CITY OF SEBASTOPOL CITY COUNCIL STAFF REPORT

Meeting Date: October 30, 2018

To: Honorable Mayor and City Councilmembers

From: Public Works Superintendent, Dante Del Prete

Subject: Consideration of Approval of PG&E-owned Street Lights to be Replaced with

Warmest Available Color Option, 2700 Kelvin LED Fixtures by PG&E

Recommendation: Consider the PG&E LED Streetlight Replacement Program with Warmest

Available Color option 2700 Kelvin LED fixtures and provide staff direction on participation in the LED Streetlight Upgrade Program installed by PG&E.

Funding: Currently Budgeted: ____ Yes __X No ____ N/A

Net General Fund Costs: \$0

This program will have no upfront costs to the City. The capital costs are paid for

by PG&E. The program is cash-flow positive from the onset.

INTRODUCTION:

This item is returning to the Council with additional information to request that the City Council authorize the City Manager to opt into PG&E's LED Streetlight Replacement Program utilizing the warmest available color 2700 Kelvin LED fixtures and to execute any necessary paperwork for the agreement.

BACKGROUND:

At the December 5, 2017 City Council meeting, staff presented information on the PG&E LED streetlight retrofit program for retrofitting the streetlights in Sebastopol from high pressure sodium (HPS) to light emitting diode (LED). During the Council discussion, several questions were asked that required additional information from PG&E.

Staff returned to Council on January 16, 2018 with PG&E representatives to address questions relating to the availability of shielding options, a breakdown of potential energy savings, and a request for a continuous street installation as a second trial location. PG&E provided a detailed response to the shielding questions that basically placed the responsibility on the City to review each location and attempt to predict potential shielding needs. Lighting shields requested before the installation would be installed with no additional labor costs, while the cost of the shields would be paid by the City. Additional shields requested after the installation would be at a cost of \$200 per location.

Regarding lower wattage and 2700K color options, PG&E responded by stating there are no plans at this time to offer anything of a lower wattage than 32 watts for residential areas or a color option below 3000K.

No action was taken at the January 16, 2018 meeting, and the consensus of the Council was to wait until new technology became available.

Agenda	Item	Number:	
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DISCUSSION:

PG&E is in the process of phasing out HPSV (High Pressure Sodium Vapor) from new installations and repairs. It is likely that sometime in 2019, PG&E will begin replacing burned out and poorly performing HPSV fixtures with LEDs. The PG&E replacement fixtures would be based on our then current standard (which today is 4000K/3000K). This would quickly result in an assortment, checkerboard effect of old HPSV fixtures adjacent to the brighter LED's.

This is the final progression offering of these new, warmer color streetlights. There is no evidence that 2700K is just another next step in the evolution of streetlight color temperature, and the industry has not shown signs of market pressure or activity that would lead to future streetlight offerings with lower Kelvin values. The point is that despite the current pattern, PG&E has indicated that they will not be coming back to the City touting a new 2300K (or other) fixtures in the near future.

Financially, the \$2.81/month/fixture temporary Incremental Facility Charge (IFC) that PG&E previously indicated would offset the majority of the City's savings for a period of time but is now slated for elimination in Q1 of 2019, possibly as soon as January 1. As a result, the City of Sebastopol would benefit from the full energy savings almost immediately after installation (which PG&E would like to complete this year).

TRIAL LOCATIONS:

To present the public an opportunity to view the 2700 Kelvin light fixtures at 15 watts, 32 watt and 93 watt examples in four (4) sample viewing locations.

Zimpher Drive - This location was selected as a representative section of three (3) consecutive 2700K, 15W streetlights and one (1) 32W at the Zimpher Drive - Covert Lane Crosswalk as an example of what a residential street would look like with the warmer, lower wattage option.

Soll Court - This location utilizes a 2700K, 15W on the street section and a 2700K, 32W in the end court area.

Gwendolyn Place - This sample location is toward the southeast area of the City and utilizes a 2700K, 15W on the street section and a 2700K, 15W in the end court area.

Morris Street - This location consists of two (2) consecutive lights across the street from the Sebastopol Community and Cultural Center as a representation of a higher wattage commercial application of the 2700K, 93W units.

RECOMMENDATION:

That the City Council consider the PG&E LED Streetlight Replacement Program with the warmest available color option 2700 Kelvin LED fixtures and provide staff direction on participation in the LED Streetlight Upgrade Program installed by PG&E.

ATTACHMENTS:

Trial Location maps of wattage

PG&E Energy Savings and Carbon Footprint Reduction Estimates

Public Responses from Media Outreach (to be delivered to City Council on or before October 29, 2018)







Locations of the Trial Installations of LED Streetlights are indicated as follows:

- Orange Hexagon (15W)
- Red Hexagon (32W)
 - Burgundy Hexagon (93W)



2700K Savings Model ~ HPSV to LED replacement for LS1 Streetlights

Proposed LED

Current

Monthly

kWh per

LED Light Annual Charge

21,331 5

16,162 \$

2,609 \$

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187,708 \$ 12,239.61

2.065.64

1,812.78

366.80

Proposed Monthly

Quantity of

each fixture

Annual kWh

\$1,486

\$878

\$0

\$ 19,011 \$ 31.251

\$68

\$3,551

\$2,691

\$0

\$434

Annual \$ Cost by

Current

Monthly

Temporary

Incremental

44

26

0

2

563

Illustration of Monthly Savings Per Lamp using PG&E's Proposed LED Replacement Program for Non-Decorative LED Fixtures. March 1, 2017 Tariffs, Model assumes LS1-A 120Volts

Annual kWh

Annual \$ cost by

Quantity of

each fixture

HPSV Light Annual Charge

Current

Current

Monthly

Shown facility charges are for LS1-A's. While facility charges vary for other LS1

rates, the net dollar and energy savings are accurate for all LS1 rates.

The IFC is expected to be eliminated by Jan 1, 2019

Current

Monthly

L51-A Existing

NOTE:

kWh per

HPS Sizes	Charge	Month	Charge	Total Charge	type	by fixture type		nxture type	Size Watts	Charge	Worth	Facility Charge	Enei	gy Charge	Total Charge	type	by fixture type	78	ixture type
70	\$6.51	29	\$ 4.83	\$11.34	395	137,460	\$	53,762.08	15	\$6.51	4.3	\$2.81	\$	0.716	\$10.04	395	20,382	\$	47,608.56
70	\$6.51	29	\$ 4.83	\$11.34	0	-	\$	-	32	\$6.51	11.1	\$2.81	\$	1.848	\$11.18	0	S=	\$	-
100	\$6.51	41	\$ 6.83	\$13.34	96	47,232	\$	15,367.78	42	\$6.51	14.5	\$2.81	\$	2.414	\$11.74	96	16,704	\$	13,526.90
150	\$6.51	60	\$ 9.99	\$16.50	44	31,680	\$	8,713.80	56	\$6.51	19.6	\$2.81	\$	3.263	\$12.59	44	10,349	\$	6,648.16
200	\$6.51	80	\$ 13.32	\$19.83	26	24,960	\$	6,187.96	84	\$6.51	28.2	\$2.81	\$	4.695	\$14.02	26	8,798	\$	4,375.18
250	\$6.51	100	\$ 16.65	\$23.16	0	-	\$	-	93	\$6.51	31.6	\$2.81	\$	5.261	\$14.59	0	-	\$	-
400	\$6.51	154	\$ 25.64	\$32.15	2	3,696	\$	771.68	133	\$6.51	45.3	\$2.81	\$	7.542	\$16.87	2	1,087	\$	404.88
					563	245,028	\$	84,803								563	57,320	5	72,563.68
	A	NOTE: All r	ates and cha	rges current as o	of September	1st 2018				5 8.00									
				% energ	y & GHG r	eduction]					,							
				1										and the second			1 1		
					76.6%	ó			LS1-A Existing HPSV Sizes	LED Like-for-Like Wattage	Per Fixture Annual Savings	NEW Quantity by flature type	red	nual kWh loction by ture type	Annual \$ savings by fixture type		Additional Savings Post IFC	Tota	al Savings Post IFC
Instruction	ns	-			76.6%	6			LS1-A Existing HPSV Sizes	Like-for-Like	Annual		red	action by	Depth stage to the control of the co		Savings Post	Tota	
		attage of ea	dsting HPSV	fixtures in col H		6			100	Like-for-Like Wattage	Annual Savings	by fixture type	red	oction by ture type	by fixture type		Savings Post IFC	Tota	IFC
1.) Enter quant	iky of each wa	1077							70 Watt	Like-for-Like Wattage	Annual Savings \$15.58	by flature type	red	oction by ture type	by fixture type		Savings Post IFC \$13,338	Tota	\$19,492

This projected savings is calculated on changing all of the 395 70W HPSV to 15W 2700K LED Fixtures

150 Watt

200 Watt

250 Watt

400 Watt

56

84

93

133

\$86.90

\$109.68

\$210.77

\$183.40

2700K Savings Model ~ HPSV to LED replacement for LS1 Streetlights

Proposed LED

Size Watts

Current

Monthly

Facility

Charge

kWh per

Month

Illustration of Monthly Savings Per Lamp using PG&E's Proposed LED Replacement Program for Non-Decorative LED Fixtures. March 1, 2017 Tariffs, Model assumes LS1-A 120Volts

Annual kWh

by fixture type

Annual \$ cost by

fixture type

Quantity of

each fixture

HPSV Light Annual Charge

Current

Monthly

Total Charge

Current

Monthly

Energy

Charge

Current

Monthly

Facility

Charge

kWh per

The IFC is expected to be eliminated by Jan 1, 2019

LS1-A Existing

HPS Sizes

70	\$6.51	29	5	4.83	\$11.34	100	34,800	\$	13,610.65	15	\$6.51	4.3	\$2.81	\$	0.716		\$10.04	100	5,160	\$ 12	,052.80
70	\$6.51	29	\$	4,83	\$11.34	295	102,660	\$	40,151.42	32	\$6.51	11.1	\$2.81	\$	1.848		\$11.18	295	39,294	\$ 39	,563.18
100	\$6.51	41	\$	6,83	\$13.34	96	47,232	\$	15,367.78	42	\$6.51	14.5	\$2.81	\$	2.414		\$11.74	96	16,704	\$ 13	,526.90
150	\$6.51	60	\$	9,99	\$16.50	44	31,680	\$	8,713.80	56	\$6.51	19.6	\$2.81	\$	3.263		\$12.59	44	10,349	\$ 6	,648.16
200	\$6.51	80	\$	13.32	\$19.83	26	24,960	\$	6,187.96	84	\$6.51	28.2	\$2.81	\$	4.695		\$14.02	26	8,798	\$ 4	,375.18
250	\$6.51	100	\$	16.65	\$23.16	0	-	\$	-	93	\$6.51	31.6	\$2.81	\$	5.261		\$14.59	0	-	\$	-
400	\$6.51	154	\$	25.64	\$32.15	2	3,696	\$	771.68	133	\$6.51	45.3	\$2.81	\$	7.542		\$16.87	2	1,087	\$	404.88
						563	245,028	\$	84,803									563	81,392	\$	76,571.10
					_	66.8%				L51-A Existing HPSV Sizes	LED Like-for-Like Wattage	Per Fixture Annual Savings	NEW Quantity by flature type	redu	uction by ure type	The service of	ual \$ savings fluture type		Additional Savings Post IFC		rings Past FC
Instruction	ne							_									The second secon				h
HISCI GCHOL	113									70 Watt	15	\$15.58	100		29,640	\$	1,557.85		\$3,377		\$4,935
1.) Enter quanti		ittage of e	dsting	HPSV fi	xtures in coi H					70 Watt 70 Watt	15 32	\$15.58 \$25.97	100 295		29,640 63,366	\$	1,557.85 588.25		\$3,377 \$9,962	5	\$4,935 \$10,550
	tity of each wa						uəl)					-	1			\$ \$ \$					-
1.) Enter quanti	tity of each wa						uəl)			70 Watt	32	\$25.97	295		63,366	\$ \$ \$ \$	588.25		\$9,962		\$10,550
1.) Enter quanti	tity of each wa tity of each wa	ittage of U	ED flat	ure in co		should be eq				70 Watt 100 Watt	32 42	\$25.97 \$57.14	295 96		63,366 30,528	\$ \$ \$ \$	588.25 1,840.88		\$9,962 \$3,242		\$10,550 \$5,083

400 Watt

133

\$183.40

This projected savings is calculated on changing 100 of the 70W HPSV to 15W 2700K LED Fixtures and 295 of the 70W HPSV to 32W 2700K

2

563

Temporary

Incremental

Facility Charge

LED Light Annual Charge

Proposed Monthly

Total Charge

Quantity of

each fixture

Annual kWh

\$68

\$ 19,011 \$ 27,244

\$434

by fixture type

Annual \$ Cost by

fixture type

Current

Monthly

Energy Charge

2,609 \$

163,636 \$

366.80

8,232.20

2700K Savings Model ~ HPSV to LED replacement for LS1 Streetlights

Illustration of Monthly Savings Per Lamp using PG&E's Proposed LED Replacement Program for Non-Decorative LED Fixtures. March 1, 2017 Tariffs, Model assumes LS1-A 120Volts

HPSV Light Annual Charge							LED Light Annual Charge												
LSI-A Existing HPS Sizes	Current Monthly Facility Charge	kWh per Month	Current Monthly Energy Charge	Current Monthly Total Charge	Quantity of each fixture type	Annual kWh by fixture type	Annual \$ cost by fixture type	Proposed LED Size Watts	Current Monthly Facility Charge	kWh per Month	Temporary Incremental Facility Charge	Current Monthly Energy Charge	Tota	ed Monthly al Charge	Quantity of each fixture type	Annual kWh by fixture type		nual \$ Cost by lature type	
70	\$6.51	29	\$ 4.83	\$11.34	0	-	\$ -	15	\$6.51	4.3	\$2.81	\$ 0.716	\$1	10.04	0	,-	\$	-	
70	\$6.51	29	\$ 4.83	\$11.34	395	137,460	\$ 53,762.08	32	\$6.51	11.1	\$2.81	\$ 1.848	\$1	11.18	395	52,614	\$	52,974.42	
100	\$6.51	41	\$ 6.83	\$13,34	96	47,232	\$ 15,367.78	42	\$6.51	14.5	\$2.81	\$ 2.414	\$1	11.74	96	16,704	\$	13,526.90	
150	\$6.51	60	\$ 9.99	\$16.50	44	31,680	\$ 8,713.80	56	\$6.51	19.6	\$2.81	\$ 3.263	\$1	12.59	44	10,349	\$	6,648.16	
200	\$6.51	80	\$ 13.32	\$19,83	26	24,960	\$ 6,187.96	84	\$6.51	28.2	\$2.81	\$ 4.695	\$1	14.02	26	8,798	\$	4,375.18	
250	\$6.51	100	\$ 16.65	\$23,16	0	-	\$ -	93	\$6.51	31.6	\$2.81	\$ 5.261	\$1	14.59	0	-	\$		
400	\$6.51	154	\$ 25.64	\$32.15	2	3,696	\$ 771.68	133	\$6.51	45.3	\$2.81	\$ 7.542	\$1	16.87	2	1,087	\$	404.88	
		***************************************			563	245,028	\$ 84,803			A		-	-		563	89,552	\$	77,929.5	
				% ener	gy & GHG r	eduction													
				% ener	63.5%			LS1-A Existing HPSV Sizes	LED Like-for-Like Wattage	Per Fixture Annual Savings	NEW Quantity by fixture type	Annual kWh reduction by flature type	The second secon	al \$ savings xture type	-	Additional Savings Post IFC	Tota	al Savings Post IFC	
Instruction	15			% ener	.,			The state of the s	Like-for-Like	Annual		reduction by	The second secon	And in case of females, and the last	-	Savings Post	Tota	IFC	
Instruction		attage of e	disting HPSV		63.5%			HPSV Sizes	Like-for-Like Wattage	Annual Savings	by fixture type	reduction by	by fix	And in case of females, and the last	-	Savings Post IFC	Tota	si Savings Post IFC \$0 \$14,126	
	ky of each wa		·	fixtures in col H	63.5%	5	-	HPSV Sizes 70 Watt	Like-for-Like Wattage 15 32 42	Annual Savings \$15.58 \$25.97 \$57.14	by fixture type	reduction by flature type	\$ \$	xture type	-	Savings Post IFC \$0	Tota	\$0 \$14,126	
1.) Enter quanti 2.) Enter quanti	ity of each wa	attage of Li	D flature in o	fixtures in col H column S (total:	63.5%	ual)		70 Watt 70 Watt 100 Watt 150 Watt	Like-for-Like Wattage 15 32 42 56	Annual Savings \$15.58 \$25.97 \$57.14 \$86.90	0 395 96 44	84,846 30,528 21,331	\$ \$ \$ \$ \$ \$	787.65 1,840.88 2,065.64	-	\$0 \$13,338 \$3,242 \$1,486	Tota	\$0 \$14,126 \$5,083 \$3,551	
1.) Enter quanti	ity of each waity of each wa	attage of Li	D flature in o	fixtures in col H column S (total: While facility cha	63.5%	ual)		70 Watt 70 Watt 100 Watt 150 Watt 200 Watt	Like-for-Like Wattage 15 32 42 56 84	Annual Savings \$15.58 \$25.97 \$57.14 \$86.90 \$109.68	0 395 96 44 26	reduction by fixture type - 84,846 30,528	\$ \$ \$ \$ \$ \$	787.65 1,840.88	2	\$0 \$13,338 \$3,242 \$1,486 \$878	Tota	\$0 \$14,126 \$5,083 \$3,551	
1.) Enter quanti 2.) Enter quanti	ity of each waity of each wa	attage of Li	D flature in o	fixtures in col H column S (total:	63.5%	ual)		70 Watt 70 Watt 100 Watt 150 Watt 200 Watt 250 Watt	15 32 42 56 84 93	Annual Savings \$15.58 \$25.97 \$57.14 \$86.90 \$109.68 \$210.77	0 395 96 44 26	84,846 30,528 21,331 16,162	\$ \$ \$ \$ \$ \$ \$ \$	787.65 1,840.88 2,065.64 1,812.78	-	\$0 \$13,338 \$3,242 \$1,486 \$878	Tota	\$0 \$14,126 \$5,083 \$3,551 \$2,691	
1.) Enter quanti 2.) Enter quanti	ity of each wa ity of each wa Shown facility rates, the m	attage of Li ry charges ar	ED fixture in one for LS1-A's. I energy saving	fixtures in col H Olumn 5 (total While facility cha s are accurate fo	63.5% s should be equipment of the should be equipment of the should be equipment of the should be should	ual)		70 Watt 70 Watt 100 Watt 150 Watt 200 Watt	Like-for-Like Wattage 15 32 42 56 84	Annual Savings \$15.58 \$25.97 \$57.14 \$86.90 \$109.68	0 395 96 44 26	84,846 30,528 21,331	\$ \$ \$ \$ \$ \$ \$ \$	787.65 1,840.88 2,065.64	-	\$0 \$13,338 \$3,242 \$1,486 \$878	Tota	#FC \$0	

This projected savings is calculated on changing all of the 395 70W HPSV to 32W 2700K LED Fixtures.