Customer Qualification rev 6/7/10

Yes	No	
		Solar electric systems have up front costs of $16,000 and up. Average Residential system cost is about $40,000 prior to rebates and incentives.
☐	☐	Do you have the funds available in cash or financing?
☐	☐	Are you willing and prepared to spend that amount of money on a solar electric system?
		Best financial returns on solar electric systems come from savings from high utility costs.
☐	☐	Do you have average $150+ per month electric bills?
☐	☐	Are you expecting your utility rates to increase significantly in the future?
☐	☐	Are you willing to install solar strictly from an Environmental benefit perspective

Site Qualifications

Solar Electric Systems require maximum sun exposure for best performance (southern exposure with little or no obstructions).

☐	☐	Are you willing to put the solar panels on the southern facing roof, even if that means the front of the house?
☐	☐	Is the available roof area on a single plane or parallel planes?
		Different array planes (facing different directions) require multiple inverters and are often more complicated installations.
		Even "minor" structures, like a flag pole, passing it's shadow across the intended solar array can dramatically reduce system performance.
☐	☐	Is the area free from trees, utility poles, chimneys, satellite dishes, antennae or other buildings invading the solar view?
☐	☐	Will you move or cut down any obstructing objects?
☐	☐	Would you be willing to pay more for a system that can work more effectively with minor shading?
		Solar electric systems last for 30+ years, and require penetrations into the building structure.
☐	☐	Will the roofing material last at least 15 years before requiring replacement?
☐	☐	Is the roofing material tough enough to handle the installation process (e.g. Spanish tile roofs are easily breakable)
☐	☐	If either of the two above responses are "no", are you willing to pay for the re-roof of the array area and/or entire roof?
☐	☐	Is the building structure substantial enough to handle the added loads of the solar modules?
		*Be aware that most pre-fabricated structures are not designed to have added loads retrofitted to the structure.
☐	☐	If the roof structure is not sufficient, is there satisfactory area available for a ground mounted system?
		Flat roof and Metal structures often require additional structural engineering, particularly when joist's spacing are greater than 4 ft.
☐	☐	If flat roof installation requires bracing, are the joists easily accessible?

Site upgrades/ cost adders

		Including the breaker required for the Solar System, breaker boxes can generally be loaded to 120% of the rated Amps.
☐	☐	Is there sufficient space in the existing breaker panel to add the required system breaker?
☐	☐	If no to the question above, is there room and funding available for a panel upgrade?
		For extra high or steep sloped roofs, scaffolding and other safety equipment may be required
☐	☐	Is there a clear solution for roof access?
		For longer wiring runs and ground mount systems, trenches or post holes may be required
☐	☐	Is there a clear solution for terrain modification?
		For more difficult installations, cranes, booms, backhoes or other large equipment may be required
☐	☐	Is there room on site, and in the budget, for large equipment?

Other Consideration

Metal roofing, particularly corrugated metal roofs, are very difficult to waterproof during retrofits.

The customer should be aware that Grid Connected Solar Electric systems DO NOT provide power if the utility power goes out.

Quick Estimations

By Utility Bills

			Example
E=		Annual Energy Consumption (kWh)	E= 9000
÷	0.3	System Adjustment (1)	÷ 0.3
$E_{adjustment}$=			$E_{adjustment}$= 30000.0
÷	5.5	Can be estimated using NREL graph	÷ 5.5
B=		Estimated PV size	B= 5454.5
÷	245	Using 245 W modules	÷ 245
C=		Number of modules required	C= 22.3
$C_{rounded}$=		Use Chart for closest smaller system size	$C_{rounded}$= 22

By Square foot of available roof space

			Example
R=		Square ft of available & appropriate roof space(2)	R= 450
÷	18.5	Estimated 18.5 ft2/modules WITH clamp spacing	÷ 18.5
C=		Number of modules to fit	C= 24.3
$C_{rounded}$=		Use Chart for closest smaller system size	$C_{rounded}$= 24

By square building square foot

			Example
A=		Square footage of building	A= 3000
x	2	Estimated 2Watts/ft2 Solar (3)	x 2
B=		Estimated PV size	B= 6000
÷	245	Using 245 W modules	÷ 245
C=		Number of modules required	C= 24.5
$C_{rounded}$=		Use Chart for closest smaller system size	$C_{rounded}$= 24

Estimated System Installed Price

			Example
$C_{rounded}$=		Lowest $C_{rounded}$ from Above	$C_{rounded}$= 22
x	245	W/module	x 245
B_{actual}=			B_{actual}= 5390
x		$/W installed price	x $ 7.25
=			=
		Total Estimated Price	$ 39,077.50

Note: These calculations are stricty educated calculations, actual system size may vary
Using Sunkits to produce 50-70% of electricity is often the most financially beneficial.

(1) Equal to: 82% system efficiency x 365 days/yr ÷ 1000 watts/kilowatt

(2) If flat roof, assume 50% - 80% of actual area to account for rows and shading

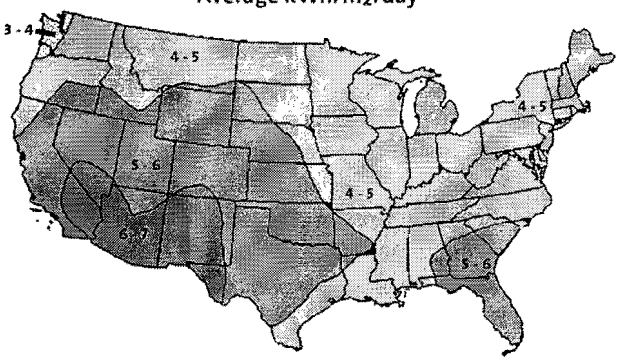
(3) Based on historical averages of electrical usage

Information and results calculated in this document are recommendations and should not be the sole support for system engineering. Be sure to have your solar electric system designs approved by a qualified PV system designer.

	Table below based on following information:
5%	Inverter Low Voltage window adjustment
20	°C Additional high temperature adjustment (accounting for module temperatures vs. ambient temperatures)
-16	°C Record low temperatures
3.2 F	Record low temperatures
35	°C Average high temperatures
95 F	Average high temperatures
	Optimally sized system, Conservative design criteria, should operate at 100% of it's potential production

SW 245 Mono Modules	Inverter Watts	SMA 3800US 240	SMA 4000US 240	SMA 5000US 240	SMA 6000US 240	SMA 7000US 240	SMA 8000US 240
8	1960						
9	2205	9					
10	2450	10					
11	2695	11					
12	2940		12				
13	3185		13				
14	3430		14				
20	4900			20			
22	5390			22			
24	5880			24	24		
26	6370				26		
28	6860				28	28	
30	7350					30	
33	8085					33	33
36	8820						36
39	9555						39

Average kWh/m$_2$/day



Based on National Solar Radiation Data Base (http://rredc.nrel.gov/solar)

SOLARWORLD CALIFORNIA