



February 20, 2013

Ms. Luly Massaro
Clerk of the Commission
Rhode Island Public Utilities Commission
89 Jefferson Boulevard.
Warwick, RI 02888

Re: LED Street Light Tariff Advice Filing

Dear Ms. Massaro:

On behalf of the Pascoag Utility District (Pascoag or the District), we herewith file an original and nine copies of Pascoag's proposed LED Street Light Tariff Advice, which will impact RIPUC No 605 Public and Private Lighting Rates. This submission is made to Commission for their review and approval.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

Harle Round
Customer Service Supervisor/DSM Coordinator

Cc: Ms Karen Lyons, Esquire
Cc: Mr. William Bernstein, Esquire

PUBLIC AND PRIVATE LIGHTING RATE

<u>Lamp Size</u>	<u>Monthly Rate</u>	<u>Annual Rate</u>
Mercury:		
175 Watt	\$8.47	\$101.64
Sodium:		
50 Watt	\$4.58	\$54.96
70 Watt	\$5.20	\$62.40
100 Watt	\$6.37	\$76.44
150 Watt	\$8.13	\$97.56
250 Watt	\$10.96	\$131.52
400 Watt	\$15.74	\$188.88
LED:		
<u>25W LED/2111 Lumens</u>	<u>\$2.87</u>	<u>\$34.44</u>
<u>50 W LED/ 3816 Lumens</u>	<u>\$3.71</u>	<u>\$44.52</u>

The rates, as specified above, are applicable to all street lights within the Pascoag Utility District's Electric Department service territory for both public and private lights.

The rate for the 175 watt mercury vapor street light is applicable only to such lights currently in service, since such a fixture is no longer offered to PUD customers.

The total cost for public street lighting, in service in PUD's service territory within the Village of Harrisville, will be assessed to the Harrisville Fire District.

The total cost for public street lighting, in service in PUD's service territory within the Village of Pascoag, will be assessed to all classes of electric customers equally. Rhode Island sales tax will be charged where applicable.

The methodology utilized to determine the amount billed monthly to the customers in the Village of Pascoag will be as follows:

Number of Public Street Lights multiplied by the applicable rate per light, as stated herein, divided by the number of customers.

In all cases, both Public and Private lighting assessments will include energy and maintenance.

The Pascoag Utility District will be responsible for the location, size, style and number of fixtures within the Village of Pascoag.

The Harrisville Fire District will be responsible for the location, size, style and number of fixtures within the Village of Harrisville.

Filing Date: July 6, 2012

Effective Date:

Determination of Street Lighting Charges
Pascoag Utility District

Schedule 1

Monthly Fixed Cost

	Annual	Monthly	
LED/ photo controls Cost	\$ 254.64		See Schedule 5
Cost Recovery Period (years)	20		
Cost Per Fixture	<u>\$ 12.73</u>	<u>\$ 1.06</u>	
Installation per street light	\$ 137.70		See Schedule 5
Cost Recovery Period (years)	20		
Cost Per Fixture	<u>\$ 6.89</u>	<u>\$ 0.57</u>	
Washing Maintenance per street light	\$ 82.32		See Schedule 3
Cost Recovery Period (years)	20		
Cost Per Fixture	<u>\$ 4.12</u>	<u>\$ 0.34</u>	
2% Failure Cost recovery	\$ 8.40		See Schedule 4
Cost Recovery Period (years)	20		
Cost Per Fixture	<u>\$ 0.42</u>	<u>\$ 0.03</u>	
Monthly Rate per Lamp		<u><u>\$ 2.01</u></u>	

Monthly Lamp energy Cost

Lamp Wattage and Type	Lamp Op Watt	Monthly Op Hours (Schedule 2)	Monthly Energy Use (kWh)	Average Utility Energy COS (\$/kWh)	Monthly Lamp Energy Cost (\$)
25W LED/ 2111 Lumens	26.00	360.25	9.37	\$ 0.09167	\$ 0.86
50W LED/ 3816 Lumens	51.30	360.25	18.48	\$ 0.09167	\$ 1.69

Total Street Lighting Charge

Lamp Wattage and Type	Monthly Lamp Energy Cost (\$)	Monthly Fixed Cost (\$)	Monthly Lamp Rate (\$)	Annual Lamp Rate (\$)
25W LED/ 2111 Lumens	\$ 0.86	\$ 2.01	\$ 2.87	\$ 34.44
50W LED/ 3816 Lumens	\$ 1.69	\$ 2.01	\$ 3.71	\$ 44.52

Street Lighting Average Monthly Burning Hours
Pascoag Utility District

Schedule 2

<u>Month</u>	<u>Hours</u>
January	449
February*	341
March	373
April	318
May	292
June	264
July	283
August	317
September	347
October	454
November	426
December	459
	<hr/>
	4,323

* 338 hours (Leap year 12 additional hours; 12hrs/ 4years= 3hrs

4323 / 12 = 360.25 average run time per month

Reference Darkness Duration Table @ http://aa.usno.navy.mil/cgi-bin/aa_durtablew.pl

Darkness Duration Table for One Year
Pascoag, Rhode Island Eastern Standard Time
Astronomical Application Dept. U. S. Naval Observatory

Calculation of Washing Maintenance
Pascoag Utility District

Schedule 3

Real Discount Rate		1.0%
Labor	2013-2032	3.0%
Truck Rate	2013-2032	3.0%

Year	Labor	Total	Present Value	Hours	Cost
1	2013	\$	48.85		
2	2014	\$	50.32		
3	2015	\$	51.82		
4	2016	\$	53.38		
5	2017	\$	54.98		
6	2018	\$	56.63		
7	2019	\$	58.33	28	\$ 1,523.34
8	2020	\$	60.08		
9	2021	\$	61.88		
10	2022	\$	63.74		
11	2023	\$	65.65		
12	2024	\$	67.62		
13	2025	\$	69.65		
14	2026	\$	71.74	28	\$ 1,747.46
15	2027	\$	73.89		
16	2028	\$	76.11		
17	2029	\$	78.39		
18	2030	\$	80.74		
19	2031	\$	83.16		
20	2032	\$	85.66		
					<u>\$ 3,270.80</u>

Year	Truck	Total	Present Value	Hours	Cost
1	2013	\$	40.00		
2	2014	\$	41.20		
3	2015	\$	42.44		
4	2016	\$	43.71		
5	2017	\$	45.02		
6	2018	\$	46.37		
7	2019	\$	47.76	14	\$ 623.68
8	2020	\$	49.19		
9	2021	\$	50.67		
10	2022	\$	52.19		
11	2023	\$	53.76		
12	2024	\$	55.37		
13	2025	\$	57.03		
14	2026	\$	58.74	14	\$ 715.44
15	2027	\$	60.50		
16	2028	\$	62.32		
17	2029	\$	64.19		
18	2030	\$	66.11		
19	2031	\$	68.10		
20	2032	\$	70.14		
					<u>\$ 1,339.12</u>

Total Washing Maintenance					\$ 4,609.92
Total Number of Fixtures					<u>56</u>
Total Washing Maintenance per Fixture					<u>\$ 82.32</u>

Calculation of Costs due to Street Light Failure
Pascoag Utility District

Cost of 1 LED Street Light	\$ 237.00	See Schedule 5
Cost of 1 Photo Control	<u>\$ 17.64</u>	See Schedule 5
Total Cost to replace Fixture	\$ 254.64	
Average Installation costs for Replacement	<u>\$ 165.30</u>	See Schedule 4 (page 2 of 2)
Total Replacement Cost	\$ 419.94	
Potential Failure rate	<u>2%</u>	See Schedule 5
2% Failure Cost recovery	<u><u>\$ 8.40</u></u>	

Please note: The Cost to replace Fixture was not indexed to inflation like the installation costs were due to the potential costs for these fixtures in the future may become cheaper due to improved production or increase of use in the industry.

Calculation of Costs due to Street Light Failure
Pascoag Utility District

Real Discount Rate	1.0%
Labor 2013-2032	3.0%
Truck Rate 2013-2032	3.0%

Year	Labor	Present Value	20 year average	Hours	Cost	
1	2013	\$ 48.85				
2	2014	\$ 50.32				
3	2015	\$ 51.82				
4	2016	\$ 53.38				
5	2017	\$ 54.98				
6	2018	\$ 56.63				
7	2019	\$ 58.33				
8	2020	\$ 60.08				
9	2021	\$ 61.88				
10	2022	\$ 63.74				
11	2023	\$ 65.65				
12	2024	\$ 67.62				
13	2025	\$ 69.65				
14	2026	\$ 71.74				
15	2027	\$ 73.89				
16	2028	\$ 76.11				
17	2029	\$ 78.39				
18	2030	\$ 80.74				
19	2031	\$ 83.16				
20	2032	\$ 85.66				
		<u>\$ 1,312.62</u>	<u>\$1,173</u>	\$58.64	2	<u>\$ 117.29</u>

Year	Truck	Present Value	20 year average	Hours	Cost	
1	2013	\$ 40.00				
2	2014	\$ 41.20				
3	2015	\$ 42.44				
4	2016	\$ 43.71				
5	2017	\$ 45.02				
6	2018	\$ 46.37				
7	2019	\$ 47.76				
8	2020	\$ 49.19				
9	2021	\$ 50.67				
10	2022	\$ 52.19				
11	2023	\$ 53.76				
12	2024	\$ 55.37				
13	2025	\$ 57.03				
14	2026	\$ 58.74				
15	2027	\$ 60.50				
16	2028	\$ 62.32				
17	2029	\$ 64.19				
18	2030	\$ 66.11				
19	2031	\$ 68.10				
20	2032	\$ 70.14				
		<u>\$ 1,074.81</u>	<u>\$960</u>	\$48.02	1	<u>\$ 48.02</u>

Average Installation costs for Replacement

\$ 165.30

Assumptions
Pascoag Utility District

All Electrical Components are warrantied for 5 years.

Unlike HPS Streetlights the LED's do not normally fail by burning out after long periods of time LED's will gradually become dimmer. The ones that we chosen have an L70 factor, which means over the 20 year life they will still produce 70% of their initial light after 100,000 hours.

The power supplies are typically rated for 100,000 hour life and the expectation is that replacement will be less than 1% ; we will use less than 2% over the 100,000 hour life of the system. It will be more practical to replace the entire luminaire rather than stock the power supplies; first, because of the 5 year manufacturer's warranty and second, because the LED streetlights may be outdated or better and cheaper LED SL's may be available after the 5 year warranty.

1 Led Street light @\$237

The photo controls we have purchased are Long Life Photo Cells which are rated for 90,000 hrs. and are warrantied for 10 year from the date of sale.

We will use the less than 2% failure rate for the photo cells also.

1 photo control@\$17.64

Total cost per fixture

	<u>Cost</u>
1 Led Street light	\$ 237.00
1 photo control	\$ 17.64
	<u>\$ 254.64</u>

Installation of a streetlight and photo cell

2 men (\$48.85 Per hour)* @ 1 hour each plus truck (\$40hr)**

	<u>Hours</u>	<u>Rate</u>	<u>Cost</u>
2 Men	2	\$ 48.85	\$ 97.70
1 Truck	1	\$ 40.00	<u>\$ 40.00</u>
<i>Installation of a streetlight and photo cell</i>			<u>\$ 137.70</u>

2% Failure Cost recovery

See Schedule 4 (page 2 of 2)

Luminary Cleaning

See Schedule 3

LED Street lights are subject to dirt that will reduce the light output over time. Given the lack of data regarding cleaning of luminaires the District would suggest a cleaning Maintenance program to wash the lenses with a soft cloth after 7 years and again 14 years from the date of insulation.

2 men 15 min per light =28 hours. We will wash the lens 2 times in 20 years for a total of 56 hours.
14 hours for the Bucket Truck. We will wash the lens 2 times in 20 years for a total of 28 hours.

*LABOR = \$35 X 1.31=\$48.85

**Bucket Truck rate is \$40 per hour

Proof of Revenues
Pascoag Utility District

Schedule 6

	Count or Usage	Proposed Rate	Annual Proposed Revenue	
<u>LED Street Lighting (per month rate)</u>				
25W LED/ 2111 Lumens	32	\$ 2.87	\$ 1,102.08	
50W LED/ 3816 Lumens	24	\$ 3.71	\$ 1,068.48	
TOTAL REVENUE	56		\$ 2,170.56	\$ 2,170.56

<u>LED Street Lighting (Revenue Requirement)</u>				Annual per Fixture (See Schedule 1)	
<i>Fixture Cost recovery</i>	(20 years)	56		\$ 12.73	\$ 712.99
<i>Installation Cost recovery</i>	(20 years)	56		\$ 6.89	\$ 385.56
<i>Maintenance Cost recovery</i>	(20 years)	56		\$ 4.12	\$ 230.50
<i>2% Failure Cost recovery</i>	(20 years)	56		\$ 0.42	\$ 23.52
<i>Energy Usage</i>		(See Calculation Below)			\$ 817.62
<i>Revenue Required</i>					\$ 2,170.19
Variance					\$ 0.37

<u>Calculation of Energy Usage</u>					
	Lamp Count	Monthly Energy Use (kWh)	Total Yearly Energy Use (kWh)	Monthly Lamp Energy Cost (\$)	Total Yearly Lamp Energy Revenue
25W LED/ 2111 Lumens	32	9.37	3598.08	\$ 0.86	\$ 329.71
50W LED/ 3816 Lumens	24	18.80	5414.40	\$ 1.69	\$ 487.91
	56		9012.48		\$ 817.62

Pascoag Utility District
RIPUC Docket No.: – LED Street Light Tariff Advice Filing
Service List – 2013

<u>Name</u>	<u>E-mail</u>	<u>Phone/Fax</u>
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William L. Bernstein, Esq. 627 Putnam Pike Greenville, RI 02828	wblaw@verizon.net	(401) 949-2228 (401) 949-1680
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CERTIFICATE OF SERVICE

I hereby certify that copy/copies of this LED Street Light Tariff Advice Filing were served electronically on the individuals named in the above List of Recipients of Filing, this 20 day of February, 2013.




Harle J. Round, Notary Public
My commission expires 7-10-2013

Pascoag Utility District – LED Street Light Tariff Advice
 Service List updated 2/20/13

Name/Address	E-mail	Phone
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I hereby certify that copy/copies of this LED Street Light Tariff Advice filing were served electronically on the individuals named in the above List of Recipients of Filing, this 20th day of February 20, 2013.


 Harle J Round, Notary Public
 My commission expires 7-10-2013