Residential Renewable Energy Installation Certificate

D

Renewable Energy Programs for Residential Customers

Installation certificates are required for each installed Renewable Energy system. When the installation is complete, the installer must perform the field verification and diagnostic testing procedures. The installer shall also provide a copy of the Installation Certificate and any other proof of installation details (such as photographs, product invoices, or solar pathfinder diagram(s)) to the Third-party Inspector so that they are able to verify the installation, performance and shading specifications.

Site Information	
Site Address	
Customer Name	
Installing Contractor	Installer Telephone

System

Equipment Type	CEC Certified Manufacturer Name and Model Number							
Inverter							RE Use: Information verified	_____
Modules								_____
Modules Mounting ____ Rack Mount _____ BIPV	# of series modules in each string	_____	# of strings in parallel	_____	Total # of modules	_____		_____

Installation Specifications		Method Used to Determine Value		Value Measured	
		Installing Contractor	RE Use	Installing Contractor	RE Use
1	**The azimuth of the system** (degrees from North)				
2	**The roof pitch/tilt of the system** (Rise : Run / degrees from horizon)				
3	**The mounting height of the system** (ft. from the ground)				
4	**The standoff height of system** (if BIPV, enter “0”)				

Performance Specifications		Method Used to Determine Value		Value Measured	
		Installing Contractor	RE Use	Installing Contractor	RE Use
5	**Measurement of Solar Irradiance** (W/m squared)				
6	**Measurement of Ambient Temperature** (F degrees)				
7	**Expected Output from Field Verification Table (FVT)** (W)	**FVT**			
8	**Inverter or other performance display reading** (W)				
9	**The electric production (W) as shown on the inverter or other performance display is equal to or higher than the value on the FVT for the system based on the incident radiation and ambient temperature measured.** (Pass if line 8 > line 7)			Pass Fail	Pass Fail

For more information please call Roseville Electric
at (916) 79-POWER (797-6937)

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A Shading Analysis is required for all solar projects. Please complete the table below with the values from the shading analysis.

Monthly Shading	Shading Derate Factors (%)
Jan	
Feb	
Mar	
Apr	
May	
Jun	
July	
Aug	
Sep	
Oct	
Nov	
Dec	

List of items submitted accompanying the installation certificate as proof of installation (such as photos, product invoices, or solar pathfinder diagram(s). These items are intended to assist the Third-party Inspector in verifying the installation, performance and shading specifications.

☐ jpl, the undersigned, verify that equipment listed on this form is the actual equipment installed and the shading criteria are as specified. (check box)

Installing Subcontractor/General Contractor/ OR Owner	
Signature:	Date:
Print Name:	

Roseville Electric use only	
Third-party Field Inspector	
Signature:	Date:
Findings:	

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Renewable Energy Programs for Residential Customers

Field Verification Certification Form

Primary Method (Single or Multiple String Arrays)

Irradiance		(W/m^2)
Temp		(F)
Inv Output		(W)

_____ CEC-AC Output (W) X _____ FVT (%) = _____ Estimated System Output (W)

Field Verification Output Table (FVO)

(W/m^2)	T=15	T=25	T=35	T=45	T=55	T=65	T=75	T=85	T=95	T=105	T=115
300	26%	26%	25%	24%	24%	23%	22%	22%	21%	20%	20%
325	28%	28%	27%	26%	26%	25%	24%	24%	23%	22%	22%
350	31%	30%	29%	28%	28%	27%	26%	25%	25%	24%	23%
375	33%	32%	31%	31%	30%	29%	28%	27%	27%	26%	25%
400	35%	34%	33%	33%	32%	31%	30%	29%	28%	27%	27%
425	37%	36%	36%	35%	34%	33%	32%	31%	30%	29%	28%
450	40%	39%	38%	37%	36%	35%	34%	33%	32%	31%	30%
475	42%	41%	40%	39%	38%	37%	36%	35%	34%	33%	32%
500	44%	43%	42%	41%	40%	39%	38%	37%	36%	34%	33%
525	46%	45%	44%	43%	42%	41%	40%	38%	37%	36%	35%
550	48%	47%	46%	45%	44%	43%	41%	40%	39%	38%	37%
575	51%	49%	48%	47%	46%	45%	43%	42%	41%	40%	38%
600	53%	51%	50%	49%	48%	46%	45%	44%	43%	41%	40%
625	55%	54%	52%	51%	50%	48%	47%	46%	44%	43%	42%
650	57%	56%	54%	53%	52%	50%	49%	47%	46%	45%	43%
675	59%	58%	56%	55%	54%	52%	51%	49%	48%	46%	45%
700	61%	60%	58%	57%	55%	54%	52%	51%	49%	48%	46%
725	63%	62%	60%	59%	57%	56%	54%	53%	51%	50%	48%
750	65%	64%	62%	61%	59%	58%	56%	54%	53%	51%	49%
775	68%	66%	64%	63%	61%	59%	58%	56%	54%	53%	51%
800	70%	68%	66%	65%	63%	61%	59%	58%	56%	54%	53%
825	72%	70%	68%	66%	65%	63%	61%	59%	58%	56%	54%
850	74%	72%	70%	68%	66%	65%	63%	61%	59%	57%	55%
875	76%	74%	72%	70%	68%	66%	65%	63%	61%	59%	57%
900	78%	76%	74%	72%	70%	68%	66%	64%	62%	60%	58%
925	79%	78%	76%	74%	72%	70%	68%	66%	64%	62%	60%
950	81%	79%	77%	75%	73%	71%	69%	67%	65%	63%	61%
975	83%	81%	79%	77%	75%	73%	71%	69%	67%	65%	63%
1000	85%	83%	81%	79%	77%	75%	73%	70%	68%	66%	64%
1025	90%	85%	83%	81%	78%	76%	74%	72%	70%	67%	65%
1050	90%	90%	84%	82%	80%	78%	76%	73%	71%	69%	66%
1075	90%	90%	86%	84%	82%	79%	77%	75%	72%	70%	68%
1100	90%	90%	90%	86%	83%	81%	79%	76%	74%	71%	69%
1125	90%	90%	90%	90%	85%	82%	80%	78%	75%	73%	70%
1150	90%	90%	90%	90%	86%	84%	81%	79%	76%	74%	71%
1175	90%	90%	90%	90%	90%	85%	83%	80%	78%	75%	73%
1200	90%	90%	90%	90%	90%	90%	84%	82%	79%	77%	74%

For systems that have only one string connected to a single inverter or for systems using micro-inverters, the following applies:

1. Record Temperature and Irradiance
2. Examine Field Verification Output (FVO) table for the percentage shown given the measured temperature and irradiance. Always round temperature up to the next block. So, 47 degrees rounds up to 55 degrees on the chart.
3. Multiply the CEC-AC (from EPBB printout) times the FVO percentage to get estimated system output.
4. Compare estimated system output with actual output. If actual system output is higher, system is operating within expectations. If estimated output is higher, perform additional diagnostics and correct any issues as the system may not be performing properly.

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