Johnson Controls, Inc.
Draft Energy and Water Efficiency Financial Analysis for the
City of Placerville
September 10, 2015

FIM Number	FIM Description	Rough Order of Magnitude Cost	Project Design Fee	Savings	Rebates	Grants	Asset Useful Life	Simple Payback
City Wide and Building Improvement Measures								
1	Purchase LS-1 Streetlights from PG&E and Retrofit with LED	886,809	30,308	60,069	8,914		18	14
2	Optimize Electric Rate Tariffs	5,370	2,821	3,310			15	1.6
3	RESBCT Photovoltaics	1,929,053	20,281	95,164			25	20
4	Photovoltaics for Irrigation systems		4,134				17	n/a
5	Interior Lighting Retrofit	74,669	22,098	25,583	20,162		18	2.1
6	Exterior Lighting Retrofit	82,596	1,624	8,711	4,666		18	8.9
7	Parking Garage Lights	8,745	1,209	11,704	-		18	0.74
8	Replace Package Unit Heat Pumps	289,086	15,548	12,888	14,205		15-18	21.3
9	Replace Standard Telephone Service with VoIP	151,426	8,372	10,050	-		10	15
10	Parking Garage Covered Parking and PV	279,985	9,097	6,410	-		25	43.6
11	Intelligent Parking Meters		5,654				7	tbd
12	Re-Air Balance Building -		included				n/a	tbd
13	Upgrade Building Controls		8,004				13	tbd
14	Pool Pump Controls		4,572				13	tbd
15	Interior Lighting Controls		32,321				tbd	tbd
	Subtotal	$ 3,707,739	$ 166,043	$ 233,890	$ 47,946	$ -		

Phasing A		Phasing B		Phasing C		FIM Description	FIM Number
City Wide and Building Improvement Measures							
	-		-	X	30,308	Purchase LS-1 Streetlights from PG&E and Retrofit with LED	1
X	2,821		-		-	Optimize Electric Rate Tariffs	2
	-	X	20,281		-	RESBCT Photovoltaics	3
X	4,134		-		-	Photovoltaics for Irrigation systems	4
X	22,098		-		-	Interior Lighting Retrofit	5
X	1,624		-		-	Exterior Lighting Retrofit	6
X	1,209		-		-	Parking Garage Lights	7
X	15,548		-		-	Replace Package Unit Heat Pumps	8
X	8,372		-		-	Replace Standard Telephone Service with VoIP	9
X	9,097		-		-	Parking Garage Covered Parking and PV	10
X	5,654		-		-	Intelligent Parking Meters	11
X	included		-		-	Re-Air Balance Building -	12
	-	X	8,004		-	Upgrade Building Controls	13
	-	X	4,572		-	Pool Pump Controls	14
	-	X	32,321		-	Interior Lighting Controls	15
Design Fee by Phase	$ 70,557		$ 65,178		$ 30,308		
Project Cost	$ 891,877		$ 1,929,053		$ 886,809		
Savings	$ 78,657		$ 95,164		$ 60,069		

Water Improving Measures							
20	AMI Meter Installation	2,423,625	139,236	100,956		1,817,719	25	24
21	Water Pipe Replacement/Leak repairs/replace CIP	1,500,000	155,000	35,000		1,125,000	25-30	20
22	Leak Detection Development	380,060	26,484	31,920		380,060	n/a	9
23	Water Storage Tank	140,000	$ 8,400			140,000	35	16
	Subtotal	$ 4,443,685	$ 329,120	$ 167,876	$ -	$ 3,462,779		

Water Improving Measures							
X	139,236	+				AMI Meter Installation	20
X	155,000	+				Pipe Replacement/Leak repairs/replace CIP expenditure	21
X	26,484	+				Leak Detection Development	22
X	8,400	+				Water Storage Tank	23
Design Fee by Phase	$ 329,120		$ -		$ -		
Project Cost	$ -		$ 4,443,685		$ -		
Savings	$ -		$ 167,876		$ -		

WRF Improvement Measures							
30	Photovoltaic Array	5,222,318	26,948	299,505			25	9-17
31	Sewer Pipe Replacement/Leak Repairs	4,600,000	540,000	TBD		3,450,000	25-35	TBD
32	Modify Anaerobic Digestion Process	140,650	38,477	26,245	14,434	105,488	20	4.8
33	Add smaller blower and install VFD on blower	194,000	52,649	32,850	19,710		20	5.1
34	Installation of Sludge Drying Oven	329,850	58,495	26,676		247,388	15	13.4
35	ADR	3,325	3,301	3,000			20	1.1
36	Peak Demand Limiting	30,325	10,236	9,810	7,500		20	2.3
37	Modify Permit, Reduce cooling costs	87,450	27,812	28,032			20	3.1
38	Power factor correction		5,181					
39	Jockey Pump for Non-Potable water		11,181					
40	Chem Feed management at Headwork		7,591					
41	UV Lamp Management		39,189					
42	Repair underground air leak		10,291					
43	Alternative Mixing in Anoxic Zone		5,333					
44	Cover over Chlorine Contact basin		4,957					
	Subtotal	$ 10,607,918	$ 841,643	$ 426,118	$ 41,644	$ 3,802,875		
	Total	$ 18,759,343	$ 1,336,806	$ 827,884	$ 89,590	$ 7,265,654	19	14

X	26,948		-		-	Photovoltaic Array	30
X	540,000	+	-		-	Sewer Pipe Replacement/Leak Repairs	31
	-	X	38,477		-	Modify Anaerobic Digestion Process	32
X	52,649		-		-	Add smaller blower and install VFD on blower	33
	-	X	58,495		-	Installation of Sludge Drying Oven	34
X	3,301		-		-	ADR	35
X	10,236		-		-	Peak Demand Limiting	36
	-	X	27,812		-	Modify Permit, Reduce cooling costs	37
	-	X	5,181		-	Power factor correction	38
	-	X	11,181		-	Jockey Pump for Non-Potable water	39
	-	X	7,591		-	Chem Feed management at Headwork	40
	-	X	39,189		-	UV Lamp Management	41
	-	X	10,291		-	Repair underground air leak	42
	-	X	5,333		-	Alternative Mixing in Anoxic Zone	43
	-	X	4,957		-	Cover over Chlorine Contact basin	44
Design Fee by Phase	$ 633,135		$ 208,508		$ -		
Project Cost	$ 5,449,968		$ 5,157,950		$ -		
Savings	$ 345,165		$ 80,953		$ -		

Project Cost	$ 6,341,845	$ 11,530,688	$ 886,809
Design	$ 1,032,812	$ 273,686	$ 30,308
Savings	$ 423,822	$ 343,994	$ 60,069
Rebate	$ 89,590	$ -	$ -
Grants	$ -	$ 7,265,654	$ -
Additional Funding Needs	$ 7,285,066	$ 4,538,720	$ 917,117
Simple Payback	17.19	13.19	14.50
Project ROI	136%	63%	138%