



# SOLAR GAIN, INC

*Money doesn't grow on trees...it falls from the sky.*

## Reducing Your Carbon Footprint: Good for the Bottom Line

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Solar Gain Inc.



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# Business In Tucson

- According to the Tucson's Office of Conservation and Sustainable Development there are approximately 38,400 businesses in the greater Tucson area
- These business are responsible for 39% of Tucson green house gas emissions

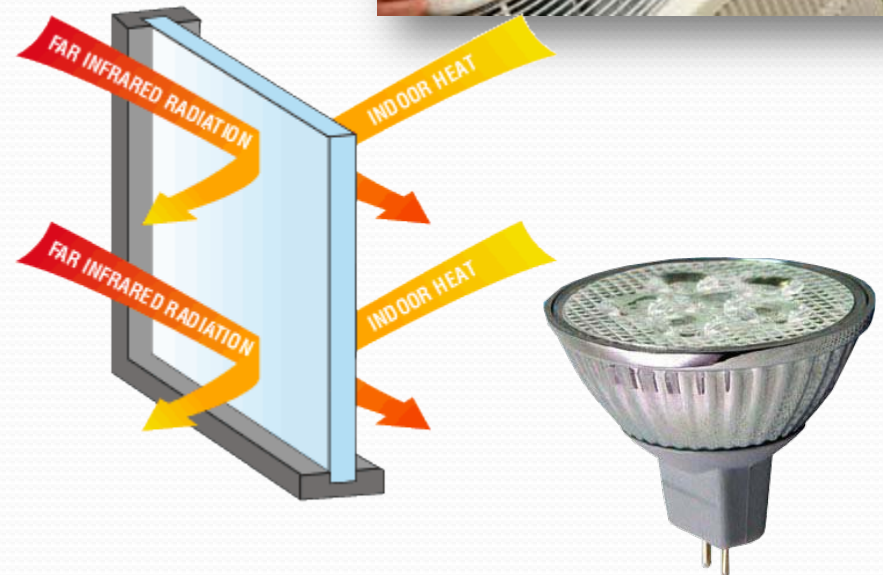
# Solar in Business



# Low Hanging Fruit

## High ROI on Energy Efficiency Upgrades

- Low E Window Upgrades
- High Efficiency HVAC Upgrade
- Insulation
- Energy Efficient Lighting
  - LED



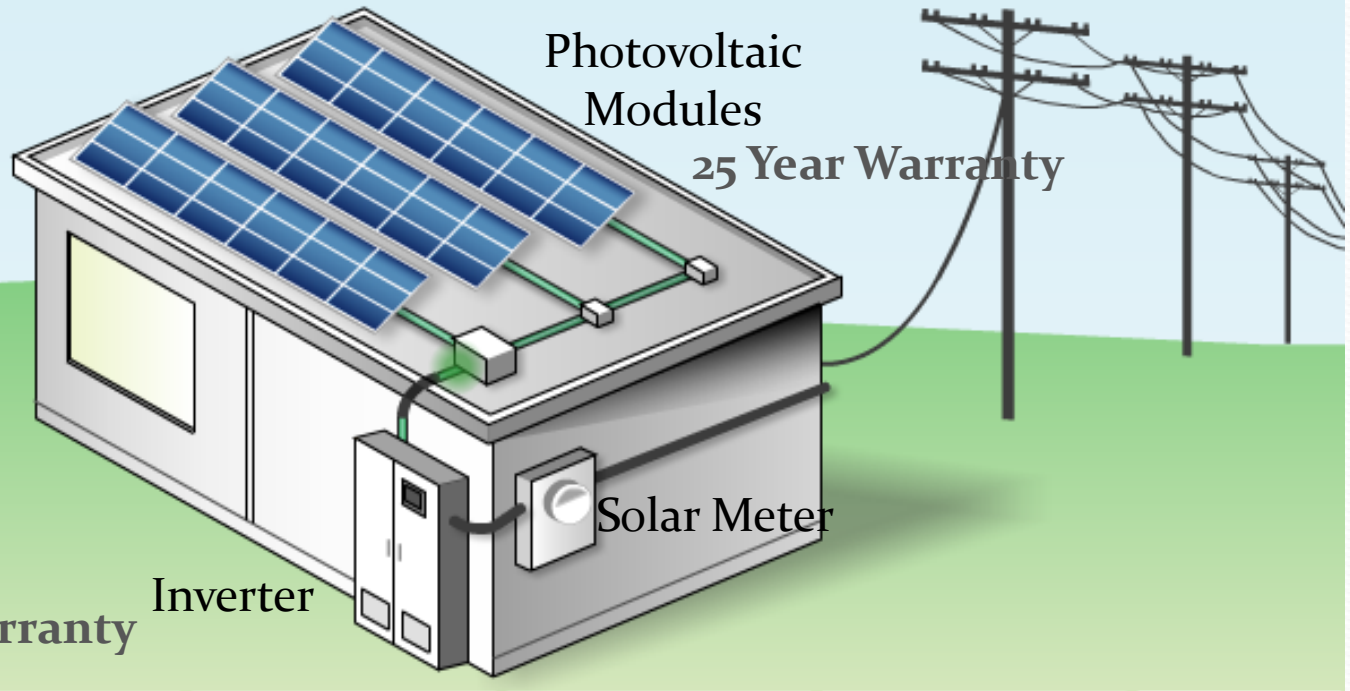
**SOLAR**

# How Solar Works



## The Sun

The sun produces a vast amount of energy through nuclear fusion. The energy travels over 150 million kilometers (93 million miles) to our planet. Every minute, enough of the sun's energy reaches the Earth's surface to meet the world's energy demands for an entire year.



# Integrated Solar Designs



# What's the Bottom Line

- Utility Rebates, Tax Credits, and Depreciation Cover 85% of system cost
- 16.4% IRR (Internal Rate of Return)
- 4-5 Year Payback Period
- Makes Business More Profitable
  - Reduces Operating Expenses
  - Reduces Taxes
  - Reduces Risk to Rising Energy Costs
- Huge Environmental Impact
- Green Branding for Marketing

# Solar for REC's

## TEP- Small Commercial

- UFI (Up Front Incentive) at \$1.75/watt for systems < 142kW DC (100kW AC)
  - 20 year agreement for REC's

## TEP- Large Commercial

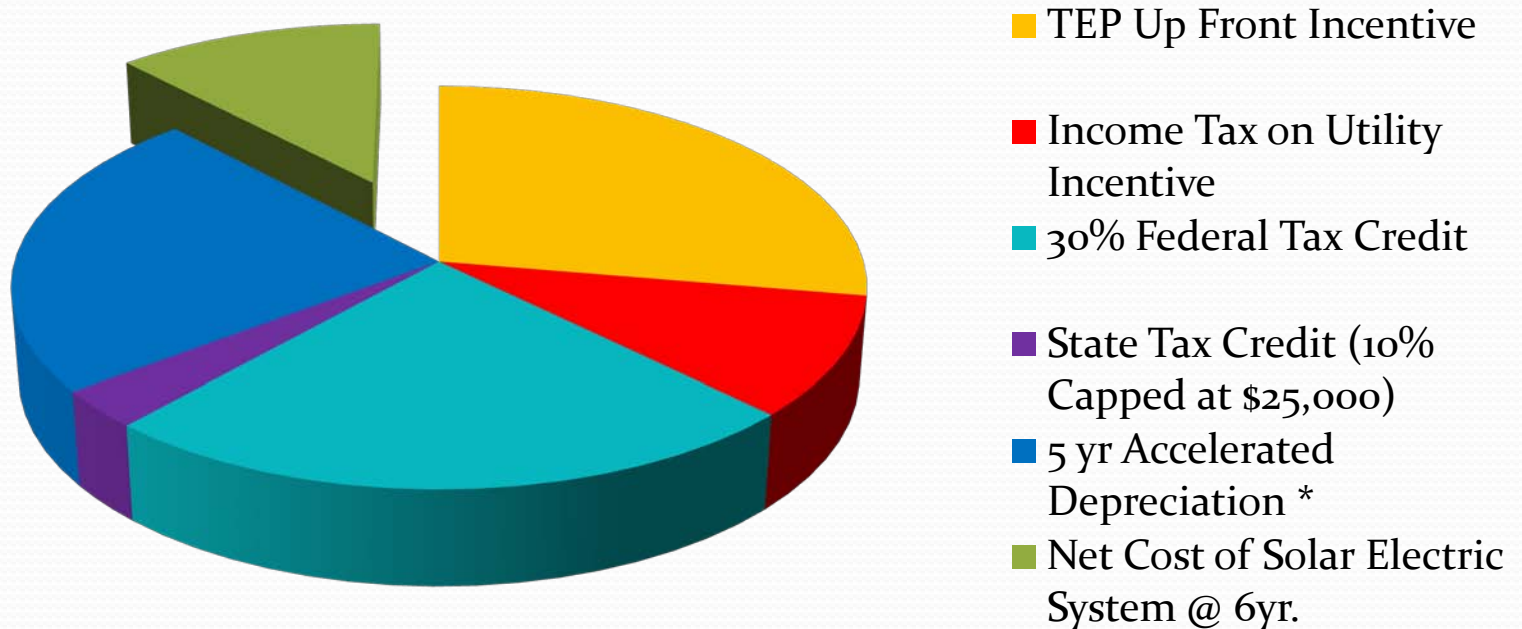
- PBI (Performance Based Incentive) negotiated price per kWh generated by system: ¢ 12 - ¢ 16
  - REC agreement ranges from 10-20 years

## 3<sup>rd</sup> Party Agreements

- PPA (Power Purchase Agreement) Purchase energy generated by system at pre-negotiated rate for term of lease
  - Typically 20 year lease

<http://www.dsireusa.org/>

# Take Advantage of Utility Rebates and Tax Credits



15% Out of Pocket Net Costs

# Case Study

## 130kW Commercial Solar Array

Solar system for 38,000 square foot mixed use warehouse/ office/ retail space with an average utility bill of \$2,740.

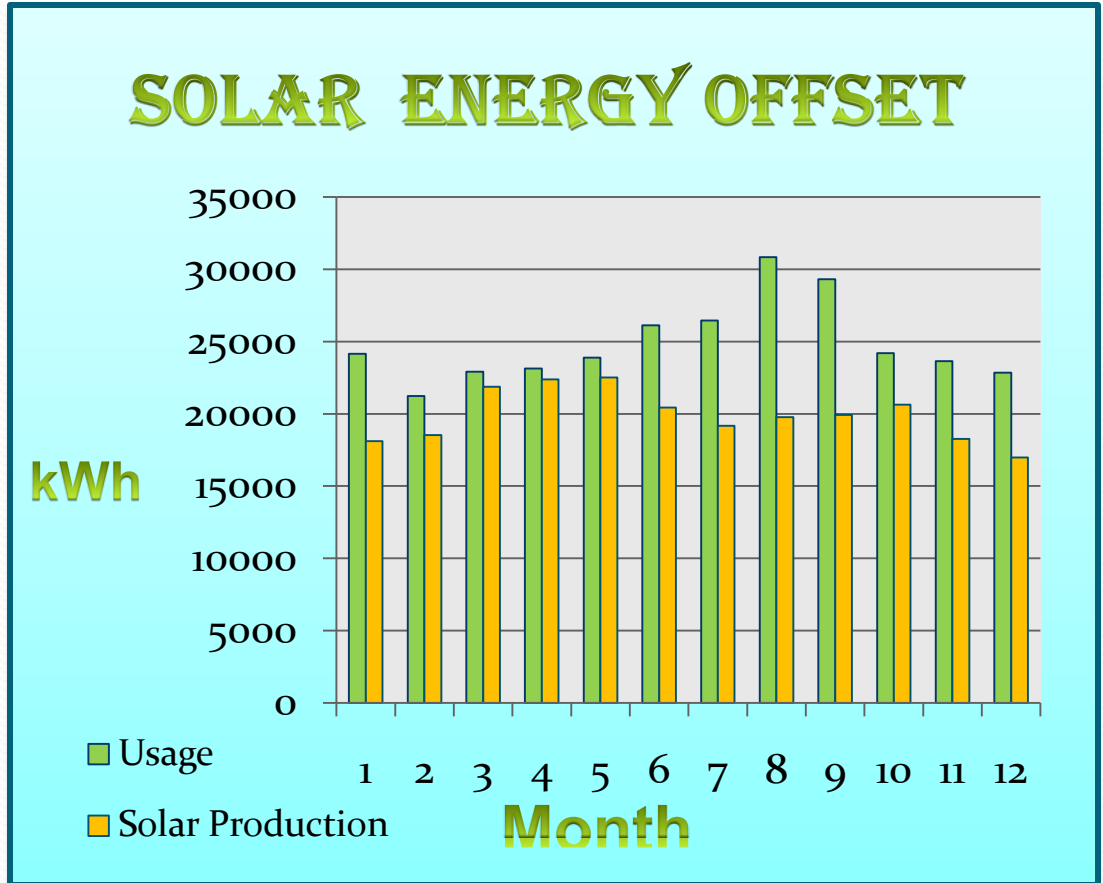
<b>Total System Cost @ \$5.00/watt</b>		<b>\$657,750.00</b>
TEP Up Front Incentive @ \$1.75	(\$226,012.50)	
30% Federal Tax Credit (Treasury Grant)	(\$197,325.00)	
<b>Customer Out of Pocket Cost</b>		<b>\$234,412.50</b>
Tax on Utility Incentive*	\$79,104.38	
State Tax Credit (10% Capped at \$25,000)	(\$25,000.00)	
<b>Year 1 Net System Cost</b>		<b>\$288,516.88</b>
5 yr Accelerated Depreciation *	(\$191,305.63)	
<b>Net Cost of Solar Electric System @ 6yr.</b>		<b>\$97,211.25</b>

 65% Return Instantly

\*Corporate tax rate assumed at 35%

# Energy Production Vs. Usage

Month	Historical Usage
1-Jan	24150
1-Feb	21240
1-Mar	22920
1-Apr	23130
1-May	23900
1-Jun	26120
1-Jul	26450
1-Aug	30840
1-Sep	29320
1-Oct	24200
1-Nov	23640
1-Dec	22855
<b>Total Annual kW</b>	<b>298765</b>
<b>Ann. Solar kWh</b>	<b>212719</b>



Your solar system will off-set approximately **71%** of your annual energy usage

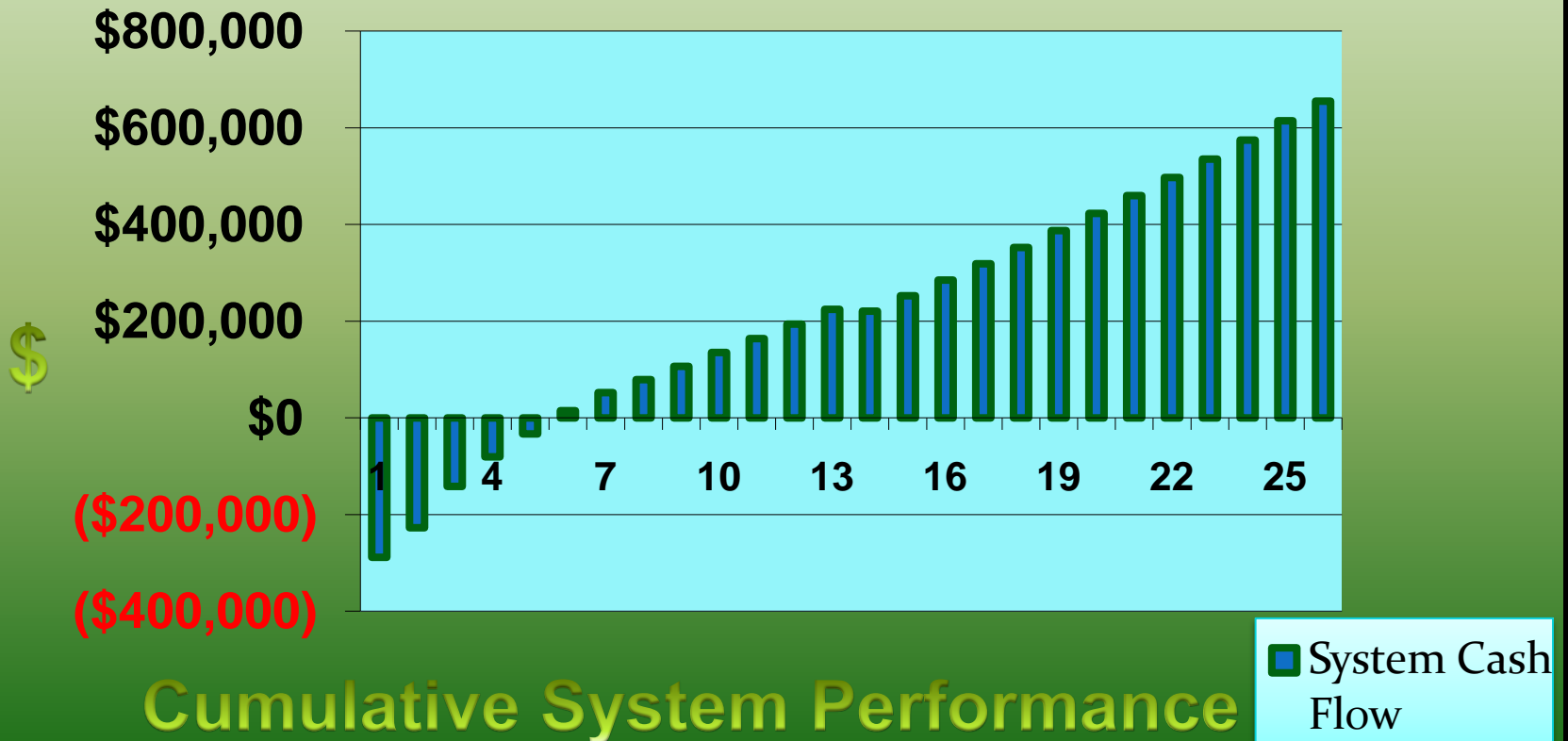
# Financial Analysis

- Offsets \$23,400 of energy expenses annually
- 16.4% IRR
- 4-5 year payback period

Year	Energy Cost Monthly	MACRS Accelerated Dep.	Ann. Income Effect	Ann Maint. Cost	Cumulative Investment Performance	Annual Hedged Utility Cost
0					<b>(\$288,517)</b>	
1	\$1,939	\$38,261	\$61,524	(\$329)	(\$227,322)	\$3,888
2	\$2,033	\$61,218	\$85,609	(\$335)	(\$142,048)	\$3,888
3	\$2,081	\$36,731	\$61,705	(\$341)	(\$80,683)	\$3,888
4	\$2,131	\$22,038	\$47,610	(\$347)	(\$33,421)	\$3,888
5	\$2,182	\$22,038	\$48,220	(\$354)	<b>\$14,445</b>	\$3,888
6	\$2,234	\$11,019	\$37,824	(\$360)	\$51,908	\$3,888
7	\$2,287	\$0	\$27,442	(\$367)	\$78,983	\$3,888
8	\$2,341	\$0	\$28,093	(\$374)	\$106,702	\$3,888
9	\$2,397	\$0	\$28,759	(\$381)	\$135,080	\$3,888
10	\$2,453	\$0	\$29,439	(\$388)	\$164,131	\$3,888

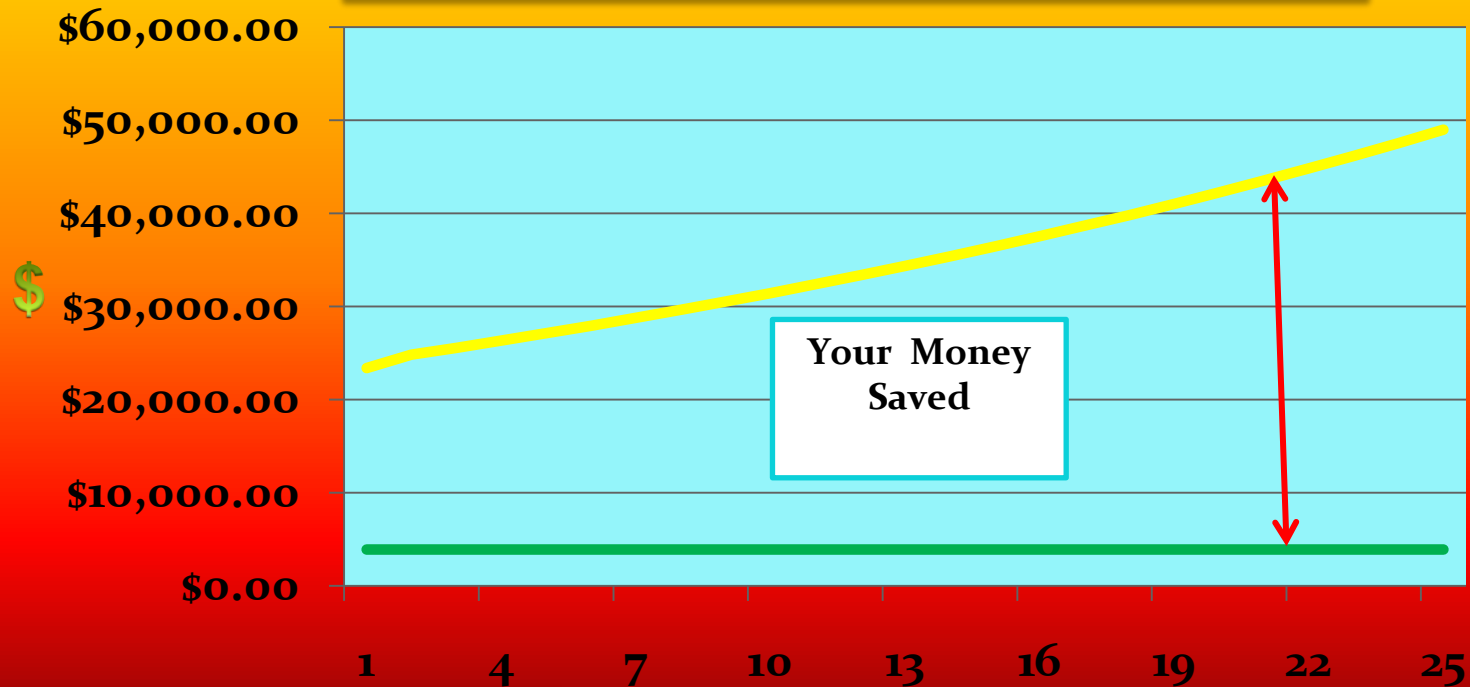
# Your Systems Break Even Point

## Your Systems Break Even Cash Flows



# 25 Year Prepaid Energy

## Solar Systems Hedge of Utility Expense



- Annual Utility Cost
- Annual Hedged Utility Cost

Cumulative System Performance

# Environmental Impact



238,660 kilowatts of electricity saved annually



238,660 pounds of coal not burned annually



178,995 gallons of water saved annually



477,320 pounds of carbon dioxide avoided annually



Equivalent to planting 110,939 trees

# Lobby Monitoring Display





why.led

A reflection of the text 'why.led' is visible below the main text, rendered in a lighter, semi-transparent grey color.

**“No other lighting technology offers as much potential to save energy and enhance the quality of our building environments, contributing to our nations energy and climate change solutions.”**

## **US Department of Energy**

Solid State Lighting Website – Dec 2009



# testing.certifications

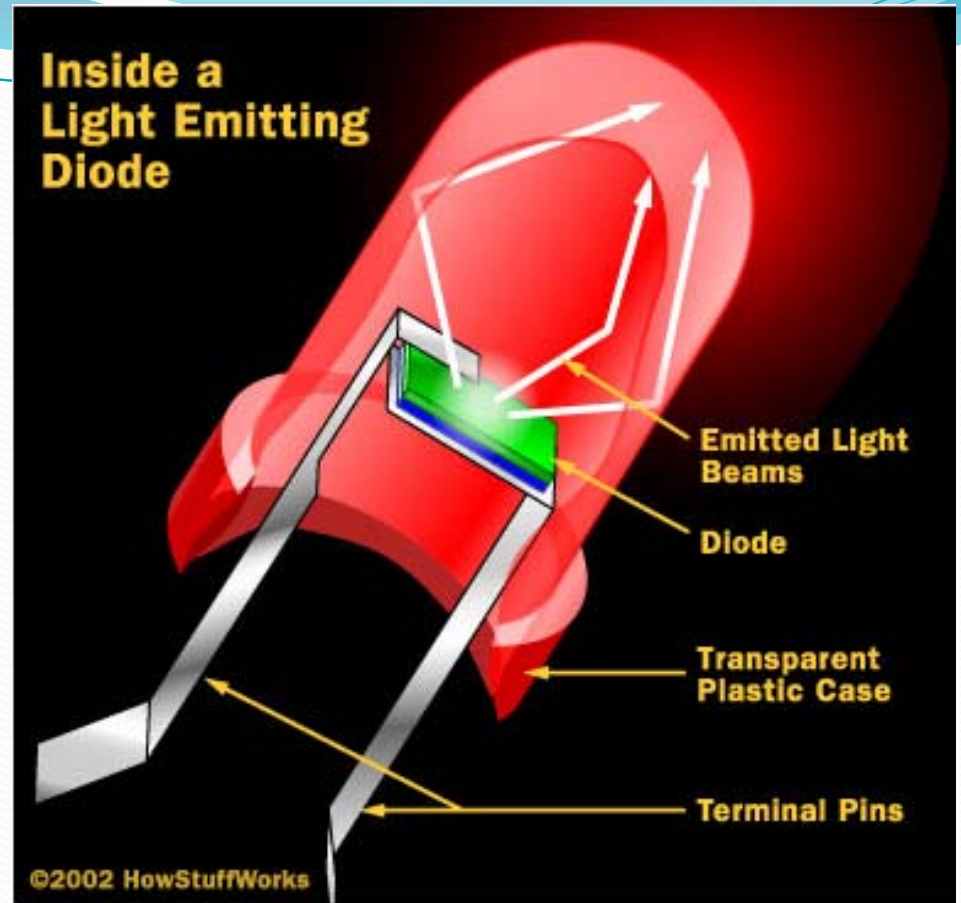


# How it Works

## LED Contains

- No Gases
- No Filaments

- Light is created through advanced technology
- Generates bright light & small amounts of Heat
- Bulbs are shatterproof & contain no harmful chemicals
- Light output is directional and color options vary



# led.benefits

- ✓ 50 – 90% More Efficient Than Traditional Sources
- ✓ Environmentally Friendly No Mercury No Lead
- ✓ Zero Maintenance & Bulb Replacement up to 10+ yrs
- ✓ Instant On, No Buzzing, No Flickering
- ✓ Better, Cleaner, Light Quality
- ✓ Short Payback Period



# led.inAction



100w High Bay

15 10 2009

12 10 5009

# led.inAction



9w 2 Foot Tubes

# led.inAction



100w Flood Lights

# Ceiling Fixtures & Tubes

>60% Energy Reduction

No Buzzing  
No Flickering  
No UV Rays  
Better Light  
Quality



# Case. Study

38,000 sq ft warehouse

## LED Products:

- 12w PAR 38
- 100w High Bay
- T8 tubes
- 7w MR-16

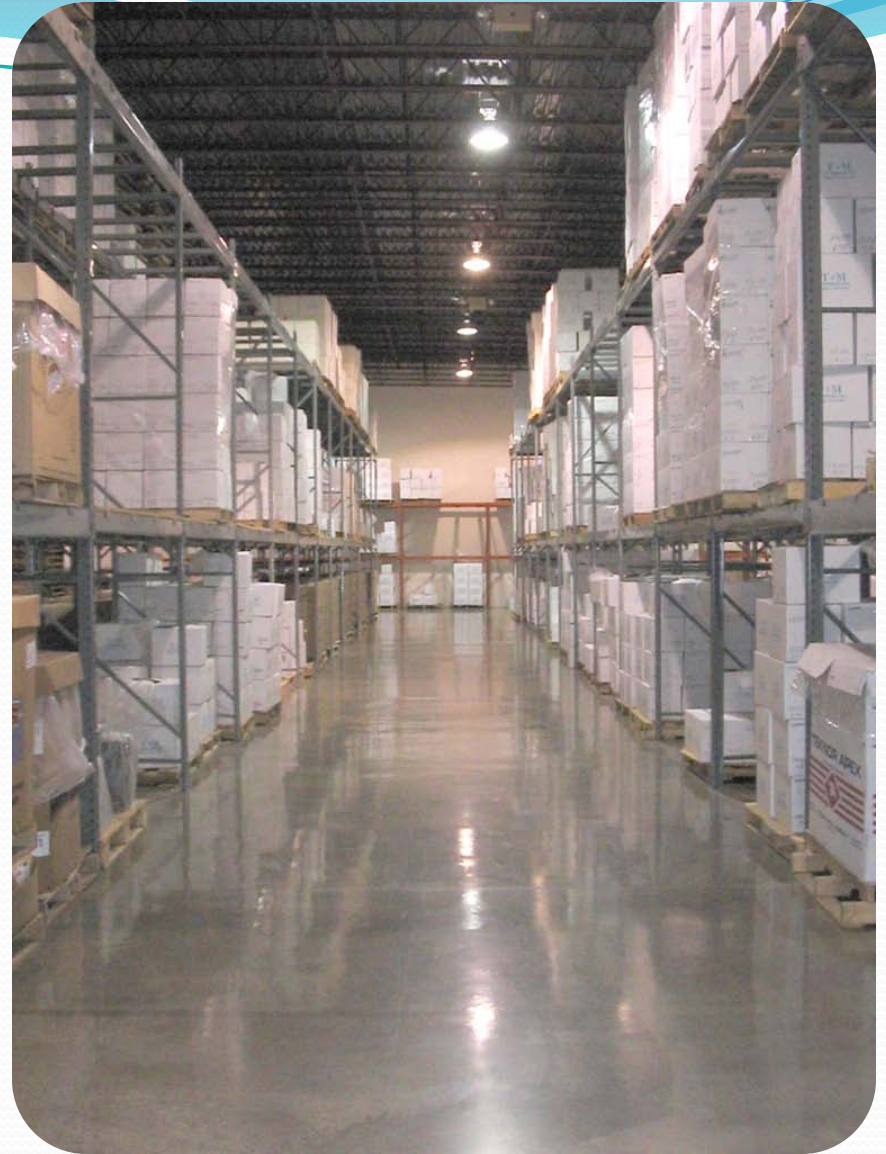
**\$12,700**

Saved Annually

**68% ROI**

**17 Months**

Payback Period



# Case Study

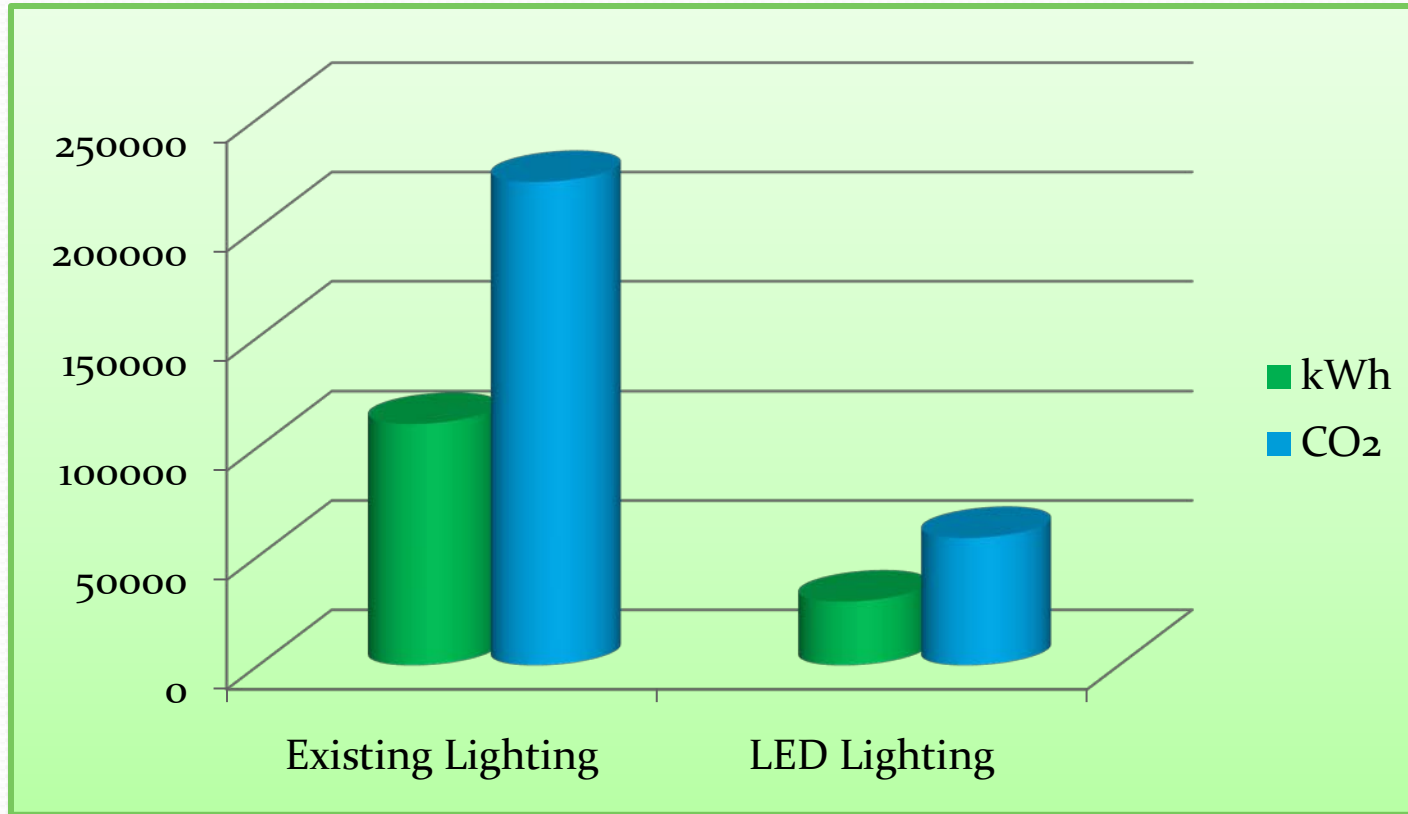
## System Costs and Savings

LED Lighting Cost	\$35,695
-EPACT Tax Deduction	-\$7,980
<u>-Utility Lighting Incentive</u>	<u>-\$8,944</u>

Net LED Lighting Cost \$18,771

<b><u>Lighting Retrofit Analysis</u></b>	<b>Existing Lighting</b>	<b>LED Lighting</b>	<b>Net Savings</b>
Monthly- Total Current Energy and Maintenance	\$1,326	\$267	\$1,059
<b>Annual- Total Current Energy and Maintenance</b>	<b>\$15,908</b>	<b>\$3,200</b>	<b>\$12,708</b>
Monthly- kWh consumed	9,201	2,425	6,776
<b>Annual- kWh consumed</b>	<b>110,412</b>	<b>29,100</b>	<b>81,312</b>
<b>Annual- CO2 savings in pounds</b>	<b>220,824</b>	<b>58,200</b>	<b>162,624</b>

# LED Vs. Existing Lighting Systems



162,000 Pounds of CO<sub>2</sub> Saved Annually

Over 80,000 kWh saved annually

# Environmental Savings



81,312 Pounds of Coal Saved Annually



61,000 Gallons of Water Saved Annually



Equivalent # Cars Taken Off  
Road



Equivalent # of Trees Planted

# green.branding

## With LED You Can Expect:



# LED value

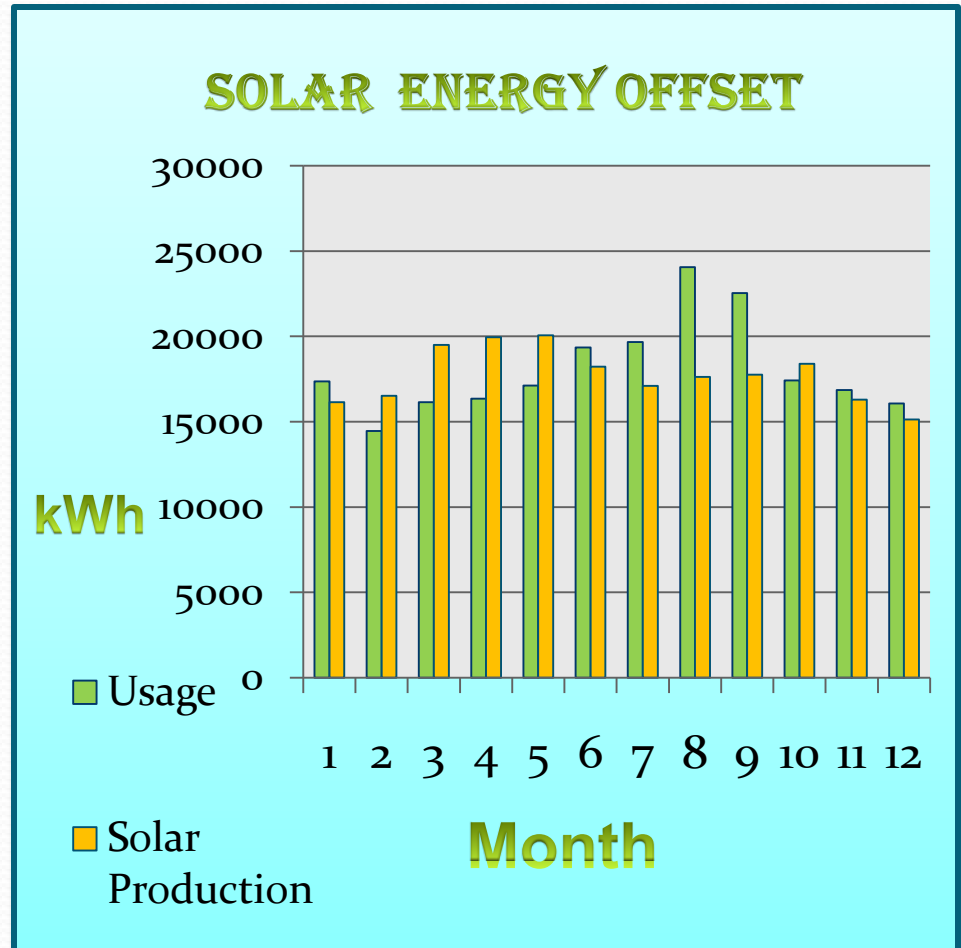
- Energy Efficient, Environmentally Friendly, Direct Replacement of Existing Lighting
- Extra Cash on Your Bottom Line
- 10 Year Bright Line™ Analysis – Makes the Decision Smart
- Instant Green Branding

CONTRIBUTING TO SAVING OUR  
PLANET

# LED Combined with Solar

- Combined systems add 6% to total system cost
- Total energy off-set of system changes from 71% to 98%

Month	Historical Usage	Usage With LED
1-Jan	24150	17374
1-Feb	21240	14464
1-Mar	22920	16144
1-Apr	23130	16354
1-May	23900	17124
1-Jun	26120	19344
1-Jul	26450	19674
1-Aug	30840	24064
1-Sep	29320	22544
1-Oct	24200	17424
1-Nov	23640	16864
1-Dec	22855	16079
<b>Total Annual kW</b>	<b>298765</b>	<b>217453</b>
<b>Annual Solar Production kWh</b>		<b>212719</b>



# 3 Things to Take Away From This Presentation Today

## SOLAR & LED

1. Reduce Your Company Impact on the Environment
2. Improves Your Company's Bottom Line
3. Showcases Your Company As A Green Business

Lets See How Fast We Can Turn Tucson Businesses Green!!



# SOLAR GAIN, INC

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## Thank You For Your Time

## Questions???

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