TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: March 4, 2009

AGENDA ITEM
E-5
MARCH 11, 2009

OFFICE STRUCTURAL REPAIRS AND SOLAR RETROFIT

ITEM

Consider options to address office structural repairs and solar retrofit [PROVIDE POLICY GUIDANCE].

BACKGROUND

In November 2008, the District office building at 148 South Wilson Street was fumigated to eradicate termites and all water damaged exterior wood members were repaired and sealed. The next step is to paint the entire exterior of the office building, at an estimated cost of $10,000, to ensure that the entire exterior of the building is sealed and waterproof. However, before this work proceeds, staff needs Board direction on two issues previously discussed by the Board.

Structural Repairs

The first issue is whether or not to extend the existing metal roofing to cover the existing rafters completely at the north and west patios and replace the rafter tails with a man made simulated wood project to reduce the need for future maintenance. The estimated cost of this work, based on an estimate obtained in September 2007, was approximately $82,000.

Alternately, the existing metal roofing could be extended to cover the existing rafters completely at the north and west patios and the rafter tails could be repainted on a more frequent basis to reduce the need for more extensive repairs in the future. The estimated cost of this approach is approximately $30,000 to extend the roof and then $5000 every five years to repaint the rafter tails as well as all other exterior wood members.

A third alternative is to not extend the existing metal roof to cover the existing rafters at the north and west patios and just repaint all of the exposed wood rafters as well as all other exterior wood members every five years at an estimated cost of $6000.

Solar Power

The second issue is whether or not to retrofit the existing building with a grid connected solar panel system to generate electricity to partially power the building. Staff contacted REC Solar Inc., a San Luis Obispo based company, and obtained the attached proposals.

The initial cost, including applicable rebates, would be approximately $97,000 for a system that would provide a 96.5% total kWh offset and have a payback period of 15.8 years. Alternatively, a $70,000 initial cost system would provide a 71.3% total kWh offset and also have a payback period of 15.8 years. One factor that significantly impacts the initial cost of the system to the District is that the District cannot take advantage of state or federal tax credits.

Another consideration is that the trees on the west side of the office would need to be removed to maximize the efficiency of the solar panels.

FISCAL IMPACT

The FY 08-09 Budget includes $80,000 in the Administration Fund (Fund #110) for office structural repairs and painting. To date, the District has spent $9334 on the fumigation and repair work performed by Terminix.

RECOMMENDATION

Staff recommends that your Honorable Board discuss the two issues and provide staff with direction on how to proceed with the structural repairs and whether the Board is interested in further pursuing retrofitting the District office with solar panels.

ATTACHMENT

REC Solar Proposals

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\2009\Office Structural Repairs.doc

Think Green.

Think Savings.

Think Solar.

Preliminary Proposal for NCSD

148 South Wilson St Nipomo, CA 93444

REC SOLAR

Savings for today. Energy forever.

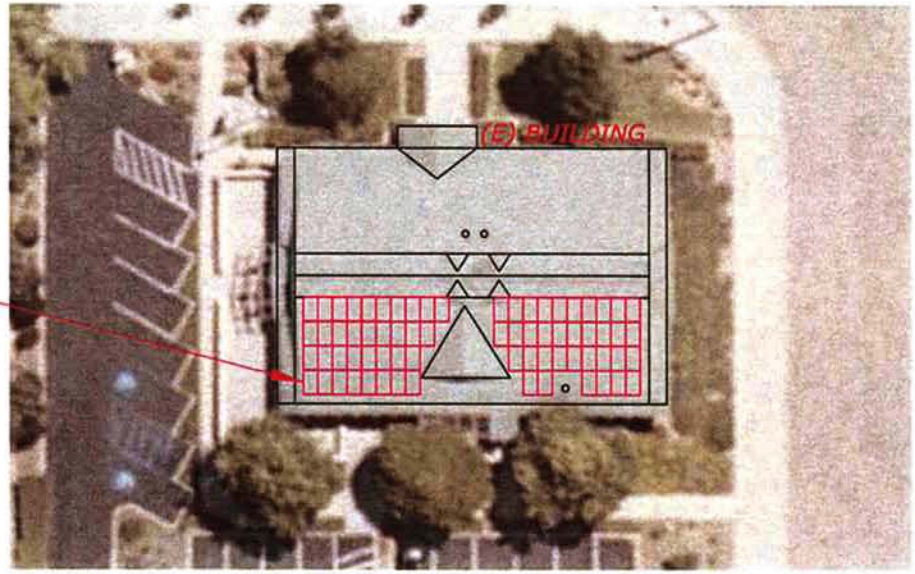
ENGINEER	DRAFTER	DESCRIPTION
YURYSTA	S. JENKINS	PHOTOVOLTAIC SYSTEM

PROPOSED SOLAR ARRAY

NIPOMO COMMUNITY SERVICES DISTRICT

15.4 KW DC

REC SCM 220 SOLAR MODULES
(5) STRINGS OF (14)



SYSTEM INFO

TILT:	FLUSH MOUNT
AZIMUTH:	228 DEG TRUE
RACKING:	SOLARAK

SYSTEM EQUIPMENT

(70) REC SOLAR 220 WATT MODULES
(70) X (.220KW) = 15.4 KW DC

CONCEPTUAL DESIGN
DETAILS SUBJECT TO CHANGE
PENDING FULL ENGINEERING DESIGN

REC SOLAR, INC.
CA CL# 750184
775 Fiero Lane, Suite 200
San Luis Obispo, CA 93401 USA
Phone (888)657-6527 Fax (805)528-9701

CUSTOMER APPROVAL:	
PLANS REVIEWED:	
BOM REVIEWED:	

NCSD
148 S. WILSON STREET
NIPOMO, CA 93444

LAYOUT

REV: 0
01.26.2009

February 19, 2009

Ryan Work
Area Sales Manager
(805) 440-6299
rwork@recsolar.com

Solar System Owner

Nipomo Community Services Di
Nipomo Community Services Di
148 South Wilson Street
Nipomo, CA 93444

Solar System Size

$7.57 Cost per DC Watt
15,400 Watts DC Solar Electric System
13,162 Watts AC Solar Electric System

Class	Item	Description	Qty.	Amount
Complete Turn-Key System Cost to Include the Following Items:			1	$ 116,600.00
Solar Panels				
	REC 220	REC Group 220-Watt <1% 25yrs 80%	70	
Inverters				
	SB7000US(240V)	SMA 7000-Watt, 240VAC	2	
Monitoring				
	REC003	Energy Recommerce Online	1	
Racking				
	RACKING	REC Solar SolaRak™	6	
Other Expenses				
	MISC ELEC	Misc Electrical Equipment	1	
	EQ RENT	Equipment Rental	1	
	S&H	Shipping and Handling	1	
Labor Components				
	GEN LAB	General Labor	1	
	ELEC LAB	Electrical Labor	1	
	D&E	Design and Engineering	1	
	REC WARRANTY	Installation (10 yr)	1	
Solar Administration				
	REBATE	Rebate Administration	1	
	INTERCON	Interconnection	1	
	SALES TAX	REC Sales Tax	1	
	PERMITTING	Permitting	1	

Total to REC Solar	**$116,600**
State Rebate*	24,350
Tax Credits	0
Net System Cost**	**$96,850**

*Rebate is an estimate only.

**These system costs are a preliminary estimate only. Final system cost will be determined after detailed engineering has been conducted by REC Solar.

GENERAL DISCLAIMER: All quotations are valid for (30) days from the date of the quotation unless a reduction of rebate occurs within the 30 day period. Design, permitting, installation, sales tax, utility interconnection and rebate paperwork as detailed in the "General Contract for Services" are included in the quoted system cost. The total price paid to Contractor is listed as "Total to REC Solar." "Net System Cost" is realized after tax returns are filed and related tax credits are applied by the IRS.

TAX/FINANCIAL DISCLAIMER: The tax information on this page is intended for discussion purposes only and should not be construed as tax advice. All applicable federal tax credits are estimates. Actual tax credits will be based on customer's financial situation. Customers applying for the commercial tax credit should consult with a tax professional to determine eligibility. We recommend that you contact an accountant or tax attorney for any specific financial advice.

System Performance Analysis Using Net Metering

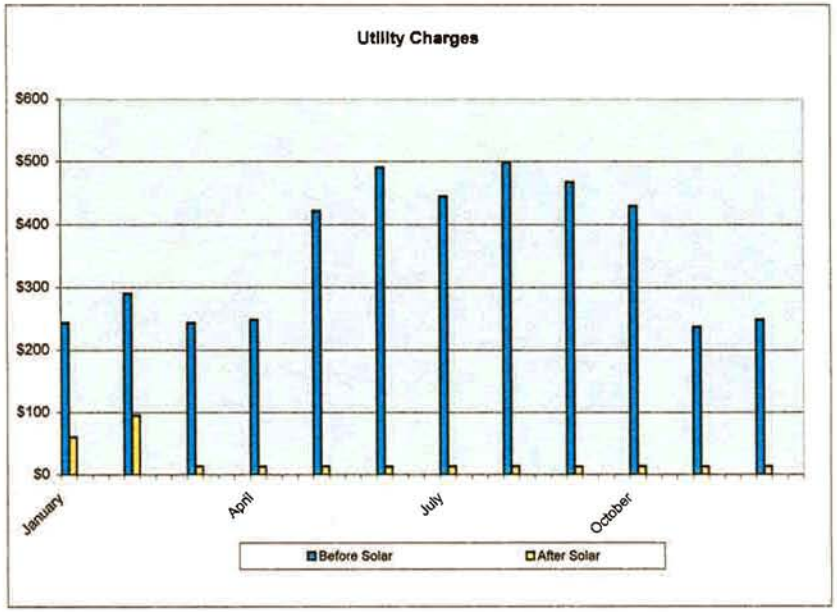
Nipomo Community Services District
Nipomo Community Services District
Commercial Rate
CA, Pacific Gas and Electric, A1

Site Location: Nipomo
System Size: 15400 DC Watts
Tilt Angle: 4 in 12 (19 Deg)
Mounting Azimuth: 214 - 236(South West)

First Year Savings: $3,971

96.5%
Total kWh Offset

Proposed Utility Rate:
CA, Pacific Gas and Electric, A1
Electricity Savings per kWh from Solar*: $0.167



Month	Est. Building Usage		Est. System Production	Monthly Solar Savings
	Before (kWh)	After (kWh)	kwh	
January	1,720	354	1,366	$182
February	2,080	622	1,458	$195
March	1,720	-252	1,972	$230
April	1,760	-468	2,228	$235
May	2,120	-329	2,449	$408
June	2,480	42	2,438	$477
July	2,240	-351	2,591	$431
August	2,520	48	2,472	$485
September	2,360	247	2,113	$454
October	2,160	293	1,867	$416
November	1,680	223	1,457	$224
December	1,760	421	1,339	$235
TOTAL	24,600	851	23,749	$3,971

Annual Solar Production (kWh): 23,749
Conservative calculation using 25 yr. Solar chart data, panel, and inverter specifications

Estimated 1st Year Electric Bill Savings: $3,971
Estimated by calculating your past electricity usage and the amount we will offset from your bill

Cost per kWh of Solar Electricity: $0.165
Calculated by dividing post-cash incentive cost of system and expected power generation

Credit Given by Utility for Electricity: $0.167
Value of Actual kWh Produced by Solar Electric System

Payback 15.8 Years
(Payback assuming 6% rate escalation in savings calculation)

*The first year energy savings and any future energy savings are estimates only. Savings may vary based on solar radiation levels, soiling or any factors that affect solar system production. Actual savings may also be different from estimated savings as a result of electric rate changes.

CASH FLOW AND INCOME STATEMENT

Nipomo Community Services District
Nipomo Community Services District
CA, Pacific Gas and Electric, A1

Nominal Return Analysis 25-Years		
System Cost Before Rebate		**($116,600)**
Rebate Payments	20.1%	$24,350
Net Tax Credits Provided (1)	0.0%	-
Tax Shield from Depreciation	0.0%	-
Cost After Rebate & Tax Credits		**($96,850)**
Energy Savings for 25 yrs		$203,133
Financing Cost (Fees/Interest)		$0
Operational Maintenance & Inverter		($3,500)
Net Savings		$199,633
Net System (Cost) / Benefit		**$102,783**

(1) Total Tax Credits Less Credits Used for System Income. Includes OR pass-through.

1st Year Cash Flow	
Initial Capital Provided / (Required) Year 0	**($92,250)**
Net Cash Provided / (Required) Year 1	**$3,971**

25-Year IRR	5.53%

Purchase Terms	
Pre-Rebate Cost	$116,600
Use of Rebate	Reduce Basis
Cost after Rebate	$92,250
Rebate Taxable	no

Financing Terms	
Original Principal	$0
Leverage	0%
Financing Costs	0.00%
Interest Rate	0.00%
Term (Years)	0
Year Loan Paid off	0
Semi-annual Payment.	$0
Total Interest expense	$0
Annual loan payment	$0

Marginal Tax Rate	
Federal	35.00%
State	8.00%
Effective Tax Rate	40.2%

Tax Credits	
Commercial Federal Tax Credit	0.0%
State Energy Tax Credit	0.0%
State Energy Credit - Years	5
State Energy Credit - Cap	$0
State Energy Credit - Actual	$0
Bonus Depreciation	0%
Rebate	
Total Projected Rebate Payment	$0
Total Projected Rebate Payment after tax	$0
PBI Cap	None
Energy Savings	
Included In Taxable Inc.?	Yes
Rate Escalation	6.0%
Annual System Degradation (%)	0.50%
Average energy savings	$8,125
First year energy savings	$3,971
Discount Rate	6.5%

Facility Use	
% of Facility Usage Linked to Business	100.0%
System Useful Life	25
Inverter Replacement	
AC Wattage Rating * $.25 at yr 15	($3,500)
Maintenance Cost Inputs	
(Percentage of AC system size per year)	0.25%
(Year 20 - Labor Rate per kW)	35
(Year 20 - Labor Hours per kW)	0.5
(Year 20 - Material Cost per kW)	150
System Size (kW AC @ PTC)	13.16

Assumption: The Purchaser has taxable income to take advantage of tax credits / write-offs from system ownership.
Energy Savings are estimated based on long term weather data-actual performance may vary

Taxable Income Statement	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Rebate		FALSE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Savings		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
State Tax Credit		0	0	0	0	0															
SREC Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUE		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Inverter Replacement																(3,500)					
Maintenance Expense		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation		0	0	0	0	0	0														
TOTAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(3,500)	0	0	0	0	0
Earnings Before Taxes (EBT)		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(3,500)**	**0**	**0**	**0**	**0**	**0**
Tax Credits																					
Federal Tax Credits		-																			
Total Tax Credits Available		-	-	-	-	-	-	-	-	-	-	-	-	-	-						

Cash Flow Statement	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
System Purchase Price	($92,250)																				
Inverter Replacement																(3,500)					
Rebate		FALSE	0	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Tax Credit		-	0	0	0	0															
State Tax Credit		0	0	0	0	0															
State Tax Credit Tax (Cost)		0	0	0	0	0	0	0													
Income Tax Savings / (Cost)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Savings		3,971	4,190	4,420	4,663	4,920	5,190	5,476	5,777	6,094	6,430	6,783	7,156	7,550	7,965	8,403	8,865	9,353	9,867	10,410	10,983
Maintenance Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flow	**$ (92,250)**	**$ 3,971**	**$ 4,190**	**$ 4,420**	**$ 4,663**	**$ 4,920**	**$ 5,190**	**$ 5,476**	**$ 5,777**	**$ 6,094**	**$ 6,430**	**$ 6,783**	**$ 7,156**	**$ 7,550**	**$ 7,965**	**$ 4,903**	**$ 8,865**	**$ 9,353**	**$ 9,867**	**$ 10,410**	**$ 10,983**
Cumulative Cash Flow	($92,250)	($88,279)	($84,089)	($79,669)	($75,006)	($70,087)	($64,897)	($59,421)	($53,645)	($47,550)	($41,121)	($34,337)	($27,181)	($19,631)	($11,666)	($6,763)	$2,103	$11,456	$21,323	$31,733	$42,716

This information is intended for discussion purposes only and should not be construed as tax or financial advice.
We recommend that you contact an accountant or tax attorney for any specific financial advice.

Return Analysis of Electricity Savings

Nipomo Community Services District
Nipomo Community Services District
CA, Pacific Gas and Electric, A1

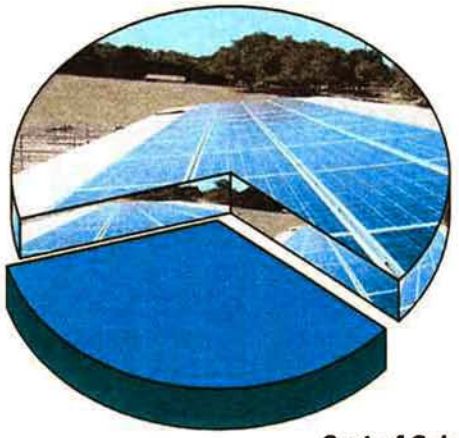
Cost after Rebates and Tax Credits:	
Initial Investment / System Cost	**($116,600)**
State Cash Payments*:	$24,350
Est. Tax on Rebate:	$0
Federal Tax Credit:	$0
State Tax Credit:	$0
5-Yr MACRS Tax Savings**:	$0
6-Year Net System Cost:	**($106,639)**

Cash Flow Return Analysis:	
Internal Rate of Return:	5.53%

Cost of Power:	Current	Year 10	Year 25
Average Utility Cost / kWh:	$0.167	$0.282	$0.677
Solar Electricity / kWh:	$0.165	$0.165	$0.165
Savings per kWh:	**$0.002**	**$0.118**	**$0.512**

Nominal[4] ROI:	Year 6	Year 10	Year 25
Est. Annual Elec.Savings	$5,190	$6,430	$14,354
Est. Actual Return on Net System Cost	**4.9%**	**6.0%**	**13.5%**
Est. Cumulative Elec. Savings	$27,353	$51,129	$203,133
Cumulative ROI on Net System Cost	**25.7%**	**47.9%**	**190.5%**

Savings from Solar over the 25 Year Lifetime of the System



Cost of Solar

***State Cash Payments:** Taxable. Includes utility rebates, Oregon pass-through and any other cash incentives

****Depreciable Basis:** **$92,250**

No IRS Rebate Taxable Ruling: State cash rebates are to be considered taxable income

Average Utility Cost per kWh: Average cost of utility power offset by solar electricity

Solar Electricity / kWh: The total lifetime costs, including maintenance, of the solar system divided by the lifetime kWh production of the system. The production includes 1/2% per year loss of output due to aging.

Annual Business Rate Escalation: **6.0%**
Based on an Energy Information Administration 1970-2005 Trend Analysis

[4]Nominal: Describes money without the effects of inflation or the time value of money built in. Today's dollars.

ENVIRONMENTAL REVIEW

Name: Nipomo Community Services District Date: 2/19/2009

System Description: 15,400 DC Watt, Utility Interactive Photovoltaic System

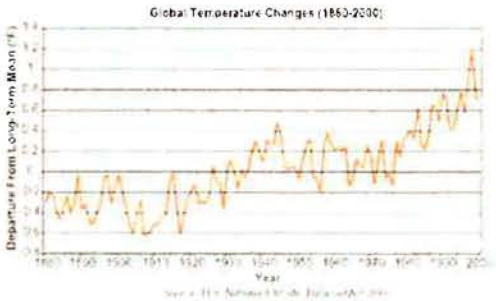
This sheet quantifies some of the environmental benefits that your system will provide by replacing electricity made from the burning of fuels.

LIFETIME KWH PRODUCTION The amount of electricity your solar power system will produce over its 25-year lifetime	Line a:	559,434
BARRELS OF OIL OFFSET BY YOUR SYSTEM, LIFETIME The number of barrels of oil required to generate the same amount of electricity that your system will produce in its 25-year lifetime.	= a. x .00203	1,136
CAR MILES NOT DRIVEN, LIFETIME Using electricity generated from fossil fuels and driving cars are the two personal activities that have the most significant environmental impact.	= a. x 1.7755	992,995
ACID RAIN EMISSIONS REDUCTION, lbs Generating electricity from fossil fuels also releases Sulfur Oxides and Nitrogen Oxides, primary causes of acid rain, into the air. Acid rain damages lakes,	= a. x 0.0075	4,196
SMOG EMISSIONS REDUCTION, lbs Nitrogen Oxides are a key contributor to the formation of ground level ozone, a major component of smog. Ozone irritates the eyes, and aggravates respiratory problems. It is our most widespread and intractable urban air pollution problem.	= a. x 0.0036	2,014
GREENHOUSE GAS REDUCTION, lbs Carbon dioxide, along with other 'greenhouse gases', causes global warming. This results in increased rainfall and violent storms, decreased snow and ice cover,	=a. x 1.42	794,396
EQUIVALENT NUMBER OF MATURE TREES PLANTED Trees remove carbon dioxide from the atmosphere, and many environmentalists advocate tree planting as a way to offset carbon dioxide emissions into the	= a. x 0.0034	1,902

System Performance – The cost savings values presented were developed using the best available "real world" factors that influence system performance. However any particular installation performance cannot be guaranteed to match performance measures stated and may vary. Data sources: Emissions data: US Environmental Protection Agency E-GRID 2000; Electricity mix and energy content: US DOE Energy Information Administration; Car miles and tree data: US EPA, Green Mountain Power.

Environmental Impact Review Background

Most of the electricity in America comes from electrical generation facilities that burn fossil fuels, such as coal and natural gas. Whenever fossil fuels are burned, some amount of pollution is released into the atmosphere. That means that every time we use a kilowatt-hour purchased from a utility company to turn on a light or appliance, a little bit of air pollution is released on our behalf. One of the benefits of solar energy is that it does not pollute, and every kWh created by your solar power system is one that does not have to be created by burning fuel.



Scientists generally agree that as a result of the combustion of fossil fuels and other human activities, atmospheric levels of carbon dioxide have increased by nearly 30% since the beginning of the industrial revolution. Carbon dioxide, along with other 'greenhouse gases', enhances the heat-trapping properties of the Earth's atmosphere. Thus, increased levels of greenhouse gases in the atmosphere are believed to be linked to an increase in global temperature. Global temperatures have risen by about 1 deg F since the late 19th century, and are expected to rise another 1-4.5 deg F in the next 50 years. Rising global temperature has resulted in increased rainfall and violent storms, decreased snow and ice cover, and rising sea levels. In the US, 82% of greenhouse gas emissions comes from burning fossil fuels to generate electricity and power cars. Your solar electric power system can dramatically reduce the amount of carbon dioxide released into the atmosphere.

Trees remove carbon dioxide from the atmosphere, and are one of two major CO2 'sinks' (the other is oceans) that have helped to maintain the balance of CO2 in the atmosphere throughout the course of time. Many environmentalists advocate tree planting as a way to offset CO2 emissions into the atmosphere. Using solar electricity can be equated to planting trees in terms of atmospheric CO2 reductions.

Generating electricity from fossil fuels also releases Sulfur Oxides (SOx) and Nitrogen Oxides (NOx) into the air. SOx and NOx are primary causes of acid rain. Acid rain causes acidification of lakes and streams and contributes to damage of trees at high elevation and many sensitive forest soils. In addition, acid rain accelerates the decay of building materials and paints, including irreplaceable buildings, statues, and sculptures that are part of our nation's cultural heritage. Prior to falling to the earth, SO2 and NOx gases and their particulate matter derivatives, sulfates and nitrates, contribute to visibility degradation and harm public health.

In addition to acid rain, Nitrogen Oxides (NOx) are a key contributor to the formation of ground level ozone, which is a major component of smog. Ozone irritates the eyes, damages the lungs, and aggravates respiratory problems. It is our most widespread and intractable urban air pollution problem. Using solar electricity reduces the amount of NOx released into the air from power plants.

Using electricity generated from fossil fuels and driving cars are the two personal activities that have the most significant environmental impact. You can compare the amount of pollution generated by driving a car to that prevented by using solar electricity as another measure of the environmental benefits of solar.

The average American uses over 20 barrels of oil each year. You can also equate the solar energy your solar power system will save over its lifetime to equivalent barrels of oil as a measure of environmental benefits.

California Solar Initiative

Incentive Calculator - BIPV Compatible

	Proposed	Reference
Site Specifications:		
Project Name	148 S Wilson	
ZIP Code	93444	92867
City	Nipomo	Orange
Utility	PG&E	
Customer Type	Government/Non-Profit	
Incentive Type	EPBB	
PV System Specifications:		
PV Module	REC ScanModule AB:SCM220 220.0W STC, 195.9W PTC, 196.9W PTC_{adj}[1]	
Number of Modules	70	
Mounting Method	>3" to 6" average standoff	
DC Rating (kW STC)	15.4000	
DC Rating (kW PTC)	13.7130	
Inverter	SMA America:SB7000US (240V)	
Number of Inverters	2	
Inverter Efficiency (%)	96.00 %	
Shading	Minimal Shading	Minimal Shad
Array Tilt (degrees)	19	
Array Azimuth (degrees)	228 True North 0°	
Optimal Tilt (proposed azimuth)	20	
Optimal Tilt (facing South)	19	17
Results		
Annual kWh	23,918 (a)	
at optimal tilt	23,974 (b)	
facing south at optimal tilt	24,490 (c)	23,308 (d)
Summer Months	May-October	May-October
Summer kWh	14,392 (e)	
at optimal tilt	14,394 (f)	
facing south at optimal tilt	14,350 (g)	13,477 (h)
CEC-AC Rating	**13.164 kW**	
Design Correction[2]	99.986%	
Geographic Correction[3]	100.000%	
Installation Correction[4]	100.000%	
Design Factor[5]	**99.986%**	
CSI Rating[6]	**13.162 kW**	
Incentive Rate	**$2.30/Watt**	

Incentive[7]	**$30,273**
	Please be aware that PG&E has received enough non-residential projects to move in reserved). The total capacity under review is 24.94 MW and the total capacity availab project will receive funding in Step 6 ($1.85/Watt) for a total incentive of **$24,350**.
Report Generated on	2/18/2009 9:13:44 PM

The CSI-EPBB calculator is a tool available to the public and participants of the CSI program, whose sole purpose is to determine the appropriate incentive level based on a reasonable expectation of performance for an individual system. The results of the calculator sl system performance. Actual performance of an installed PV system is based on numerous factors, and may differ with the results sum reason, contractors, participating customers, and other interested parties should only utilize the calculator to determine an appropriate program. Additional uses for the calculator other than its intended purpose as stated above are not endorsed or encouraged.

Recalculate

Notes:

1. **PTC_{adj}**: The adjusted PTC rating is calculated based on the installation method and panel specifications. See the User Guide Appendix A for det
2. **Design Correction**: This is the ratio of the summer output of the proposed system (e) and the summer output of the summer optimal system at the
3. **Geographic Correction**: This is the ratio of the annual output of the summer optimal south facing system at the proposed location (c) and the ar at the reference location (d).
4. **Installation Correction**: This is the ratio of the adjusted PTC rating and the unadjusted PTC rating.
5. **Design Factor**: This is the product of the Design Correction, Geographic Correction, and Installation Correction.
6. **CSI Rating**: This is the product of the Design Factor and the CEC-AC Rating.
7. **Incentive**: This is the total incentive for the proposed system. It is the product of the CSI Rating and the Incentive Rate.
   Please be aware that the final CSI incentive rate that is reserved for you will be determined by your CSI Program Administrator at the time your may be lower than the current incentive rate shown in the CSI Statewide Trigger Point Tracker. Please note that final incentive amounts are subjec system. (Per the CSI Handbook, no projects or applications are reserved CSI funding until all required information has been submitted and approv
8. As of 6/20/08, the CSI-EPBB calculator performs rounding as follows:
   - Estimated kWh production is rounded to the kWh
   - CEC-AC rating is rounded to the watt
   - CSI rating is rounded to the watt
   - Design factor is rounded to 5 significant digits
   - Incentive is rounded to the dollar

E-mail CSI-EPBB@aesc-inc.com with questions or comments.

February 19, 2009

Ryan Work
Area Sales Manager
(805) 440-6299
rwork@recsolar.com

Solar System Owner

Nipomo Community Service Dis
Nipomo Community Service Dis
148 South Wilson Street
Nipomo, CA 93444

Solar System Size

$7.57 Cost per DC Watt
11,440 Watts DC Solar Electric System
9,726 Watts AC Solar Electric System

Class	Item	Description	Qty.	Amount
Complete Turn-Key System Cost to Include the Following Items:			1	$ 86,601.00
Solar Panels				
	REC 220	REC Group 220-Watt	52	
Inverters				
	SB5000US (240V)	SMA 5000-Watt, 240VAC	2	
Monitoring				
	REC003	Energy Recommerce Online	1	
Racking				
	RACKING	REC Solar SolaRak™	5	
Other Expenses				
	MISC ELEC	Misc Electrical Equipment	1	
	EQ RENT	Equipment Rental	1	
	S&H	Shipping and Handling	1	
Labor Components				
	GEN LAB	General Labor	1	
	ELEC LAB	Electrical Labor	1	
	D&E	Design and Engineering	1	
	REC WARRANTY	Installation (10 yr)	1	
Solar Administration				
	REBATE	Rebate Administration	1	
	INTERCON	Interconnection	1	
	SALES TAX	REC Sales Tax	1	
	PERMITTING	Permitting	1	

*Rebate is an estimate only.

**These system costs are a preliminary estimate only. Final system cost will be determined after detailed engineering has been conducted by REC Solar.

Total to REC Solar	**$86,601**
State Rebate*	17,995
Tax Credits	0
Net System Cost**	**$68,606**

GENERAL DISCLAIMER: All quotations are valid for (30) days from the date of the quotation unless a reduction of rebate occurs within the 30 day period. Design, permitting, installation, sales tax, utility interconnection and rebate paperwork as detailed in the "General Contract for Services" are included in the quoted system cost. The total price paid to Contractor is listed as "Total to REC Solar." "Net System Cost" is realized after tax returns are filed and related tax credits are applied by the IRS.

TAX/FINANCIAL DISCLAIMER: The tax information on this page is intended for discussion purposes only and should not be construed as tax advice. All applicable federal tax credits are estimates. Actual tax credits will be based on customer's financial situation. Customers applying for the commercial tax credit should consult with a tax professional to determine eligibility. We recommend that you contact an accountant or tax attorney for any specific financial advice.

System Performance Analysis Using Net Metering

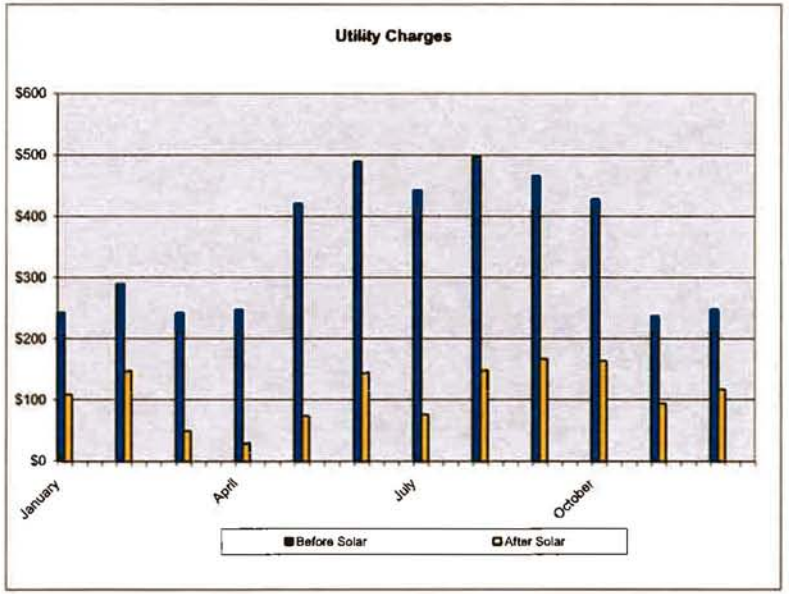
Nipomo Community Service District
Nipomo Community Service District
Commercial Rate
CA, Pacific Gas and Electric, A1

Site Location: Nipomo
System Size: 11440 DC Watts
Tilt Angle: 4 in 12 (19 Deg)
Mounting Azimuth: 214 - 236(South West)

First Year Savings: $2,949

71.3%
Total kWh Offset

Proposed Utility Rate:
CA, Pacific Gas and Electric, A1
Electricity Savings per kWh from Solar*: $0.168



Month	Est. Building Usage		Est. System Production	Monthly Solar Savings
	Before (kWh)	After (kWh)	kwh	
January	1,720	710	1,010	$135
February	2,080	1,003	1,077	$144
March	1,720	263	1,457	$194
April	1,760	114	1,646	$220
May	2,120	310	1,810	$348
June	2,480	678	1,802	$347
July	2,240	325	1,915	$368
August	2,520	694	1,826	$351
September	2,360	799	1,561	$300
October	2,160	780	1,380	$266
November	1,680	603	1,077	$144
December	1,760	771	989	$132
TOTAL	24,600	7,050	17,550	$2,949

Annual Solar Production (kWh): 17,550
Conservative calculation using 25 yr. Solar chart data, panel, and inverter specifications

Estimated 1st Year Electric Bill Savings: $2,949
Estimated by calculating your past electricity usage and the amount we will offset from your bill

Cost per kWh of Solar Electricity: $0.166
Calculated by dividing post-cash incentive cost of system and expected power generation

Credit Given by Utility for Electricity: $0.168
Value of Actual kWh Produced by Solar Electric System

Payback 15.8 Years
(Payback assuming 6% rate escalation in savings calculation)

*The first year energy savings and any future energy savings are estimates only. Savings may vary based on solar radiation levels, soiling or any factors that affect solar system production. Actual savings may also be different from estimated savings as a result of electric rate changes.

CASH FLOW AND INCOME STATEMENT

Nipomo Community Service District
Nipomo Community Service District
CA, Pacific Gas and Electric, A1

Nominal Return Analysis 25-Years		
System Cost Before Rebate		**($86,601)**
Rebate Payments	20.8%	$17,995
Net Tax Credits Provided (1)	0.0%	-
Tax Shield from Depreciation	0.0%	-
Cost After Rebate & Tax Credits		**($68,606)**
Energy Savings for 25 yrs		$150,855
Financing Cost (Fees/Interest)		$0
Operational Maintenance & Inverter		($2,500)
Net Savings		**$148,355**
Net System (Cost) / Benefit		**$79,749**

(1) Total Tax Credits Less Credits Used for System Income. Includes OR pass-through.

1st Year Cash Flow	
Initial Capital Provided / (Required) Year 0	**($68,606)**
Net Cash Provided / (Required) Year 1	**$2,949**

25-Year IRR	**5.52%**

Purchase Terms	
Pre-Rebate Cost	$86,601
Use of Rebate	Reduce Basis
Cost after Rebate	$68,606
Rebate Taxable	no

Financing Terms	
Original Principal	$0
Leverage	0%
Financing Costs	0.00%
Interest Rate	0.00%
Term (Years)	0
Year Loan Paid off	0
Semi-annual Payment.	$0
Total Interest expense	$0
Annual loan payment	$0

Marginal Tax Rate	
Federal	35.00%
State	8.00%
Effective Tax Rate	40.2%

Tax Credits	
Commercial Federal Tax Credit	
State Energy Tax Credit	0.0%
State Energy Credit - Years	5
State Energy Credit - Cap	$0
State Energy Credit - Actual	$0
Bonus Depreciation	0%
Rebate	
Total Projected Rebate Payment	$0
Total Projected Rebate Payment after tax	$0
PBI Cap	None
Energy Savings	
Included in Taxable Inc.?	Yes
Rate Escalation	6.0%
Annual System Degradation (%)	0.50%
Average energy savings	$6,034
First year energy savings	$2,949
Discount Rate	6.5%

Facility Use	
% of Facility Usage Linked to Business	100.0%
System Useful Life	25
Inverter Replacement	
AC Wattage Rating * $.25 at yr 15	($2,500)
Maintenance Cost Inputs	
(Percentage of AC system size per year)	0.25%
(Year 20 - Labor Rate per kW)	35
(Year 20 - Labor Hours per kW)	0.5
(Year 20 - Material Cost per kW)	150
System Size (kW AC @ PTC)	9.73

Assumption: The Purchaser has taxable income to take advantage of tax credits / write-offs from system ownership.
Energy Savings are estimated based on long term weather data-actual performance may vary

Taxable Income Statement	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Rebate		FALSE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Savings		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
State Tax Credit		0	0	0	0	0																	
SREC Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUE		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Inverter Replacement																(2,500)							
Maintenance Expense		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation		0	0	0	0	0	0																
TOTAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0	(2,500)	0	0	0	0	0	0	0
Earnings Before Taxes (EBT)		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(2,500)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tax Credits																							
Federal Tax Credits		-																					
Total Tax Credits Available		-	-	-	-	-	-	-	-	-	-	-	-	-	-								

Cash Flow Statement	Year 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
System Purchase Price	($68,606)																				
Inverter Replacement																(2,500)					
Rebate		FALSE	0	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Tax Credit		-	0	0	0	0															
State Tax Credit		0	0	0	0	0															
State Tax Credit Tax (Cost)		0	0	0	0	0	0	0													
Income Tax Savings / (Cost)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Savings		2,949	3,111	3,282	3,463	3,653	3,854	4,066	4,290	4,526	4,775	5,038	5,315	5,607	5,915	6,241	6,584	6,946	7,328	7,731	8,156
Maintenance Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flow	**$ (68,606)**	**$ 2,949**	**$ 3,111**	**$ 3,282**	**$ 3,463**	**$ 3,653**	**$ 3,854**	**$ 4,066**	**$ 4,290**	**$ 4,526**	**$ 4,775**	**$ 5,038**	**$ 5,315**	**$ 5,607**	**$ 5,915**	**$ 3,741**	**$ 6,584**	**$ 6,946**	**$ 7,328**	**$ 7,731**	**$ 8,156**
Cumulative Cash Flow	($68,606)	($65,657)	($62,546)	($59,263)	($55,800)	($52,147)	($48,292)	($44,226)	($39,936)	($35,410)	($30,635)	($25,598)	($20,283)	($14,676)	($8,761)	($5,020)	$1,564	$8,510	$15,838	$23,569	$31,725

This information is intended for discussion purposes only and should not be construed as tax or financial advice.
We recommend that you contact an accountant or tax attorney for any specific financial advice.

Return Analysis of Electricity Savings

Nipomo Community Service District
Nipomo Community Service District
CA, Pacific Gas and Electric, A1

Cost after Rebates and Tax Credits:	
Initial Investment / System Cost	**($86,601)**
State Cash Payments*:	$17,995
Est. Tax on Rebate:	$0
Federal Tax Credit:	$0
State Tax Credit:	$0
5-Yr MACRS Tax Savings**:	$0
6-Year Net System Cost:	**($68,606)**

Cash Flow Return Analysis:	
Internal Rate of Return:	5.52%

Cost of Power:	Current	Year 10	Year 25
Average Utility Cost / kWh:	$0.168	$0.284	$0.680
Solar Electricity / kWh:	$0.166	$0.166	$0.166
Savings per kWh:	**$0.002**	**$0.118**	**$0.514**

Nominal[4] ROI:	Year 6	Year 10	Year 25
Est. Annual Elec.Savings	$3,854	$4,775	$10,660
Est. Actual Return on Net System Cost	**5.6%**	**7.0%**	**15.5%**
Est. Cumulative Elec. Savings	$20,314	$37,971	$150,855
Cumulative ROI on Net System Cost	**29.6%**	**55.3%**	**219.9%**

Savings from Solar over the 25 Year Lifetime of the System

Cost of Solar

***State Cash Payments:** Taxable. Includes utility rebates, Oregon pass-through and any other cash incentives

****Depreciable Basis: $68,606**

No IRS Rebate Taxable Ruling: State cash rebates are to be considered taxable income

Average Utility Cost per kWh: Average cost of utility power offset by solar electricity

Solar Electricity / kWh: The total lifetime costs, including maintenance, of the solar system divided by the lifetime kWh production of the system. The production includes 1/2% per year loss of output due to aging.

Annual Business Rate Escalation: 6.0%
Based on an Energy Information Administration 1970-2005 Trend Analysis

[4]Nominal: Describes money without the effects of inflation or the time value of money built in. Today's dollars.

ENVIRONMENTAL REVIEW

Name: Nipomo Community Service District Date: 2/19/2009

System Description: 11,440 DC Watt, Utility Interactive Photovoltaic System

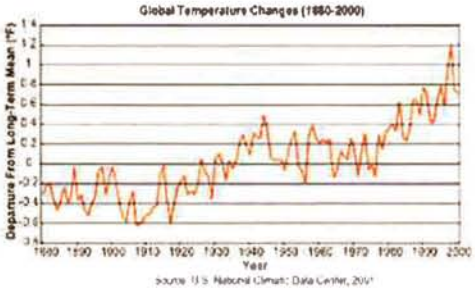
This sheet quantifies some of the environmental benefits that your system will provide by replacing electricity made from the burning of fuels.

LIFETIME KWH PRODUCTION The amount of electricity your solar power system will produce over its 25-year lifetime	Line a:	413,415
BARRELS OF OIL OFFSET BY YOUR SYSTEM, LIFETIME The number of barrels of oil required to generate the same amount of electricity that your system will produce in its 25-year lifetime.	= a. x .00203	839
CAR MILES NOT DRIVEN, LIFETIME Using electricity generated from fossil fuels and driving cars are the two personal activities that have the most significant environmental impact.	= a. x 1.7755	733,812
ACID RAIN EMISSIONS REDUCTION, lbs Generating electricity from fossil fuels also releases Sulfur Oxides and Nitrogen Oxides, primary causes of acid rain, into the air. Acid rain damages lakes, streams,	= a. x 0.0075	3,101
SMOG EMISSIONS REDUCTION, lbs Nitrogen Oxides are a key contributor to the formation of ground level ozone, a major component of smog. Ozone irritates the eyes, and aggravates respiratory problems. It is our most widespread and intractable urban air pollution problem.	= a. x 0.0036	1,488
GREENHOUSE GAS REDUCTION, lbs Carbon dioxide, along with other 'greenhouse gases', causes global warming. This results in increased rainfall and violent storms, decreased snow and ice cover, and	=a. x 1.42	587,049
EQUIVALENT NUMBER OF MATURE TREES PLANTED Trees remove carbon dioxide from the atmosphere, and many environmentalists advocate tree planting as a way to offset carbon dioxide emissions into the	= a. x 0.0034	1,406

System Performance – The cost savings values presented were developed using the best available "real world" factors that influence system performance. However any particular installation performance cannot be guaranteed to match performance measures stated and may vary. Data sources: Emissions data: US Environmental Protection Agency E-GRID 2000; Electricity mix and energy content: US DOE Energy Information Administration; Car miles and tree data: US EPA, Green Mountain Power.

Environmental Impact Review Background

Most of the electricity in America comes from electrical generation facilities that burn fossil fuels, such as coal and natural gas. Whenever fossil fuels are burned, some amount of pollution is released into the atmosphere. That means that every time we use a kilowatt-hour purchased from a utility company to turn on a light or appliance, a little bit of air pollution is released on our behalf. One of the benefits of solar energy is that it does not pollute, and every kWh created by your solar power system is one that does not have to be created by burning fuel.



Scientists generally agree that as a result of the combustion of fossil fuels and other human activities, atmospheric levels of carbon dioxide have increased by nearly 30% since the beginning of the industrial revolution. Carbon dioxide, along with other 'greenhouse gases', enhances the heat-trapping properties of the Earth's atmosphere. Thus, increased levels of greenhouse gases in the atmosphere are believed to be linked to an increase in global temperature. Global temperatures have risen by about 1 deg F since the late 19th century, and are expected to rise another 1-4.5 deg F in the next 50 years. Rising global temperature has resulted in increased rainfall and violent storms, decreased snow and ice cover, and rising sea levels. In the US, 82% of greenhouse gas emissions comes from burning fossil fuels to generate electricity and power cars. Your solar electric power system can dramatically reduce the amount of carbon dioxide released into the atmosphere.

Trees remove carbon dioxide from the atmosphere, and are one of two major CO2 'sinks' (the other is oceans) that have helped to maintain the balance of CO2 in the atmosphere throughout the course of time. Many environmentalists advocate tree planting as a way to offset CO2 emissions into the atmosphere. Using solar electricity can be equated to planting trees in terms of atmospheric CO2 reductions.

Generating electricity from fossil fuels also releases Sulfur Oxides (SOx) and Nitrogen Oxides (NOx) into the air. SOx and NOx are primary causes of acid rain. Acid rain causes acidification of lakes and streams and contributes to damage of trees at high elevation and many sensitive forest soils. In addition, acid rain accelerates the decay of building materials and paints, including irreplaceable buildings, statues, and sculptures that are part of our nation's cultural heritage. Prior to falling to the earth, SO2 and NOx gases and their particulate matter derivatives, sulfates and nitrates, contribute to visibility degradation and harm public health.

In addition to acid rain, Nitrogen Oxides (NOx) are a key contributor to the formation of ground level ozone, which is a major component of smog. Ozone irritates the eyes, damages the lungs, and aggravates respiratory problems. It is our most widespread and intractable urban air pollution problem. Using solar electricity reduces the amount of NOx released into the air from power plants.

Using electricity generated from fossil fuels and driving cars are the two personal activities that have the most significant environmental impact. You can compare the amount of pollution generated by driving a car to that prevented by using solar electricity as another measure of the environmental benefits of solar.

The average American uses over 20 barrels of oil each year. You can also equate the solar energy your solar power system will save over its lifetime to equivalent barrels of oil as a measure of environmental benefits.

California Solar Initiative

Incentive Calculator - BIPV Compatible

Center for Sustainable Energy

	Proposed	Reference
Site Specifications:		
Project Name	148 S Wilson 11kW	
ZIP Code	93444	92867
City	Nipomo	Orange
Utility	PG&E	
Customer Type	Government/Non-Profit	
Incentive Type	EPBB	
PV System Specifications:		
PV Module	REC ScanModule AB:SCM220 220.0W STC, 195.9W PTC, 196.9W PTC_{adj}[1]	
Number of Modules	52	
Mounting Method	>3" to 6" average standoff	
DC Rating (kW STC)	11.4400	
DC Rating (kW PTC)	10.1868	
Inverter	SMA America:SB5000US (240V)	
Number of Inverters	2	
Inverter Efficiency (%)	95.50 %	
Shading	Minimal Shading	Minimal Shad
Array Tilt (degrees)	19	
Array Azimuth (degrees)	228 **True North 0°**	
Optimal Tilt (proposed azimuth)	20	
Optimal Tilt (facing South)	19	17
Results		
Annual kWh	17,673 (a)	
at optimal tilt	17,714 (b)	
facing south at optimal tilt	18,095 (c)	17,222 (d)
Summer Months	May-October	May-October
Summer kWh	10,634 (e)	
at optimal tilt	10,635 (f)	
facing south at optimal tilt	10,603 (g)	9,958 (h)
CEC-AC Rating	**9.728 kW**	
Design Correction[2]	99.991%	
Geographic Correction[3]	100.000%	
Installation Correction[4]	100.000%	
Design Factor[5]	**99.991%**	
CSI Rating[6]	**9.727 kW**	
Incentive Rate	**$2.30/Watt**	

Incentive[7]	**$22,372**
	Please be aware that PG&E has received enough non-residential projects to move in reserved). The total capacity under review is 24.94 MW and the total capacity availat project will receive funding in Step 6 ($1.85/Watt) for a total incentive of **$17,995**.
Report Generated on	2/19/2009 2:19:29 PM

The CSI-EPBB calculator is a tool available to the public and participants of the CSI program, whose sole purpose is to determine the appropriate incentive level based on a reasonable expectation of performance for an individual system. The results of the calculator sl system performance. Actual performance of an installed PV system is based on numerous factors, and may differ with the results sum reason, contractors, participating customers, and other interested parties should only utilize the calculator to determine an appropriate program. Additional uses for the calculator other than its intended purpose as stated above are not endorsed or encouraged.

Recalculate

Notes:

1. **PTC_{adj}**: The adjusted PTC rating is calculated based on the installation method and panel specifications. See the User Guide Appendix A for det
2. **Design Correction**: This is the ratio of the summer output of the proposed system (e) and the summer output of the summer optimal system at the
3. **Geographic Correction**: This is the ratio of the annual output of the summer optimal south facing system at the proposed location (c) and the ar at the reference location (d).
4. **Installation Correction**: This is the ratio of the adjusted PTC rating and the unadjusted PTC rating.
5. **Design Factor**: This is the product of the Design Correction, Geographic Correction, and Installation Correction.
6. **CSI Rating**: This is the product of the Design Factor and the CEC-AC Rating.
7. **Incentive**: This is the total incentive for the proposed system. It is the product of the CSI Rating and the Incentive Rate.
   Please be aware that the final CSI incentive rate that is reserved for you will be determined by your CSI Program Administrator at the time your may be lower than the current incentive rate shown in the CSI Statewide Trigger Point Tracker. Please note that final incentive amounts are subjec system. (Per the CSI Handbook, no projects or applications are reserved CSI funding until all required information has been submitted and approv
8. As of 6/20/08, the CSI-EPBB calculator performs rounding as follows:
   - Estimated kWh production is rounded to the kWh
   - CEC-AC rating is rounded to the watt
   - CSI rating is rounded to the watt
   - Design factor is rounded to 5 significant digits
   - Incentive is rounded to the dollar

E-mail CSI-EPBB@aesc-inc.com with questions or comments.