



GK
 1214 Prairie St Saint Charles, IL 60174
 Office: 866*612*7542 ext 708 f .866*612*7542
 Email: GK@yourgreenesolutions.com
www.yourgreenesolutions.com

Green Energy Management Solutions, LLC

Saving Analysis for *Induction Lighting*

Facility/Project Name: **United Food Group, Vernon**

Facility Owner: _____

Facility Address: 3501 E Vernon Ave, Vernon, CA 90058

Facility Management Co: _____

Jack Peterson

Energy Savings

Electric kWh Rate: 0.08

Existing Fixtures

Description	CRI	Life Span	PF	THD	VOLTS	Watts/Fixture	QTY	Hrs/Year	Total kW	Annual kWh	Annual Energy Costs	15yr Cycle Costs
2x2 square Canopy		11,000			277	475	377	8,760	179	1,568,697	\$ 125,496	\$ 1,882,436
High Bay Light		11,000			277	475	102	8,760	48	424,422	\$ 33,954	\$ 509,306
8 foot-2 bulb T8		20,000			277	148	45	8,760	7	58,342	\$ 4,667	\$ 70,010
4 foot 4 bulb T8		20,000			277	148	6	8,760	1	7,779	\$ 622	\$ 9,335
Wendy's 4 foot 2 bulb T8		20,000			277	150	65	8,760	10	85,410	\$ 6,833	\$ 102,492
4 foot 2 bulb T8		20,000			277	74	130	8,760	10	84,271	\$ 6,742	\$ 101,125
3 bulb 4footer		20,000			277	117	65	2,580	8	19,621	\$ 1,570	\$ 23,545
4-bulb 4 footer		20,000			277	147	14	2,580	2	5,310	\$ 425	\$ 6,372
2 bulb 4 footer		20,000			277	74	37	2,580	3	7,064	\$ 565	\$ 8,477
can lights		8,000			277	20	39	2,580	1	2,012	\$ 161	\$ 2,415
square Canopy		11,000			277	150	12	8,760	2	15,768	\$ 1,261	\$ 18,922
Flood light medium		11,000			277	175	24	8,760	4	36,792	\$ 2,943	\$ 44,150
Flood light large		11,000			277	250	8	8,760	2	17,520	\$ 1,402	\$ 21,024
Totals 277KW										2,333,008	\$ 186,641	\$ 2,799,609

Proposed Fixtures

Description	CRI	Life Span	PF	THD	VOLTS	Watts/Fixture	QTY	Hrs/Year	Total kW	Annual kWh	Annual Energy Costs	15yr Cycle Costs
Induction Retro fit kit SL-L-IN-200	82+	100,000	0.95	<10%	277	202	377	8,760	76	667,109	\$ 53,369	\$ 800,531
High Bay HB-L-M-IN-200	82+	100,000	0.95	<10%	277	200	102	8,760	20	178,704	\$ 14,296	\$ 214,445
2 / LED 8' Tubes	84+	50,000	0.99	<10%	277	36	45	8,760	2	14,191	\$ 1,135	\$ 17,029
2x2 troffer /80W induction retro fit	82+	100,000	0.95	<10%	277	80	6	8,760	0	4,205	\$ 336	\$ 5,046
Wendy's Packing Room / *SP T-5	82+	100,000	0.95	<10%	277	108	65	8,760	7	61,495	\$ 4,920	\$ 73,794
4 foot 2 bulb / *SP T-8 floor	82+	100,000	0.95	<10%	277	56	130	8,760	7	63,773	\$ 5,102	\$ 76,527
2x2 floor/40W induction retro fit	82+	100,000	0.95	<10%	277	40	65	2,580	3	6,708	\$ 537	\$ 8,050
2x2 office /80W induction retro fit	82+	100,000	0.95	<10%	277	80	14	2,580	1	2,890	\$ 231	\$ 3,468
2x2 office /40W induction retro fit	82+	100,000	0.95	<10%	277	40	37	2,580	1	3,818	\$ 305	\$ 4,582
A- Shaped Induction lamp	82+	100,000	0.95	<10%	277	23	39	2,580	1	2,314	\$ 185	\$ 2,777
13" x 13" square canopy	82+	100,000	0.95	<10%	277	80	12	8,760	1	8,410	\$ 673	\$ 10,092
Flood light / 80 watt induction	82+	100,000	0.95	<10%	277	80	24	8,760	2	16,819	\$ 1,346	\$ 20,183
Flood light / 120 watt induction	82+	100,000	0.95	<10%	277	120	8	8,760	1	8,410	\$ 673	\$ 10,092
Totals 122KW										1,038,846	\$ 83,108	\$ 1,246,615

ENERGY COSTS SAVINGS	15 Years Total kWh Savings	Annual kWh Savings	Annual Energy Savings	15 Year Life Cycle Energy Savings
		19,412,429	1,294,162	\$ 103,533

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Facility Owner: 0

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Facility Management Co: Jack Peterson

Labor Savings

Existing Lamps			\$200.00 per fixture					
Bulb Type	Life Span/Hrs	Hrs/Year	Quantity	1 Bulb Change Cost	Aver. Labor Cost/1 Fixt	Total Annual Labor Costs	10yr Cycle Costs-Labor	15yr Cycle Costs-Labor
2x2 square Canopy	11,000	8,760	377	\$65.00	65.00 @126 units	\$8,168.33	\$81,683	\$122,525
High Bay Light	11,000	8,760	102	\$65.00		\$2,210	\$22,100	\$33,150
8 foot-2 bulb T8	20,000	8,760	45	\$15.00		\$975	\$9,750	\$14,625
4 foot 4 bulb T8	20,000	8,760	6	\$15.00		\$120	\$1,200	\$1,800
Wendy's 4 foot 2 bulb T8	20,000	8,760	65	\$20.00		\$1,408	\$14,083	\$21,125
4 foot 2 bulb T8	20,000	8,760	130	\$15.00		\$650	\$6,500	\$9,750
3 bulb 4 footer	20,000	2,580	65	\$15.00		\$325	\$3,250	\$6,500
4-bulb 4 footer	20,000	2,580	14	\$15.00		\$70	\$700	\$1,050
2 bulb 4 footer	20,000	2,580	37	\$15.00		\$370	\$3,700	\$7,400
can lights	8,000	2,580	39	\$10.00		\$130	\$1,300	\$2,600
square Canopy	11,000	2,580	12	\$65.00		\$260	\$2,600	\$5,200
Flood light medium	11,000	2,580	24	\$65.00		\$520	\$5,200	\$10,400
Flood light large	11,000	2,580	8	\$65.00		\$173	\$1,730	\$3,460
Totals						\$15,380	\$153,797	\$239,585
New Proposed Induction Bulb	Life Span/Hrs	Hrs/Year	Quantity	1 Bulb Change Cost	Aver. Labor Cost/1 Fixt	Yearly Labor Costs	10yr Cycle Costs-Labor	10yr Cycle Costs-Labor
Induction Retro fit kit SL-L-IN-200	100,000	8,760	377	\$0.00		\$0	\$0	\$0
High Bay HB-L-M-IN-200	100,000	8,760	102	\$0.00		\$0	\$0	\$0
2 / LED 8" Tubes	50,000	8,760	45	\$0.00		\$0	\$0	\$0
2x2 troffer /80W induction retro fit	100,000	8,760	6	\$0.00		\$0	\$0	\$0
Wendy's Packing Room / *SP T-5	100,000	8,760	65	\$0.00		\$0	\$0	\$0
4 foot 2 bulb / *SP T-8 floor	100,000	8,760	130	\$0.00		\$0	\$0	\$0
2x2 floor/40W induction retro fit	100,000	8,760	65	\$0.00		\$0	\$0	\$0
2x2 office /80W induction retro fit	100,000	2,580	14	\$0.00		\$0	\$0	\$0
2x2 office /40W induction retro fit	100000	2,580	37	\$0.00		\$0	\$0	\$0
A- Shaped lamp / 23 watt induction	100000	2,580	39	\$0.00		\$0	\$0	\$0
13" x 13" square canopy	100000	2,580	12	\$0.00		\$0	\$0	\$0
Flood light / 80 watt induction	100,000	2,580	24	\$0.00		\$0	\$0	\$0
Flood light / 120 watt induction	100,000	2,580	8	\$0.00		\$0	\$0	\$0
Totals						\$0	\$0	\$0
TOTAL LABOR SAVINGS	Annual Labor Savings				15 Year Life Cycle Labor Saving			
	\$15,380				\$153,797			

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Material Savings	Material Savings					
Existing Lamps						
Bulb Type	Life Span/Hrs	Hrs/Year	Quantity	Annual Material Cost	Annual Maintenance Costs	15yr Cycle Maintenance Costs
2x2 square Canopy	11,000	8,760	377	\$40.00	\$5,026	\$75,390
High Bay Light	11,000	8,760	102	\$40.00	\$1,360	\$20,400
8 foot-2 bulb T8	20,000	8,760	45	\$4.00	\$60	\$900
4 foot 4 bulb T8	20,000	8,760	6	\$2.00	\$6	\$90
Wendy's 4 foot 2 bulb T8	20,000	8,760	65	\$4.00	\$87	\$1,305
4 foot 2 bulb T8	20,000	8,760	130	\$2.00	\$87	\$1,305
3 bulb 4footer	20,000	2,580	65	\$2.00	\$43	\$645
4-bulb 4 footer	20,000	2,580	14	\$2.00	\$10	\$150
2 bulb 4 footer	20,000	2,580	37	\$2.00	\$25	\$500
can lights	8,000	2,580	39	\$9.00	\$113	\$2,264
square Canopy	11,000	2,580	12	\$25.00	\$70	\$1,407
Flood light medium	11,000	2,580	24	\$20.00	\$113	\$2,252
Flood light large	11,000	2,580	8	\$25.00	\$47	\$938
Totals					\$7,047	\$107,546
Induction Lighting						
Induction Bulb	Life Span/Hrs	Hrs/Year	Quantity	Annual Material Cost	Yr Maintenance Costs	15yr Cycle Main. Costs
Induction Retro fit kit SL-L-IN-200	100,000	8,760	377		\$0	\$0
High Bay HB-L-M-IN-200	100,000	8,760	102		\$0	\$0
2 / LED 8' Tubes	50,000	8,760	45		\$0	\$0
2x2 troffer /80W induction retro fit	100,000	8,760	6		\$0	\$0
Wendy's Packing Room / *SP T-5	100,000	8,760	65		\$0	\$0
4 foot 2 bulb / *SP T-8 floor	100,000	8,760	130		\$0	\$0
2x2 floor/40W induction retro fit	100,000	2,580	65		\$0	\$0
2x2 office /80W induction retro fit	100,000	2,580	14		\$0	\$0
2x2 office /40W induction retro fit	100000	2,580	37		\$0	\$0
A- Shaped lamp / 23 watt induction	100000	2,580	39		\$0	\$0
13" x 13" square canopy	100000	2,580	12		\$0	\$0
Flood light / 80 watt induction	100,000	2,580	24		\$0	\$0
Flood light / 120 watt induction	100,000	2,580	8		\$0	\$0
Totals					\$0	\$0
Summary						
TOTAL MAINTENANCE MATERIAL SAVINGS	Total Annual Material Savings		15 Year Life Cycle Total Material Savings			
	\$7,047		\$107,546			

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Total Combined NET Savings for 15 Year Cycle by Year

15 Years Cycle	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10
Total Net Savings by Year	\$47,044.70	\$168,000.49	\$288,956.29	\$409,912.09	\$530,867.88	\$651,823.68	\$772,779.48	\$893,735.27	\$1,014,691.07	\$1,135,646.87
	Year 11	Year 12	Year 13	Year 14	Year 15					
	\$1,256,602.66	\$1,377,558.46	\$1,498,514.26	\$1,619,470.06	\$1,740,425.85					

Total Combined NET Savings for 15 Year Cycle by Type

15 Year Energy	\$1,552,994.35
15 Year Labor	\$153,796.60
15 Year Material	\$107,546.00
Total NET SAVINGS	\$1,814,336.95

Total Costs of Retrofit and Payback Years

	Cost Per Fixture	Total Cost of Fixtures		Labor Cost Per Fixture	Total Installation Labor
Induction Retro fit kit SL-L-IN-200	\$243.75	\$91,893.75	Induction Retro fit kit SL-L-IN-200	\$85.00	\$32,045.00

High Bay HB-L-M-IN-200	\$363.75	\$37,102.50
2 / LED 8' Tubes	\$250.00	\$14,062.50
2x2 Troffer /80W induction retro fit	\$187.50	\$1,125.00
Wendy's / *SP T-5 108W / 100,000 hour	\$30.91	\$2,009.47
4 foot 2 bulb / *SP T-8 floor	\$50.00	\$6,800.00
2x2 floor/40W induction retro fit	\$125.00	\$8,125.00
2x2 office /80W induction retro fit	\$187.00	\$2,618.00
2x2 office/40W induction retro fit	\$125.00	\$4,625.00
A- Shaped lamp / 23 watt induction	\$53.75	\$2,096.25
13" x 13" square canopy	\$222.25	\$2,667.00
Flood light / 80 watt induction	\$222.25	\$5,334.00
Flood light / 120 watt induction	\$277.50	\$2,220.00
27signs-for 20Yr. Self powered Exit Signs	\$295.00	\$7,965.00
wall mounted sensors	\$43.75	\$1,137.50
Vernon Rebate		-\$75,000.00
EP-ACT 2005		-\$125,000.00
		-\$10,219.03
Total Project Cost + Labor)	(Fixtures	\$73,911.10

High Bay HB-L-M-IN-200	\$85.00	\$8,670.00
2 / LED 8' Tubes	\$85.00	\$3,825.00
2x2 Troffer /80W induction retro fit	\$85.00	\$510.00
Wendy's Packing Room / *SP T-5	\$85.00	\$5,525.00
4 foot 2 bulb / *SP T-8 floor	\$85.00	\$11,050.00
2x2 floor/40W induction retro fit	\$85.00	\$5,525.00
2x2 office /80W induction retro fit	\$85.00	\$1,190.00
2x2 office/40W induction retro fit	\$85.00	\$3,145.00
A- Shaped lamp / 23 watt induction	\$1.00	\$39.00
13" x 13" square canopy	\$85.00	\$1,020.00
Flood light / 80 watt induction	\$85.00	\$2,040.00
Flood light / 120 watt induction	\$85.00	\$680.00
20 year Exit Signs	\$85.00	\$750.00
wall mounted sensors	30 per fixture	\$1,105.00
disposal per fixture	\$5.00	\$4,555.00
License and permits from Vernon		\$3,556.13
Electrician Labor \$85hr		\$84,130.13
Project Payback in Years		0.81

Summary of Savings

Facility/Project Name:	United Food Group, Vernon
Facility Address:	3501 E Vernon Ave, Vernon, CA 90058
Facility Owner:	0
Facility Management Co:	Jack Peterson

Life Cycle kWh Savings	19,412,429	Simple Pay Back in Years 0.81
Life Cycle Energy Cost Savings	\$1,552,994.35	
Life Cycle Labor Cost Savings	\$153,796.60	
Life Cycle Material Cost Savings	\$107,546.00	
Life Cycle Gross Cost Savings	\$1,814,336.95	
Life Cycle Net Cost Savings		

Summary of Benefits

Life cycle air pollution reduction (lbs of CO₂)	27,759,774
Life cycle air pollution reduction (number of cars removed from the road)	24,013
Life cycle air pollution reduction equivalence (acres of forest)	37,854