City Council Agenda Item

City Council Meeting Date: September 1, 2020

TO: Jim Throop, City Manager

FROM: Dean Albro, Management Services Director
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SUBJECT: Council Request – Information Related to Street Lighting Rate Schedules - LS-1 Electric Utility Rates (Requested by City Council Member Starbuck)

Recommendation:

Staff recommends the City Council review the information contained in this report and provide staff direction, if necessary.

Background:

In 2009, the City's Electric Division started a pilot program of replacing High Pressure Sodium (HPS) lights. In 2011, the City's Electric Division received a $100,000 grant to fund energy efficient street lighting. That grant was used to replace 124 HPS lights rated at 192 watts with Light Emitting Diode (LED) lights rated at 92.5 watts. In the staff report of September 6, 2011, the installed capital cost for the LED lighting was $785.25 each with a rated life expectancy of 100,000 hours. The staff report stated the proposed monthly cost for those lights to be $6.31 for 32.4 kilowatthours (kWh) per month and fixture replacement costs. The commercial energy rate under the A-1 schedule was 20.091 cents per kWh at July 1, 2011, and is the schedule used for street lights that are billed along with metered services such as street lights attached to signal light systems which are metered. Using the A-1 schedule for 32.4 kWh of energy usage, just the monthly energy charge for the 92.5 watt rated LED would have been $6.50 per month. The LS-3 light schedule did not charge for capital costs of LED or induction lighting while the LS-1 light schedule did charge for capital costs related to HPS lighting.

On January 28, 2014, the motion to adopt Resolution No. 5888(14) included the direction by the City Council to validate the LS-1 and LS-2 energy components. During the course of validation of the LS-1 and LS-2 energy charges per the City Council direction, staff identified a discrepancy in the original LS-1 lighting schedule, which was the omission of any replacement costs for fixtures for LED streetlights. The resulting analysis included the attached Electric Utility produced worksheet showing the various components of the costs related to all available lighting options under the LS-1, LS-2. That worksheet was used as the basis for the published LS-1, and LS-2 schedules as part of Resolution No. 5888(14).

At the July 5, 2016, City Council meeting, staff provided an update based on a City Council request for additional information related to the Electric Utility lighting rate schedule LS-1 approved in 2014.

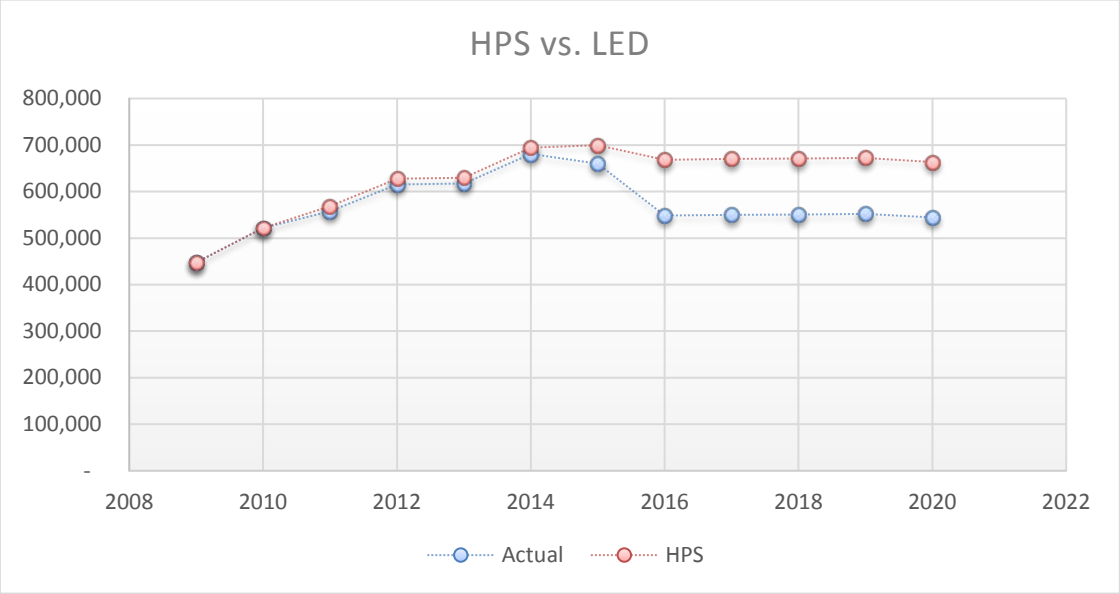
At the October 4, 2016, City Council meeting, staff again provided additional update based the a City Council request for additional information related to the Electric Utility lighting rate schedule LS-1 approved in 2014.

Discussion:

During Fiscal Year (FY) 2013-14, the Electric Division completed a major work order replacing additional City owned street lights from HPS lights to LED lights. The project cost was close to $ 1.1 million replacing 2,452 streetlights throughout the City as follows:

Type	Watts	Total
LED	60	30
LED	70	88
LED	73	1,554
LED	92	128
LED	133	15
LED	135	637
	Total	**2,452**

The main benefits from a streetlight conversion would be the ability to replace higher watt HPS bulbs with lower watt LED bulbs. As an example, a 150 watt HPS bulb could be replaced with a 73 watt LED bulb. The graph below shows the cost savings between HPS and LED streetlights after the conversion. It is estimated that the City has saved over $988,205 since installing LED lights, a current annual savings of $179,739 for FY 2019-20.



On February 19, 2020, by City Council majority, it was requested that the LS-1 streetlight rate schedules be brought back for discussion. Since this item has been requested numerous times before, it may be helpful to review the current monthly streetlight rates for HPS 70 watt and LED 73 watt (billed as 71.4 watts).

Energy Cost

Type	Watts	Volts x Amps	* kWH Month		A-1 Rate		
HPS	70.0 watt	120 x .61	= 29	x	.20694	=	$ 6.01 Per Month
LED	71.4 watt	120 x .71	= 25	.x	.20694	=	$ 5.174 Per Month

* kWH Per Month = 4,100 hours per year / 12 Months x 1,000 x volts x amps

Replacement Cost

Type	Watts	Bulbs		Cobra Head		Mast Arm		
HPS	70.0 watt	$ 3.55	+	$ 2.30	+	$ 8.66	=	$14.51 Per Month
LED	71.4 watt	$ 0.00	+	$ 2.14	+	$ 8.66	=	$10.80 Per Month

HPS	Bulbs, Starter, Photo Cell	5.7 years
LED	Bulbs (Currently No replacement Cost)	-0- years
HPS/LED	Cobra head and Photo Cell	15 years
HPS/LED	Standard Mast Arm and Anchor	30 years

Total Cost

Type	Energy		Replacement		
HPS	$ 6.01	+	$ 14.51	=	$ 20.509 Per Month
LED	$ 5.174	+	$ 15.976	=	$ 15.976 Per Month

The above analysis shows that there is very little difference between lamps of equal wattage.

As discussed above, staff update the LS-1 rate schedule to formally adopt Resolution No 5888(14). The effective historical rates are listed below for the LS-1 City owned and operated streetlights:

Lamp Watts	Rating KWh Per Month	Rate Per Lamp Per Month 12/01/09	Rate Per Lamp Per Month 07/01/10	Rate Per Lamp Per Month 07/01/11	Rate Per Lamp Per Month 07/01/12	Rate Per Lamp Per Month 03/01/14
High Pressure Sodium						
70 Watt	29	$ 12.102	$ 13.796	$ 14.624	$ 15.063	$ 20.509
100 Watt	41	$ 14.423	$ 16.442	$ 17.429	$ 17.952	$ 22.993
150 Watt	60	$ 17.258	$ 19.674	$ 20.855	$ 21.480	$ 26.925
200 Watt	81	$ 22.792	$ 25.983	$ 27.542	$ 28.368	$ 31.404
250 Watt	100	$ 26.866	$ 30.627	$ 32.465	$ 33.439	$ 35.399
400 Watt	154	$ 35.590	$ 40.573	$ 43.007	$ 44.297	N/A
Light Emitting Diode (LED)						
71.4 Watt	25				* $ 5.240	$ 15.976
92.5 Watt	32				* $ 6.500	$ 17.626
140.0 Watt	49				N/A	$ 21.714

* LED 07/01/02 rate omitted mast and arm assembly.

Fiscal Impact:

There is no fiscal impact due to the acceptance of this Staff Report. The request was to provide additional information related to the electric utility rate structure for LS-1 street lighting.

Conclusion:

After a complete review, it should be noted that LS-1 rate is actually lower then it would be if it was calculated at today's cost. The rate uses employee billing rates from FY 2014. It is therefore recommended in the FY 2021-23 Biennial Budget to include funding for a Cost of Service Study (CSS) for the Electric Utility that could provide the basis for such a revision to the City's Electric rate schedules. The CSS would be performed by a competent independent external rates consultant. The scope of work can easily include the validation of Electric rate schedules that include fixture costs such as LS-1 to insure that the costs are calculated using industry norms for the estimated replacement costs of fixtures as well as energy costs.

Respectfully submitted,

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Dean Albro, Management Services Director

APPROVED FOR SUBMITTAL TO THE CITY COUNCIL:

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Jim Throop, City Manager