

Reading Municipal Light Department (RMLD) Board of Commissioners
Power & Rate Committee Regular Session Agenda
Wednesday, June 22, 2011
6:30 p.m.
Cafeteria

1. **Executive Session**

Suggested Motion:

Move that the Board go into Executive Session based on Chapter 164 Section 47D exemption from public records and open meeting requirements in certain instances and return to Regular Session.

2. **To discuss Swift River Trading Company, LLC - Indian River Hydroelectric Power Supply**

a. **The Citizens' Advisory Board voted at its meeting on Monday, June 20, 2011**

MOVE that the CAB recommend to the RMLD Board of Commissioners to authorize the General Manager of the Reading Municipal Light Department to finalize negotiations and execute a contract with Swift River Trading Company, LLC for the output of the Indian River Hydroelectric facility owned and operated by Swift River Trading Company, LLC.

Motion carried 5:0:0.

b. **Suggestion Motion Power & Rate Committee to the RMLD Board of Commissioners**

MOVE that the RMLD Board of Commissioners Power & Rate Committee recommend to the RMLD Board of Commissioners to authorize the General Manager of the Reading Municipal Light Department to finalize negotiations and execute a contract with Swift River Trading Company, LLC for the output of the Indian River Hydroelectric facility owned and operated by Swift River Trading Company, LLC.

3. **Response to Commissioner Soli's May 25, 2011 Street Light Inquiry (Attachment)**

4. **Motion to Adjourn**

READING MUNICIPAL LIGHT DEPARTMENT

To: RMLD Board of Commissioners

Date: June 13, 2011

From: Vinnie Cameron

Subject: Response to Commissioner Soli's May 25, 2011 Street Light Rate Inquiry

At the May 25, 2011 Reading Municipal Light Department (RMLD) Board Meeting Commissioner Soli circulated a spreadsheet during the Power and Rate Committee report. Commissioner Soli's handout included statistics questioning the validity and accuracy of the methodology for developing new street light rates included in my Proposed Street Light Rate memo. Chairman Hahn referred the handout to the Power and Rate Committee. Below is my analysis of Commissioner Soli's handout.

Attached are Commissioner Soli's handout and a memo from me to the RMLD Board of Commissioners on the Proposed Street Light Rate, dated April 14, 2011 (My Memo). My Memo was the basis for my recommendation to the Power and Rate Committee, Citizens' Advisory Board (CAB), and the RMLD Board to adjust the RMLD's Street Light Rate.

Commissioner Soli's handout includes Tables 1, 2, and 3 from the May 25, 2011 RMLD Board meeting. Table 1 shows the Street Light Rates, as proposed in My Memo. Commissioner Soli's Total per lamp in his Table 1 is basically the same as what appears in Table 2 of My Memo.

Commissioner Soli's Table 2, shows the Street Light Expenses from the Operating Budgets for the FY10 (actual), FY11 (½ actual and ½ budget), FY11 (12 months budget), and FY12 budget.

Table 3 appears to be a calculation, similar to Table 1, using Operation and Maintenance costs from the FY12 Operating Budget from Table 2. The result is Total per lamp costs, which are significantly different from what I recommended in My Memo and the RMLD Board approved at the 5/25/11 Board meeting.

The difference in Commissioner Soli's calculation, as compared to my calculation, is that he uses only Street Light related costs from the FY12 Operating Budget as the street light maintenance cost. In developing a "cost of service" type rate for the street lights, the maintenance costs should reflect not

only the maintenance costs directly related to the street lights but also a portion of the maintenance costs of the RMLD's distribution system and administrative and general costs.

In Table 2 of My Memo I used \$169,181 as the street light maintenance costs, which represents the costs from the FY11 Cost of Service Study allocated to the streetlights, minus depreciation. The description of how the maintenance costs were developed is clearly stated in the first paragraph of page 2 of My Memo and was discussed at both the Power and Rate Committee and the 5/25/11 Board meetings.

Commissioner Soli's calculation understates the cost of maintaining the street lights on the RMLD's system. The street lights cannot operate correctly without a well maintained distribution system along with administrative and general support. The total maintenance costs for the street lights are identified in Exhibit 5 of the FY11 Cost of Service Study.

My Memo captures the appropriate costs that should be allocated to the street lights in order that they operate in an economic and efficient fashion and are billed accordingly.

Table 1 — Street Light Costs & Rates, as proposed

	Number	Maint factor	Number * factor	% of prev.	Maint \$ =			Total cost	Total per lamp
					% *	Maint \$ per lamp	Capital cost		
Incandescent, 58 watt	479	2.00	958.00	12.37%	169,181	43.68	3,427	24,348	\$50.83
Incandescent, 92 watt	137	2.00	274.00	3.54%	20,921.38	43.68	980	6,964	\$50.83
High-pressure sodium, 50 watt	3,260	0.78	2,542.80	32.82%	5,983.78	17.03	34,118	89,649	\$27.50
High-pressure sodium, 100 watt	1,836	0.78	1,432.08	18.49%	55,531.19	17.03	19,302	50,577	\$27.55
Mercury vapor, 100 watt	1,292	1.25	1,615.00	20.85%	31,274.62	27.30	13,777	49,046	\$37.96
Mercury vapor, ug, 100 watt	59	1.25	73.75	0.95%	35,269.34	27.30	629	2,240	\$37.96
Mercury vapor, 175 watt	6	1.25	7.50	0.10%	1,610.60	27.30	66	230	\$38.30
High-pressure sodium, 250 watt	147	1.25	183.75	2.37%	163.79	27.30	66	7,447	\$50.66
Mercury vapor, 400 watt	55	1.25	68.75	0.89%	4,012.84	27.30	3,434	2,734	\$49.72
High-pressure sodium, 400 watt	473	1.25	591.25	7.63%	1,501.40	27.30	1,233	23,540	\$49.77
Totals	7,744		7,746.88	100.00%	12,912.07	27.30	10,628	87,594	256,775

Table 2 — from RMLD FY12 Operating Budget, Engineering & Operations Div., Street Light Expenses

5585 Acct #	2012 Budget	2011 Budget	2011 1/2 & 1/2	2010 Actual
101 Labor Reg, Street Lights	28,609	19,850	25,278	22,112
102 Labor OT, Street Lights	6,000	5,000	6,625	3,148
106 Vehicle, Street Lights	25,729	21,844	18,091	9,271
109, Street Light Expense	25,000	20,000	26,091	19,193
Totals	85,338	66,694	76,085	53,724

Table 3 — Cost-of-Service v. values from RMLD FY12 Operating Budget, \$85,338 for Street Lights

	Number	Maint factor	Number * factor	% of prev.	Maint \$ =			Total cost	Total per lamp
					% *	Maint \$ per lamp	Capital cost		
Incandescent, 58 watt	479	2.00	958.00	12.37%	85,338	22.03	3,427	13,980	\$29.19
Incandescent, 92 watt	137	2.00	274.00	3.54%	10,553.13	22.03	980	3,998	\$29.18
High-pressure sodium, 50 watt	3,260	0.78	2,542.80	32.82%	3,018.33	8.59	34,118	62,129	\$19.06
High-pressure sodium, 100 watt	1,836	0.78	1,432.08	18.49%	28,010.95	8.59	19,302	35,077	\$19.11
Mercury vapor, 100 watt	1,292	1.25	1,615.00	20.85%	15,775.49	13.77	13,777	31,568	\$24.43
Mercury vapor, ug, 100 watt	59	1.25	73.75	0.95%	17,790.50	13.77	629	1,441	\$24.43
Mercury vapor, 175 watt	6	1.25	7.50	0.10%	812.41	13.77	66	149	\$24.77
High-pressure sodium, 250 watt	147	1.25	183.75	2.37%	82.62	13.77	3,434	5,458	\$37.13
Mercury vapor, 400 watt	55	1.25	68.75	0.89%	2,024.15	13.77	1,233	1,990	\$36.19
High-pressure sodium, 400 watt	473	1.25	591.25	7.63%	757.34	13.77	10,628	17,141	\$36.24
Totals	7,744		7,746.88	100.00%	6,513.09	13.77	87,594	172,932	

READING MUNICIPAL LIGHT DEPARTMENT

To: RMLD Board of Commissioners

Date: April 14, 2011

From: Vinnie Cameron

Subject: Proposed Street Light Rate

The Reading Municipal Light Department (RMLD) filed a rate increase in August, 2010 and received approval from the Massachusetts Department of Public Utilities (MDPU) for a rate increase that became effective on September 1, 2010. At this time, the RMLD decided to assess the Street Light Rate to see if there could be changes to its structure, which would more closely reflect the cost of service included in the FY11 Cost of Service Study (FY11 COSS).

The FY11 COSS showed that the allocated Cost of Service was \$246,083, which represents the allocated capital and operating costs of the street lights in the RMLD's service territory. According to the FY11 COSS, the existing street light revenues are expected to be \$619,877, which represents an over recovery of \$373,795.

Table 1 shows the Street Light Cost Components, which include the bracket, arm, fixture, photo cell, and bulb. The brackets only apply to the 400 Watt Mercury and 400 Watt High Pressure Sodium lights. The poles are charged separately.

Table 2 shows the Street Light Capital and Operating Costs, which includes the capital and operating costs allocated to each type of street light the RMLD provides to the four towns. Column 1 shows the type of street light the RMLD offers to the four towns. The Capital Costs of each street light represents the cost of the street light is shown in Column 2. The Annual Carrying Charge (8%), which represents the depreciation, discount rate, insurance, etc., is used to calculate the Annual Capital Cost of each street light. This Annual Capital Cost represents the amount per kWh the RMLD should recover annually to pay for the capital cost of each type of street light on the system.

Column 3 shows the Annual Capital Cost of the street light type and is calculated by multiplying the Total Capital Cost by the Annual Carrying Charge. Column 4 is the Annual Energy each of the street light types uses annually. Column 5 shows the Capital Cost per kWh, which is the Annual Capital Cost, divided by the Annual Energy.

The Number of Street Lights in the next column represents the amount of each type of street light installed within the four towns the RMLD serves. The Total kWh is the Number of Street Lights multiplied times the Annual Energy. The Total Capital Costs for each street light type is derived by multiplying the Annual Capital Cost times the Number of Street Lights.

The next set of columns is used to determine the maintenance cost for each street light type. The Maintenance Factor is a factor assigned to each street light type and represents an estimate of the activity the RMLD expends annually to maintain the street lights on the RMLD system. The next column is the Allocated Maintenance Costs for each street light type, which is calculated by applying the Maintenance Factor to the Budgeted Maintenance Costs of \$169,118 and Number of Street Lights. The total Allocated Maintenance Cost is \$169,181, which is .04% higher than the Budgeted Maintenance Costs shown at the top of the page. The Budgeted Maintenance Costs have been adjusted to account for depreciation expense component of the Street Light Rate that is in the Annual Carrying Charge. The Maintenance Cost per kWh is calculated by dividing the Allocated Maintenance Costs by the Total kWh.

The Annual Cost per Street Light is calculated by summing the Annual Capital Cost and the Allocated Maintenance Costs and dividing it by the Number of Street Lights. The Annual Cost per kWh is the Annual Cost per Street Light divided by the Annual Energy. The average Annual Cost per kWh is \$.0686.

The Annual Cost per Street Light is used to calculate the Street Light Rate and appears in the filed Street Light Rate.

There is an alternative rate structure that the RMLD could charge for its street lights. Chapter 164 of the Massachusetts General Laws, which largely govern the municipal electric utilities in Massachusetts, has made an exception for street light rates in Section 58, shown below.

Section 58. There shall be fixed schedules of prices for gas and electricity, which shall not be changed oftener than once in three months. Any change shall take effect on the first day of a month, and shall first be advertised in a newspaper, if any, published in the municipality. No price in said schedules shall, without the written consent of the department, be fixed at less than production cost as it may be defined from time to time by order of the department. Such schedules of prices shall be fixed to yield not more than eight per cent per annum on the cost of the plant, as it may be determined from time to time by order of the department, after the payment of all operating expenses, interest on the outstanding debt, the requirements of the serial debt or sinking fund established to meet said debt, and also depreciation of the plant reckoned as provided in section fifty-seven, and losses; but any losses exceeding three per cent of the investment in the plant may be charged in succeeding years at not more than three per cent per annum. The gas and electricity used by the municipality for any purpose except street lighting shall be charged for in accordance with the prices in the fixed schedules. The gas and electricity used by the municipality for street lighting shall be charged for at a cost to be determined as follows: the sum of all operating expenses, interest on the outstanding debt, the requirements of the serial debt or sinking fund established to meet said debt, and also depreciation of the plant reckoned as provided in section fifty-seven, and losses, shall be the dividend; the kilowatt hours sold including those supplied for street

lighting shall be the divisor, and the resulting quotient multiplied by the kilowatt hours supplied for street lighting shall be the cost to be charged to the municipality for street lighting. In lieu of the method of determining charges for electricity used by the municipality for street lighting, as set forth in the preceding sentence, electricity so used may be charged for at a cost in accordance with a street lighting schedule filed with and approved by the department.

Section 58 allows a municipal electric utility to base the street light rate on an average rate as an alternative to a cost of service rate. The average rate for street lights is the RMLD's average cost per kWh that is calculated by dividing the RMLD's annual operating expenses by the annual kWh sales. (See the bold area of the Section 58 above.)

Table 3 shows the calculation for the Average Street Light Rate, which is based on the FY11 Operating Budget. The law states that the costs for the street light rate should include the "sum of all operating expenses". Table 3 shows the Total Operating Expense minus the Fuel Expense because fuel is charged separately.

The Total Operating Expense reflects the FY11 Operating Budget minus the Purchased Power Fuel Expense.

Table 3
Average Cost per kWh Street Light Cost

Operating Expense	\$83,555,091
Fuel Expense	(\$39,271,794)
Total Operating Expense	\$44,283,297
Total kWh Sales	683,056,320
Average Cost per kWh	\$.064831

The Total kWh Sales is from the revenue projection also included in the FY11 Cost of Service Study and the resulting Cost per kWh is \$.064831.

Table 4 shows the comparison of the proposed Cost of Service Street Light Rate and the Average Street Light Rate. The Existing Street Light Rate is what the RMLD presently has on file at the Massachusetts Department of Public Utilities (MDPU) and is in the RMLD's Street Light rate. The Proposed COSS Rate is taken from the Annual Cost per Street Light shown in Column 12 of Table 2. The Average Rate is the Annual Energy shown in Column 4 of Table 2 multiplied by \$.064831, which is the RMLD's Average Cost per kWh shown on Table 3.

Table 4
Comparison of the Street Light Rates
Cost of Service Rate versus the Average Rate

Light Type	Existing COSS Rate	Proposed COSS Rate	Average Rate
58 Watt Incandescent	\$24.09	\$50.83	\$15.04
95 Watt Incandescent	\$34.47	\$50.83	\$23.86
50 Watt HPS	\$60.69	\$27.50	\$15.82
100 Watt HPS	\$63.86	\$27.55	\$32.93
100 Watt Merc. Vapor	\$63.98	\$37.96	\$33.71
100 Watt Merc. Vapor U/G	\$92.30	\$37.96	\$33.71
175 Watt Mercury Vapor	\$100.93	\$38.28	\$55.75
250 Watt HPS Flood	\$109.48	\$50.66	\$79.61
400 Watt Merc. Flood	\$165.65	\$49.71	\$119.29
400 Watt HPS	\$165.52	\$49.76	\$118.51

Note: HPS - High Pressure Sodium
U/G - Underground

The result shows that the Proposed COSS Rates, in most instances, are less than the existing rates. (The Existing COSS Rates were developed in 1985 and have been escalated in several rate filings since then. The back-up detail to the Street Light Rate from the 1985 COSS is not available.) Table 4 also shows that the Average Cost Rates are lower than the Existing COSS Rate and, in some instances, lower than the Proposed COSS Rates.

Table 5A is the Revenue Proof of the Existing Street Light Rate, which shows that the Revenue Requirement Class Total is \$246,083, which is also reflected in the FY11 Cost of Service Study. The Forecast Class Total using the Existing Street Light Rates is \$619,877 or an over recovery of \$373,795 against the Revenue Requirement Class Total.

Table 5B shows the Revenue Proof using the Proposed Cost of Service Street Light Rates, which results in Forecast Class Total revenues of \$259,834, which is lower than the Existing Street Light Forecast Class Total in Table 5A by \$619,877. The difference between the two rates is \$360,043, which is a negative impact on the RMLD's income. The Proposed Street Light Rate revenue is \$13,751 higher than the Revenue Requirement Class Total of \$246,083, however, the calculation of this rate more closely represents the Cost of Service of the street lights.

Table 5C shows the Revenue Proof for the Average Street Light Rate, which is \$245,709 and is \$374 lower than the Revenue Requirement Class Total. The Average Street Light

Rate would have an estimated negative affect on income of \$374,168, which would translate into savings for the four towns and the customers who have private street lights.

In summary, the Existing Street Light Rates over recover the Revenue Requirement Class Total by \$373,795. The Proposed Street Light Rate is based on the present capital cost of the street lights in the four towns and the maintenance costs in the FY11 Cost of Service Study, which results in an over recovery of \$13,751 as shown in Table 5B. The Average Cost Street Light Rate is based on the RMLD's average (non-fuel) cost of a kWh and is close to the Forecast Class Total revenues in the Cost of Service Study; however, it is not a fair representation of the Street Light Cost of Service.

The RMLD recommends the Proposed Cost of Service Street Light Rate, which as stated above, more closely reflects the cost of service rate and provides savings to customers on the street light rate.

Table 1

Street Light Cost Components

	Bracket (\$)	Arm (\$)	Fixture (\$)	Photo Cell (\$)	Bulb (\$)	Total Cost
58 Watt Incandescent		\$42.98	\$40.00	\$4.23	\$2.23	\$89.44
92 Watt Incandescent		\$42.98	\$40.00	\$4.23	\$2.23	\$89.44
50 Watt HPS		\$42.98	\$75.69	\$4.23	\$7.92	\$130.82
100 Watt HPS		\$42.98	\$76.49	\$4.23	\$7.71	\$131.41
100 Watt Mercury Vapor		\$42.98	\$79.00	\$4.23	\$7.08	\$133.29
100 Watt Mercury Vapor U/G		\$42.98	\$79.00	\$4.23	\$7.08	\$133.29
175 Watt Mercury		\$42.98	\$84.00	\$4.23	\$6.05	\$137.26
250 Watt HPS		\$153.46	\$125.95	\$4.23	\$8.39	\$292.03
400 Watt Mercury	\$52.88		\$215.42	\$4.23	\$7.62	\$280.15
400 Watt HPS	\$52.88		\$215.42	\$4.23	\$8.28	\$280.81

Street Light Capital and Operating Costs

Budgeted Maintenance Costs												\$169,118
	Total Capital Cost	Annual Capital Cost	Annual Energy	Capital Cost per kWh	Number of Streetlights	Total kWh	Total Capital Costs	Maintenance Factor	Allocated Maint. Costs	Maintenance Cost per kWh	Annual Cost per Street Light	Annual Cost per kWh
58 Watt Incandescent	\$89.44	\$7.16	232	\$0.0308	479	111,128	\$3,427	2.00	\$20,921.36	\$0.1883	\$50.83	\$0.2191
92 Watt Incandescent	\$89.44	\$7.16	368	\$0.0194	137	50,416	\$980	2.00	\$5,983.77	\$0.1187	\$50.83	\$0.1381
50 Watt HPS	\$130.82	\$10.47	244	\$0.0429	3,260	795,440	\$34,118	0.78	\$55,531.15	\$0.0698	\$27.50	\$0.1127
100 Watt HPS	\$131.41	\$10.51	508	\$0.0207	1,836	932,688	\$19,302	0.78	\$31,274.60	\$0.0335	\$27.55	\$0.0542
100 Watt Mercury Vapor	\$133.29	\$10.66	520	\$0.0205	1,292	671,840	\$13,777	1.25	\$35,269.31	\$0.0525	\$37.96	\$0.0730
100 Watt Mercury Vapor U/G	\$133.29	\$10.66	520	\$0.0205	59	30,680	\$629	1.25	\$1,610.60	\$0.0525	\$37.96	\$0.0730
175 Watt Mercury	\$137.26	\$10.98	860	\$0.0128	6	5,160	\$66	1.25	\$163.79	\$0.0317	\$38.28	\$0.0445
250 Watt HPS	\$292.03	\$23.36	1,228	\$0.0190	147	180,516	\$3,434	1.25	\$4,012.84	\$0.0222	\$50.66	\$0.0413
400 Watt Mercury	\$280.15	\$22.41	1,840	\$0.0122	55	101,200	\$1,233	1.25	\$1,501.40	\$0.0148	\$49.71	\$0.0270
400 Watt HPS	\$280.81	\$22.46	1,828	\$0.0123	473	864,644	\$10,626	1.25	\$12,912.06	\$0.0149	\$49.76	\$0.0272
					7,744	3,743,712	\$87,592		\$169,181			\$0.0686

Table 5A
Revenue Proof
Existing Street Light Rate

Reading Municipal Light Department
Electric Cost of Service/Unbundling Study
Forecasted Test Year Ending June 30th, 2011

Revenue Proof		Forecasted Revenues at Current Rates				Potential New Rate		
Streetslights		Year Ending 6/30/11 Units	Test Year Rate	Calculated Year Ending 6/30/11 Revenue	Rate (\$)	Test Year Units	Estimated Revenue	
Customer:								
Total Customers		-	\$	-		-	\$	
Demand:								
Total Demand		-		-		-		
Energy:								
Total Energy		3,747,728	-	-		3,747,728		
Public Street Lights		2,903,360	0.18	522,605	0.1872	2,903,360	543,509	
Private Street Lights		844,368	0.08	67,549	0.0872	844,368	73,629	
PPA		3,747,728	0.0079	29,723	0.00073	3,747,728	2,740	
Energy Conservation Charge		3,747,728	-	-				
Discounts			0.1000	(61,988)	10%		(61,988)	
		Forecast Class Total	\$	\$		Forecast Class Total	\$	
		Rev. Req. Class Total	\$	\$		Rev. Req. Class Total	\$	
		Change in Rate Required (%)		-55.89%		Difference (\$)		

Revenue Proof

Proposed COSS Street Light Rate

Reading Municipal Light Department

Electric Cost of Service/Unbundling Study

Forecasted Test Year Ending June 30th, 2011

Revenue Proof

Streetslights

Streetlights		Forecasted Revenues at Current Rates			Potential New Rate		
		Year Ending 6/30/11 Units	Test Year Rate	Calculated Year Ending 6/30/11 Revenue	Rate (\$)	Test Year Units	Estimated Revenue
Customer:							
Total Customers							
Demand:							
Total Demand							
Energy:							
Total Energy		3,747,728	-	-	0.0686	3,747,728	257,094
Public Street Lights		2,903,360	0.18	522,605	-	2,903,360	-
Private Street Lights		844,368	0.08	67,549	-	844,368	-
PPA		3,747,728	0.0007	2,740		3,747,728	2,740
Energy Conservation Charge		3,747,728	-	-	0.00073		
Discounts			0.1000	(59,289)	10%		(25,983)
		Forecast Class Total	\$	\$ 533,604		Forecast Class Total	\$ 259,834
		Rev. Req. Class Total	\$	\$ 246,083		Rev. Req. Class Total	\$ 246,083
		Change in Rate Required (%)		-53.88%		Difference (\$)	(13,751)

Table 5C
Revenue Proof
Average Cost Street Light Rate

Reading Municipal Light Department
Electric Cost of Service/Unbundling Study
 Forecasted Test Year Ending June 30th, 2011

Revenue Proof

Streetslights	Forecasted Revenues at Current Rates				Potential New Rate		
	Year Ending 6/30/11 Units	Test Year Rate	Calculated Year Ending 6/30/11 Revenue		Rate (\$)	Test Year Units	Estimated Revenue
Customer:							
Total Customers	-	\$	\$			-	\$
Demand:							
Total Demand	-	-	-			-	-
Energy:							
Total Energy	3,747,728	-	-		0.0648	3,747,728	242,869
Public Street Lights	2,903,360	0.18	522,605		-	2,903,360	-
Private Street Lights	844,368	0.08	67,549		-	844,368	-
PPA	3,747,728	0.0079	29,723		0.00073	3,747,728	2,740
Energy Conservation Charge	3,747,728	-	-				
Discounts		0.1000	(61,988)		10%		(24,571)
	Forecast Class Total		\$ 557,890			Forecast Class Total	\$ 245,709
	Rev. Req. Class Total		\$ 246,083			Rev. Req. Class Total	\$ 246,083
	Change in Rate Required (%)		-55.89%			Difference (\$)	374

