

Solar Electric Opportunity



Agenda

- **Financial Incentives**

- State and Federal Incentives
- Financial Analysis
- Energy Cost Savings

- **Basics of Solar**

- Technology overview
- System Description
- Installation & Mounting
- Warranty

- **Next Steps**

- Site Considerations
- System Sizing
- Permits & Rebates
- Working with Solar Depot

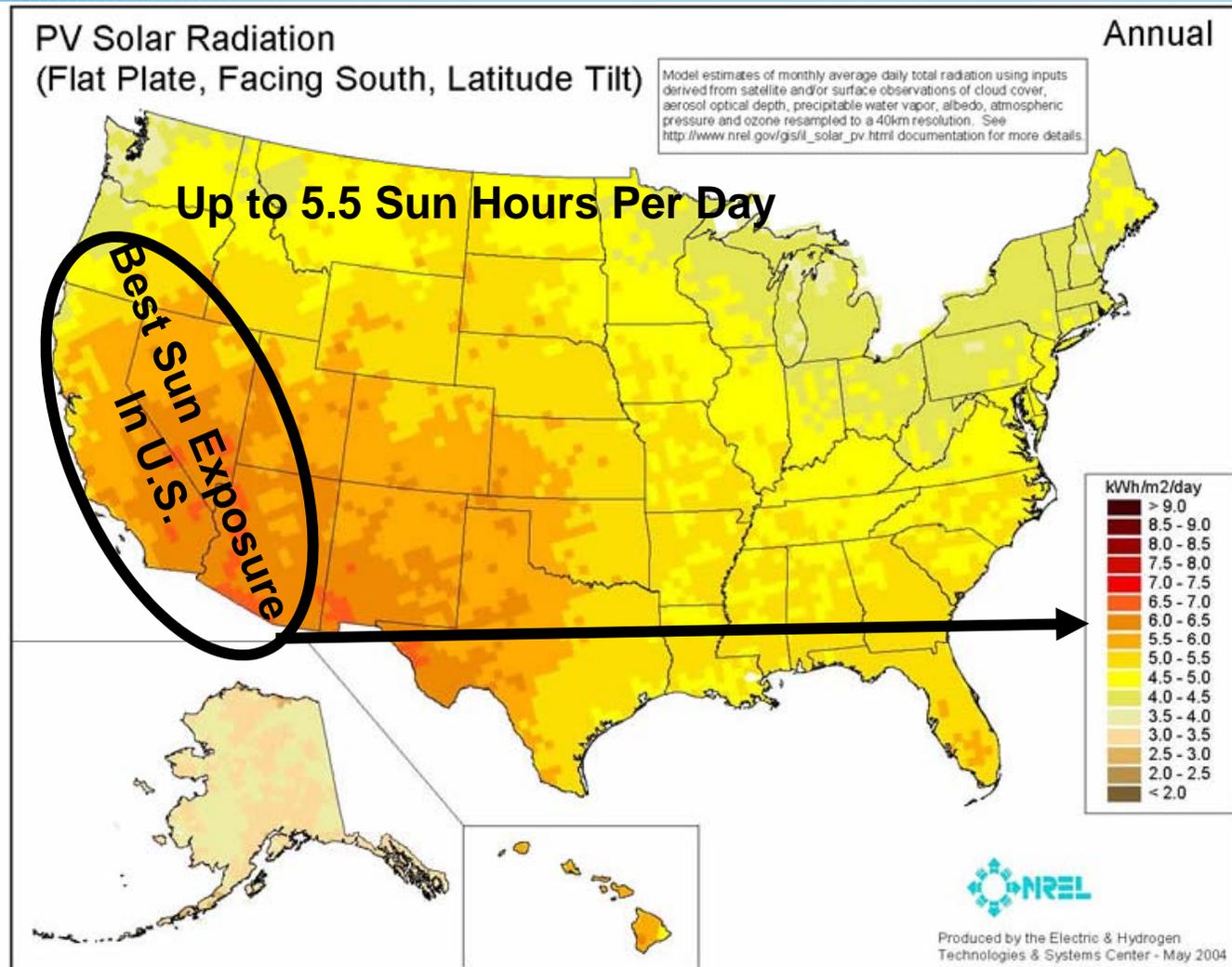


Why Does Solar Make Pocketbook Sense?

- Generous government incentives help bring down the initial capital costs of the solar system by ~60%
- Cost of electricity from the utility is high and will continue to increase (avg. 6% per year over the last 30 years)
- Solar Systems have an effective life of 35 years +

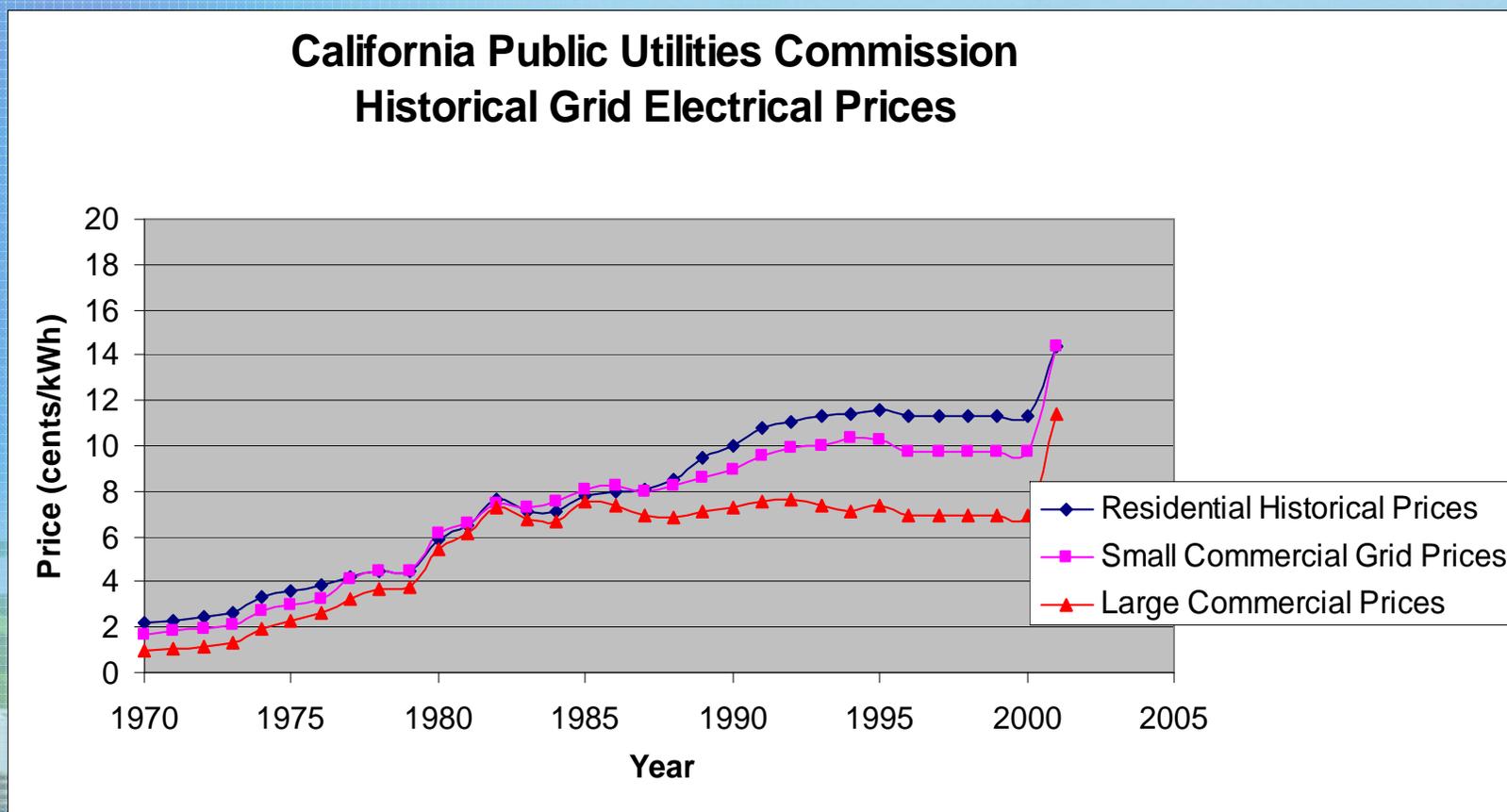


California Has The Best Solar Resource



California Has Expensive Electricity... and it Keeps Going Up!

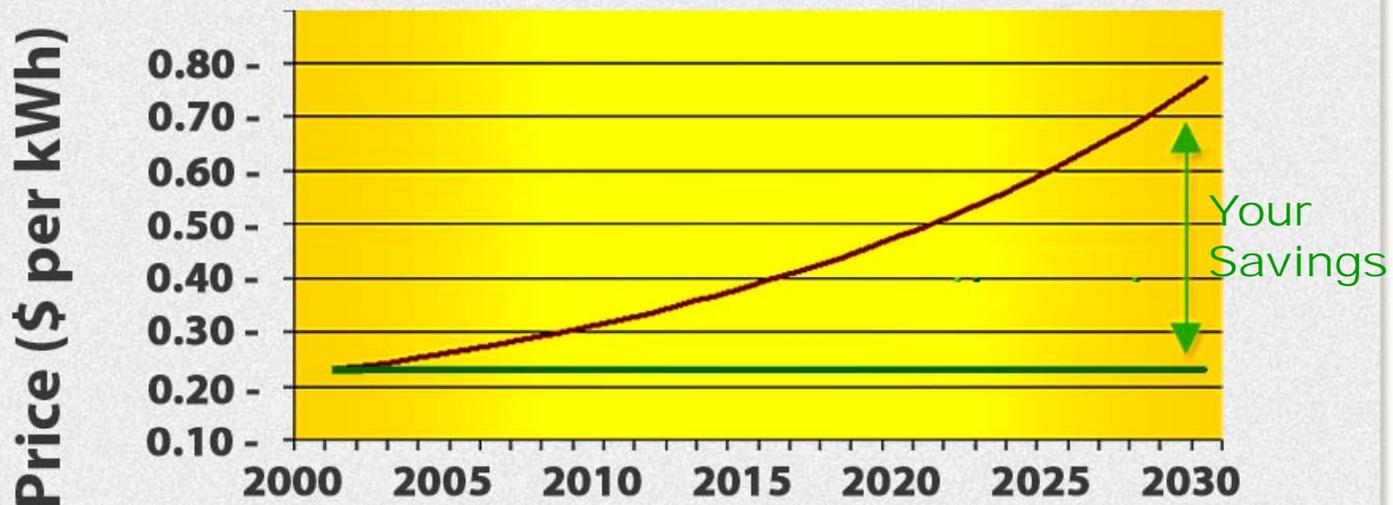
Average Annual Rate Increase of 7-8%



Hedge Against Rising Energy Cost with Solar

Cost of Solar Versus Cost from Utility Company

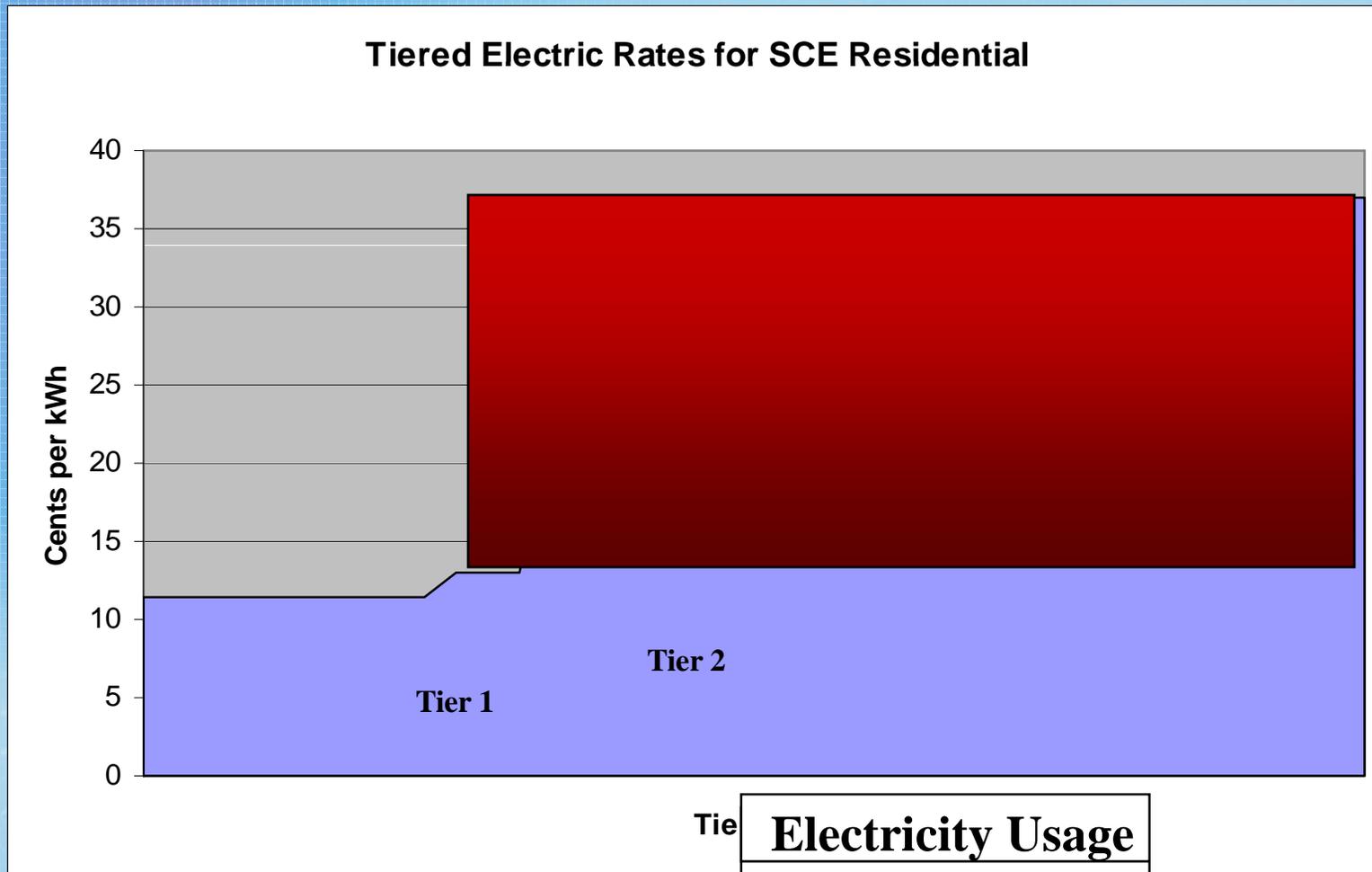
- Cost of Electricity from Utility
- Cost of Electricity from Solar



graph B

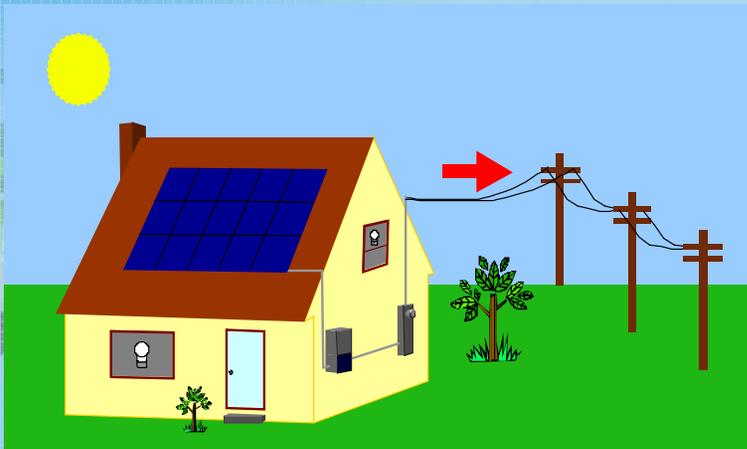
Projection based on system installed today, at current average electric rate of \$0.15 per kWh, increasing 6% per year over the 30-year life of the system.

California's Tiered Electric Rate Structure



Reaping Energy Savings with Solar Net-Metering

- Net-metering measures difference between electricity you buy from utility & electricity your solar system generates
- Allows you to use grid like bank account– debiting and crediting your utility account as you produce and use power
- Utilities must credit you for electricity your system generates and feeds to grid at same price they would sell it to you
- Excess electricity you produce but do not use within a 12-month period becomes your donation to the utility grid.



Government Incentives Available for Solar

California Cash Rebate

- Largest, most ambitious solar incentive program in the nation-- goal of 1 million solar roofs in state by 2016
- Property owner receives upfront cash rebate equal to 25% of the total installed solar system cost
- Statewide, rebate is available for solar electric only. In San Diego territory, additional rebate for solar thermal systems available.
- Rebate level designed to drop as more consumers take advantage of the program → So the early bird gets the worm!



Federal 30% Tax Credit

- Credit on tax liability for 30% of solar system
- PV and Solar Thermal Systems eligible
- Applies to total cost- equipment, installation labor
- Eligible for credit upon completion of installation (“placed in service”)
- 5-year accelerated depreciation



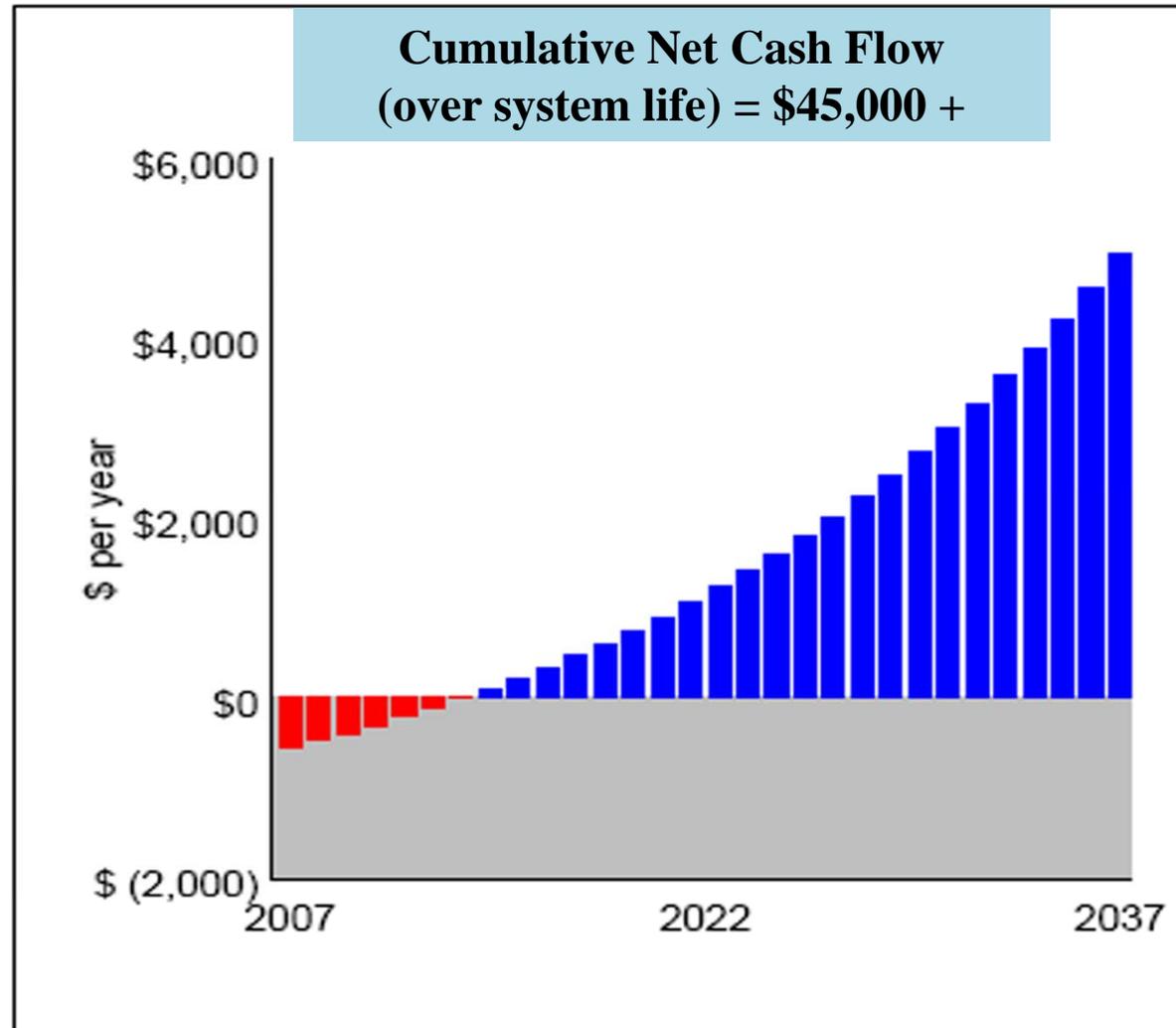
ROI for Solar

- A solar power system on your building is a long term, low risk, and high return way to invest your money.
- Solar offers an initial annual return on investment of 5-11%.
- This is very competitive with other higher risk investments such as stocks and bonds.
- As utility rates increase the annual return increases.
- Increased property value with out impact to property tax basis.



Net Cash Flow

Scenario A: Zero-Out Your Bill– 5kW System



Residential Example

Escondido residence
Average electric Bill \$132



Escondido residence
With Solar
Average electric Bill \$0



Financial Analysis of a Residential Solar System

Scenario B: Peak Load Only (60% of Usage)– 3 kW System

Installed Cost	=	\$28,000
State Cash Rebate (\$2,200/kW x 3kW)	=	- \$ 6,600
Federal Solar Tax Credit	=	- \$6,420
Net Cost	=	\$14,900

Analysis Assumptions:

Loan amount	\$21,400
Loan Term	20 years
Interest Rate	7.99%
Current average electric rate	\$0.16/kWh
Annual electric rate increase	6.0%

Near Term Economic Benefits

Current Monthly Usage (Ave.)	750 kWh
Current Monthly Electric Bill	\$123
Electric Bill After Solar	\$ 36
Monthly Solar Loan Payment (<i>after tax</i>)	\$131

Energy Savings

First Year Electric Bill Offset	\$1,035
Decreased taxes (<i>loan interest write-off</i>)	\$ 463
Total First year Savings	\$1,498

Increases resale value of your home immediately!

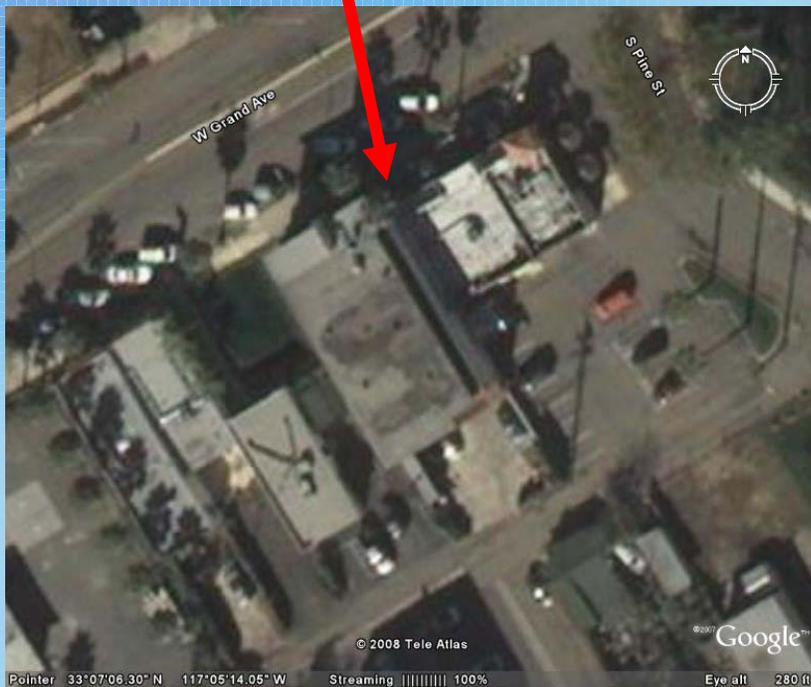
Longer Term Investment Benefits

Cumulative Net Cash Flow (30 yrs.)	\$43,000 +
Internal Rate of Return	12.7%
Simple Payback	12 years



Independent Grocery Store Example

**Escondido Independent Grocery Store
Average electric Bill \$997**



**Escondido Independent Grocery Store
With Solar Average electric Bill \$251**

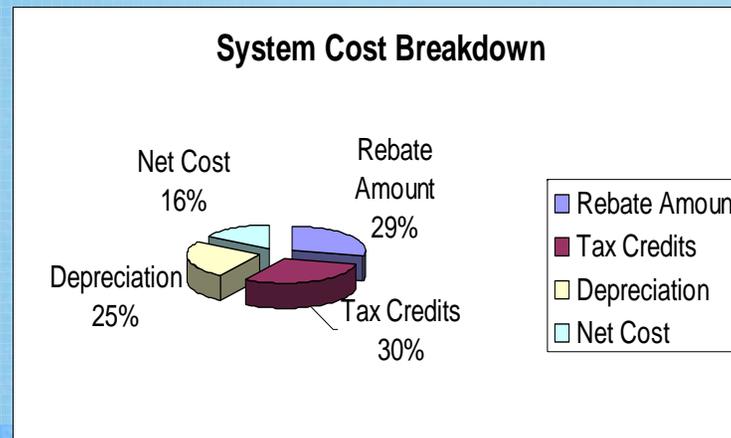


Commercial System Costing Example– 30 kW System

★ Installed Cost	\$ 255,000
★ Cash Rebate Amount (at \$1.55/W)	\$ 46,500
★ Federal Tax Credit 30%	\$ 76,500
★ Accelerated Depreciation (Over 5 Years)	<u>\$ 72,000</u>
★ Net Cost After Incentives	\$ 49,500

Expected monthly 1st year offset based on
blended rate of .147 per kWh

\$ 746



BASICS OF SOLAR





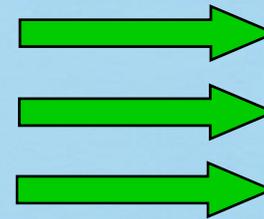
Electricity from Solar Energy

PV Module converts Solar energy into Electricity(DC)



- More Solar Energy
More Electricity

- Less Solar Energy
Less Electricity



Power generation
changes **daily**

Solar Energy



PV Module



Electricity



Input

Conversion

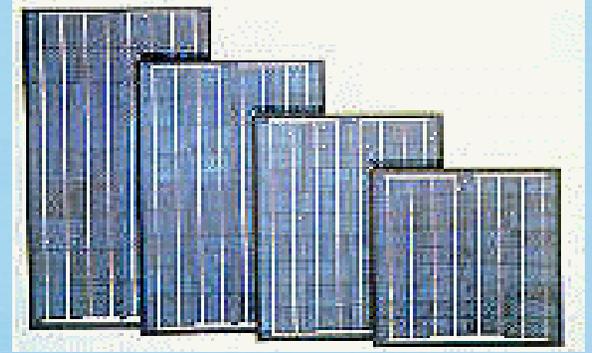
Output

Solar Technologies

- Solar Electric
- Solar Water Heating
- Solar Pool & Spa Heating



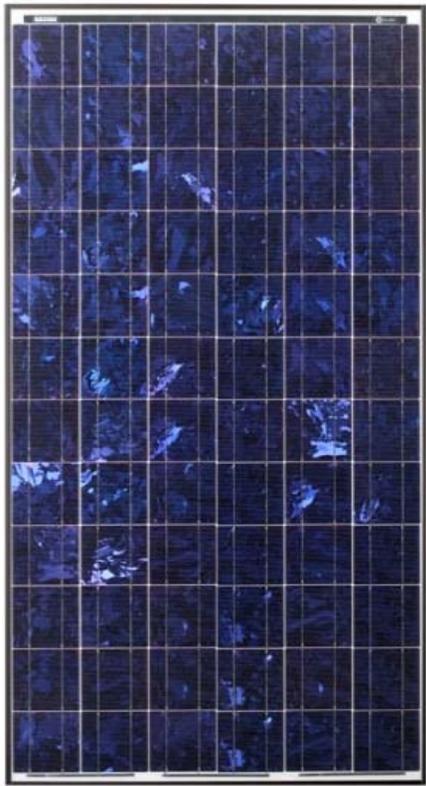
Crystalline Silicon – Flat Plate Collectors



- Most developed and prevalent type in use today.
- Include single crystal silicon and polycrystalline silicon, which is either grown or cast from molten silicon and later sliced into its cell size.
- They are then assembled onto a flat surface.



Solar System Warranty



Solar Panels

25-year warranty



Inverter

10-year warranty



Installation

10-year warranty

Mounting Options



Roof Mount

Sloped arrays require more space



South Facing Roof mount



Solar Carports



Ground-Mounts

Pole-top mount

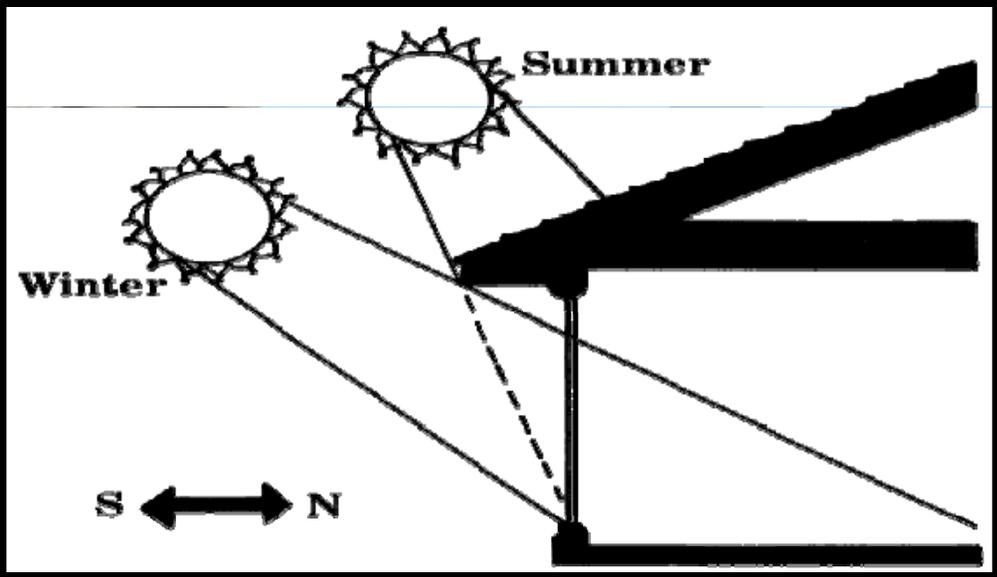
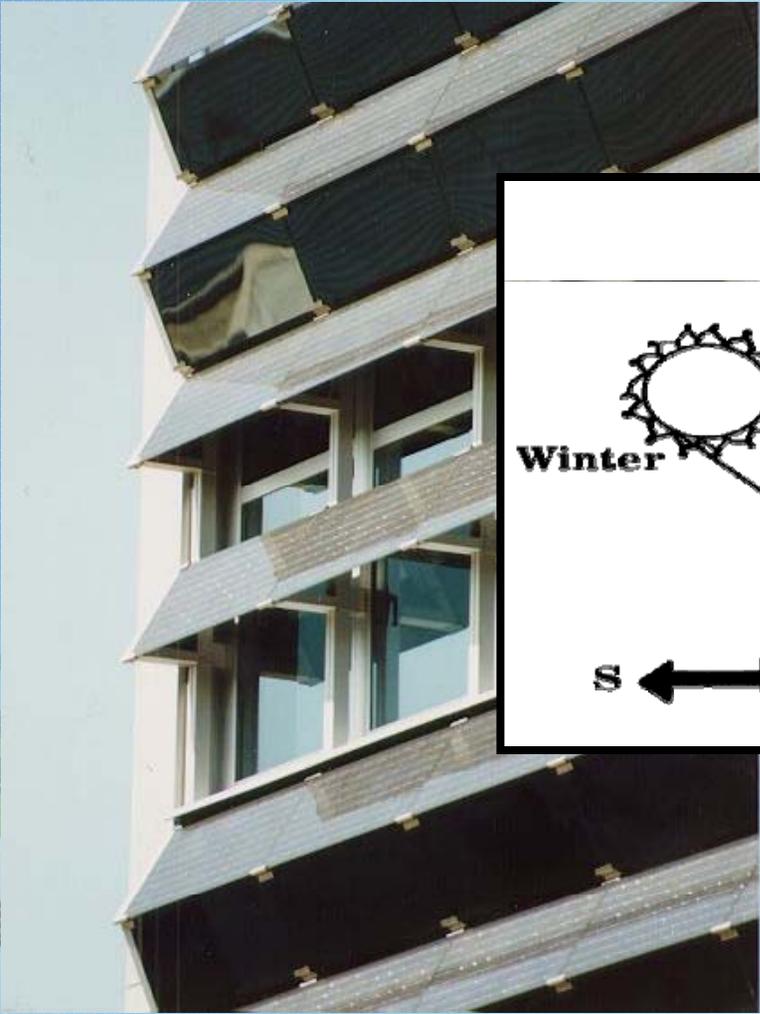


Tracking Systems



**7.68 kW DC – Grid-tied with battery backup
48 Volt DC – 11kW inverter - Residence Occidental, CA**

Solar PV as Shading



Clamp on metal roof seam

No penetrations



Solar Trackers



Beauty is in the eye of the beholder

NEXT STEPS



Next Steps

NEXT STEPS

STEP 1 – SUBMIT APPLICATION TO CSI AND SECURE YOUR REBATE

STEP 2 - FINALIZE DESIGN AND SYSTEM COMPONENT SELECTION

STEP 3 – BUILDING PERMIT APPLICATION AND FINAL APPROVAL

STEP 4 – PAYMENT FOR ALL SYSTEM COMPONENTS DUE UPON DELIVERY

STEP 5 – SOLAR SYSTEM INSTALLATION

STEP 6 – SOLAR SYSTEM INSPECTION

STEP 7 – SUBMIT INCENTIVE CLAIM FORM

STEP 8 – SOLAR INTERCONNECTION CLEARANCE AND NET METER INSTALLATION

STEP 9 – FINAL PAYMENT TO INTERNATIONAL SOLAR GROUP

STEP 10 – RECEIVE REBATE CHECK



What to Consider When Selecting Your Solar System

- 1) Examine electricity consumption and possible energy efficiency measures to reduce your load.
- 2) Evaluate condition & age of your existing roof
- 3) Do you have a south-facing roof with little or no shading?
- 4) Consider installation & mounting options (Accessory buildings? / solar awnings /Carports?)
- 5) Do you want battery backup to ensure electricity when utility grid goes out?



The International Solar Group Advantage

- International Solar has worked with large commercial building owners as well as individual home owners and our primary concern is your complete satisfaction from beginning to end.
- International Solar is focused on designing high quality, trouble-free solar solutions for commercial and residential customers.
- We custom design a solar system to match your energy usage & preference as well as aid in energy efficiency so that your energy usage is optimized.



Thank You

