapour 175 Watts	178.55	181.48	360.02	15.99	43.06	59.04	4.92
Mercury Vapour 250 Watts	276.89	181.48	458.37	20.35	54.82	75.17	6.26
Mercury Vapour 400 Watts	286.96	181.48	468.44	20.80	56.03	76.82	6.40
Mercury Vapour 700 Watts	435.30	181.48	616.78	27.38	73.77	101.15	8.43
Mercury Vapour 1000 Watts	559.52	181.48	741.00	32.90	88.62	121.52	10.13
Mercury Vapour 250 Watt Cont. Oper.	276.89	181.48	458.37	20.35	54.82	75.17	6.26
Fluorescent 2x24" 70 Watts	133.05	181.48	314.53	13.97	37.62	51.58	4.30
Fluorescent 2x48" 220 Watts	164.89	181.48	346.37	15.38	41.43	56.80	4.73
Fluorescent 2x72" 300 Watts	223.40	181.48	404.88	17.98	48.42	66.40	5.53
Fluorescent 4x72" 600 Watts	367.15	181.48	548.63	24.36	65.62	89.98	7.50
Fluorescent 1x96" 110 Watts	200.00	181.48	381.48	16.94	45.62	62.56	5.21
Fluorescent 1x72" 150 Watts	151.53	181.48	333.00	14.79	39.83	54.61	4.55
Fluorescent 4x48" 440 Watts	236.14	181.48	417.62	18.54	49.95	68.49	5.71
High Pressure Sodium 70 Watts	177.00	181.48	358.48	15.92	42.87	58.79	4.90
High Pressure Sodium 100 Watts	169.17	181.48	350.64	15.57	41.94	57.51	4.79
High Pressure Sodium 150 Watts	172.21	181.48	353.68	15.70	42.30	58.00	4.83
High Pressure Sodium 250 Watts	223.05	181.48	404.53	17.96	48.38	66.34	5.53
High Pressure Sodium 400 Watts	238.12	181.48	419.60	18.63	50.18	68.81	5.73
Low Pressure Sodium 90 Watts	575.81	181.48	757.28	33.62	90.57	124.19	10.35
Low Pressure Sodium 135 Watts	575.81	181.48	757.28	33.62	90.57	124.19	10.35
Low Pressure Sodium 180 Watts	685.27	181.48	866.74	38.48	103.66	142.15	11.85
Metallic Arc 250 Watts	419.69	181.48	601.17	26.69	71.90	98.59	8.22
Metallic Arc 400 Watts	279.83	181.48	461.31	20.48	55.17	75.65	6.30
Metallic Arc 1000 Watts	\$527.40	\$181.48	\$708.88	\$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 surtax)	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	<u>4.338</u>
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 200CF 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

SCHEDULE 7

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

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>AVG COST</u>	<u>Location</u>
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

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>AVG COST</u>	<u>Location</u>
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

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>AVG COST</u>	<u>Location</u>
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 OV15	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

<u>Description</u>	<u>Rate Code</u>	<u>kW.h/Mo.</u>	<u>Power & Energy</u>	<u>Maintenance</u>	<u>Capital</u>	<u>2006 New Resulting Rates</u>	<u>2006 New Resulting Revenue</u>	<u>2006 Approved Rates</u>	<u>Percent Change</u>	<u>Units</u>	<u>Revenue Variance</u>
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	<u>879</u> 9,206	\$13.69	-23.6%	<u>7</u> 41	<u>(271)</u> 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	2,117,010	12.31	19.8%	11,962	349,984
Mercury Vapour 175 Watts	102	69	7.44	3.13	4.92	15.49	585,534	14.50	6.8%	3,150	37,434
Mercury Vapour 250 Watts	103	97	10.46	3.13	6.26	19.85	273,752	18.52	7.2%	1,149	18,398
Mercury Vapour 400 Watts	104	154	16.61	3.13	6.40	26.14	465,537	27.02	-3.2%	1,484	(15,635)
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	<u>3,289</u>	39.16	0.0%	<u>7</u>	<u>0</u>
							3,588,008			18,443	381,827

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	151,067	10.20	35.2%	913	39,316
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)
							216,802			1,158	42,012
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

<u>Description</u>	<u>Rate Code</u>	<u>kW.h/Mo.</u>	<u>Power & Energy</u>	<u>Maintenance</u>	<u>Capital</u>	<u>2006 New Resulting Rates</u>	<u>2006 New Resulting Revenue</u>	<u>2006 Approved Rates</u>	<u>Percent Change</u>	<u>Units</u>	<u>Revenue Variance</u>
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	311,691	19.17	55.7%	870	111,557
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	<u>3,832</u> 344,584	8.63	0.0%	<u>37</u> 1,013	<u>2</u> 121,278
High Pressure Sodium :											
High Pressure Sodium 70 Watts	123	32	3.45	3.13	4.90	11.48	5,278,759	10.99	4.5%	38,321	224,986
High Pressure Sodium 100 Watts	124	45	4.85	3.13	4.79	12.77	7,033,207	12.82	-0.4%	45,889	(26,357)
High Pressure Sodium 150 Watts	125	65	7.01	3.13	4.83	14.97	941,725	15.66	-4.4%	5,241	(43,164)
High Pressure Sodium 250 Watts	121	100	10.79	3.13	5.53	19.45	1,226,660	20.59	-5.5%	5,256	(71,992)
High Pressure Sodium 400 Watts	122	150	16.18	3.13	5.73	25.04	1,102,059	27.62	-9.3%	3,667	(113,331)
High Pressure Sodium 1000 Watts	452	363	39.16	4.23	17.90	61.29	5,148	61.31	0.0%	7	(1)
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	<u>711</u> 16,421,298	19.76	-0.1%	<u>3</u> 110,979	<u>(1)</u> (28,380)
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	400,725	33.82	-18.7%	1,215	(92,371)
Metallic Arc 1000 Watts	141	360	38.84	7.50	9.69	56.03	560,056	69.40	-19.3%	833	(133,666)
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

STREET / CROSSWALK LIGHTING STUDY

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

<u>Description</u>	<u>Rate Code</u>	<u>kW.h/Mo.</u>	<u>Power & Energy</u>	<u>Maintenance</u>	<u>Capital</u>	<u>2006 New Resulting Rates</u>	<u>2006 New Resulting Revenue</u>	<u>2006 Approved Rates</u>	<u>Percent Change</u>	<u>Units</u>	<u>Revenue Variance</u>
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)
Metallic Arc 150 Watts	345	57	6.15	0	0	6.15	<u>221</u>	7.21	-14.7%	<u>3</u>	<u>(38)</u>
							1,031,161			2,418	(224,500)
TOTALS							\$21,677,824			134,287	\$276,127

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			
<u>Photocell Operation (4000 burning hours per year)</u>			
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	<u>8.43</u>
			\$35.96
Rate per kW.h	333		<u>\$0.107880</u>
<u>Continuous Burning (8760 burning hours per year)</u>			
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	<u>33.50</u>
			\$61.03
Rate per kW.h	730		<u>\$0.083603</u>

NON-CONFIDENTIAL

1 **Request IR-13:**

2
3 **Please provide annual totals of streetlights replaced in each of the last 10 years.**

4
5 Response IR-13:

6
7 NS Power does not separately track this information; however, data from relevant systems was
8 compiled to help inform the answer. The numbers are indicative but should not be considered
9 exact. The numbers below are not associated with the accounting for the streetlight costs. Please
10 refer to the figure below.

11

Number of Streetlights Replaced or Retired											
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Quantity	1,132	792	773	702	562	781	832	865	992	712	421

12 *January 1, 2012 to May 31, 2012

13
14 Streetlights replaced for 2005-2009 differ from NSPI (HRM) IR-9 from the 2012 GRA process.¹
15 The numbers reported at that time included all work orders for replacement work rather than the
16 replacement of the streetlight fixture.

¹ NSPI 2012 General Rate Application, NSPI (HRM) IR-9, NSUARB-NSPI-P-892, June 27, 2011.

NON-CONFIDENTIAL

1 **Request IR-14:**

2
3 **Please provide annual totals of streetlights added within the province in each of the last 10**
4 **years.**

5
6 Response IR-14:

7
8 NS Power does not separately track this information; however, data from relevant systems was
9 compiled to help inform the answer. The numbers are indicative provide direction but should not
10 be considered exact. The numbers below are not associated with the accounting for the
11 streetlight costs. Please refer to the figure below.

12

Number of Streetlights Added											
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Quantity	2,884	2,413	3,617	2,157	2,265	1,821	1,855	1,366	992	809	417

13 *January 1, 2012 to May 31, 2012

14
15 Streetlights added for 2005-2009 differ from NSPI (HRM) IR-54 from the 2012 GRA process.¹
16 The numbers reported at that time were compiled from the billing system. NS Power has since
17 learned that system does not store all historical data. The above numbers were calculated based
18 on reports from work order systems.

¹ NSPI 2012 General Rate Application, NSPI (HRM) IR-54, NSUARB-NSPI-P-892, July 18, 2011.