Residential Solar Energy Program Installation Application

A

Form A - To be completed by the Installing Contractor

SECTION ONE: General Information

Applicability and Purpose

Who must complete this Application?

All Roseville Electric (RE) Customer-generators wishing to install solar generating systems (photovoltaic system, PV) greater than 1.0 AC kilowatt of installed capacity in parallel with Roseville Electric's electric service must have their installer complete this application.

The Customer-generator's system shall at all times comply with Roseville Electric's Rule 21 as well as with all applicable laws, tariffs, electrical codes and applicable requirements of the City of Roseville. Rule 21 may be found at www.roseville.ca.us/Rule21

Under no circumstance may the PV system electric production exceed 100% of the customer's most recent 12 month energy use. Have the customer go to www.roseville.ca.us/EnergyAudit to run an on-line energy audit which will provide the last 12 months of energy use, they will be required to use their account number to complete this report.

Reservation for a rebate may only be made at the time of original installation and system approval for interconnection.

General Information – Please complete ALL fields

Customer-generator Information		
Name (as appears on electric bill)	Roseville Electric Account #	
Installation Address (street and Zip)	Telephone	E-Mail
Solar Lending Company or PPA Provider Information		
Name of Company	Telephone	Fax
Mailing Address (street, city and zip)	City of Roseville Business License #	
Contact Name	Contact Phone	Contact E-Mail
Solar System Installer		
Name of Company	Telephone	Fax
Mailing Address (street, city and zip)	City of Roseville Business License #	Contractor's License #
Contact Name	Contact Phone	Contact E-Mail

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Application Type	Initial One Only
The PV system is owned or leased by the RE customer-generator and applying for BOTH a PV rebate and interconnection.	
The PV system is owned or leased by the RE customer-generator and is NOT applying for a rebate, system needs interconnection only.	
The PV system is on a PPA contract with a 3rd party provider, and the RE customer-generator is applying for interconnection only.	

Description of Service	Initial One Only
A new solar energy system interconnecting to my existing electrical service	
Physical changes to an existing interconnected solar energy system which was previously approved by Roseville Electric (i.e. adding solar panels, changing inverters).	
New electrical service with a new interconnected solar energy system. Additional costs may be required if a service or line extension is required.	
Other: Please explain via a separate attached statement.	

SECTION TWO - Metering

Net Metering

- Net metering for solar generating system requires a Roseville Electric owned bi-directional revenue net meter. This meter is capable of measuring electric flow both into the meter from the Roseville Electric grid and out of the meter from the solar energy system. If the Customer-generator's existing meter is not a net meter, Roseville Electric must upgrade the meter to account for the bi-directional flow of electricity. The cost for this upgrade is the responsibility of the Customer-generator.
- Once the PV system is installed, do not turn on the PV system until the FORM D – Interconnection Approval is signed by Roseville Electric and received, and the bi-directional net meter is installed.

Meter Upgrade Cost

- Roseville Electric will assess the suitability of the Customer-generator's meter **after** the Customer-generator submits an application, to determine if a net meter upgrade is necessary to gain access to Roseville Municipal Code net metering tariffs.

- If it is determined that a meter upgrade is required, per California state law, the expense of this upgrade is the responsibility of the Customer-generator. This cost must be paid by the Customer-generator prior to gaining access to a net metering tariff and receiving any program rebate.
- Net metering upgrade cost (if applicable) will be paid as part of the project permit process with the City of Roseville.

Billing and Net Metering Tariffs

- Please go to the Roseville Municipal Code Section 14.24.051 for complete information: http://qcode.us/codes/roseville/ or call (916)797-6937 for further assistance.

SECTION THREE - Equipment Information

AC Disconnect Switch: List the AC disconnect switch that will be used for this solar energy system.
Please Note: A separate visible, manually operated and lockable AC disconnect switch (as detailed in Roseville Electric Rule 21) must be installed within 5 ft of the point of interconnection, meeting the criteria as outlined in Roseville Electric Rule 21.

Disconnect Switch Manufacturer	Disconnect Switch Model Number	Disconnect Switch Rating (amps)

Inverters Interconnected to Roseville Electric: List all of the inverters that will be interconnected to Roseville Electric, must be on the California Energy Commission (CEC) list of approved inverters. Use of micro-inverters will require an additional CEC approved performance display for the total installed "system".

No.	Inverter Manufacturer	Micro-Inverter Yes/No	Inverter Model Number	Inverter Nameplate Rating DC kW (per unit)	Inverter CEC AC Rating kW (per unit)	Quantity of Inverters	Inverter Output Voltage	Single or Three Phase
1								
2								

a. Micro-Inverter Performance Monitoring Display The use of micro-inverters will require an additional CEC approved performance monitoring display for the total installed PV system.
Manufacturer Name: _____
Location placement at Customer-generator facility: _____

Solar Equipment: List the solar/photovoltaic (PV) panel information requested below. Must be an approved PV panel listed by the California Energy Commission.

No.	PV Panel Manufacturer	PV Panel Model	PV Panel Nameplate Rating DC kW (per unit)	PV Panel CEC AC Rating kW (per unit)	Quantity of PV Panels	Total CEC-AC Capacity (kW)	Inverter Number From Above
1							
2							

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SECTION FOUR - Conditions for Interconnection Approval and Rebates

INTERCONNECTION
Application documents Form A and B, and Installation Certificate Form C are required to ensure safe and reliable operation of Roseville Electric's Distribution System and to confirm that Customer-generators interconnection has been performed in accordance with Roseville Electric's tariffs and Rule 21. This is why it is important for all Customer-generators, even those wishing for interconnection only, to submit a complete application package. **Customer-generators should not delay sending any part of the agreement package to Roseville Electric.**

REBATES
Per California state law, an energy efficiency assessment/audit is a part of every net metered solar project installed statewide where an electric utility rebate is paid. Additionally, per California state law, the installation of energy efficiency measures is mandated in some cases as part of every net metered solar project installed statewide where an electric utility rebate is paid. The required energy efficiency actions vary per California state law by customer type. Rebates will not be paid until ALL requirements are met. It is the customer-generators responsibility to read and understand the state mandated energy efficiency requirements specific to their electric customer type. If the customer-generator has any questions regarding energy efficiency, they should contact Roseville Electric.

- www.roseville.ca.us/Solar
- www.gosolarcalifornia.ca.gov/documents/csi.php

SECTION FIVE - Rebate Calculation and Payment

PPA Agreement applications skip this section; PPAs are not eligible for rebates.

Expected Performance Based Incentive (EPBI)	Enter data in this column
ENTER: Results - CSI Rating (kW) from Calculator at: www.csi-epbb.com (*this is found on page 2 of the CSI report, it is a factor of the CEC-AC rating and the design factor*)	
Roseville Electric Incentive Rate ($ per AC Watt) (See Roseville Electric Program Handbook and call Roseville Electric for more information)	**$0.32**
REBATE CALCULATION: A X B	**$**

Once the solar generation system has been installed and all program criteria have been met, the Customer-generator must apply for the previously reserved rebate amount to receive payment. It is the obligation of the customer-generator to meet all program requirements, obtain all necessary City inspections, gather all necessary documents and submit this package with a Request for Payment (Form E) to Roseville Electric for any rebate payment. All rebate reservations must be confirmed in advance and in writing by Roseville Electric – no exceptions. All permit costs must be paid in full by the Customer-generator prior to any rebate payment.

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SECTION SIX – Interconnection Compliance

Customer-generator shall meet all applicable safety and performance standards established by the National Electrical Code, the Institute of Electrical and Electronics Engineers and accredited testing laboratories such as Underwriters Laboratories. A Customer-generator with a solar generating system that meets those standards and rules shall not be required to install additional controls and/or pay for additional tests.

Prior to Installation

Complete applications (Forms A & B) and submit to RE with the following documents:

1. Purchase contract, lease or PPA agreement
2. Equipment/system warranty information
3. Shading Analysis (no minimal shading allowed)
4. CSI Standard PV Calculator printout. Values from the shading analysis must be filled in for **all** projects.

The calculator is found at: (www.csi-epbb.com)

5. A single-line diagram showing Customer-generators actual roof top or site installation of the renewable energy system.
    a. The diagram must include
        i. The electrical rating and operating voltages of the significant electrical components such as the service panel.
        ii. The location of the visible open lockable AC disconnect switch (per Roseville Electric Rule 21), inverters, all solar panels, circuit breakers and other protective devices of the renewable energy systems.
        iii. The general location of the Customer-generators loads relative to the renewable energy system, and the interconnection with Roseville Electric's Distribution System.
        iv. A description of how the power output from the inverter is connected to the main service panel via a branch breaker.
        v. The ampere rating of this branch breaker and the main service panel breaker must be compatible with the output rating of the renewable energy system. The output rating is computed based on the total nameplate rating of the inverter.
6. Copy of Energy Efficiency Audit with Recommendations (go to www.roseville.ca.us/EnergyAudit)

Upon Completion of the Installation:

- Contractor submits the Installation Certificate (Form C) to Roseville Electric
    - If changes in the system have occurred, the contractor shall provide an updated description of the change, a new one line diagram, and an updated CSI Standard PV calculator report to Roseville Electric
    - It is advised that any system changes are submitted to Roseville Electric as soon as possible. System changes may change rebate amounts
- Customer-generator submits the Interconnection Approval Request, Form D to Roseville Electric.
    - If system changes have occurred they must be listed in Form D, include the contractor provided updated description of the change and the CSI Standard PV calculator report, and single-line drawing. Customer-generator to coordinate change submittals the contractor.
    - Include a copy of the signed final approved permit card from the City of Roseville Building Inspection department
- Customer may not turn solar generation system on until this application is signed by Roseville Electric and returned; and the net meter has been installed. Customer-generator submits the Payment Request (Form E) to Roseville Electric

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SECTION SEVEN - Document Submittal Contact Information

Mail the required attachments and Application to:

Roseville Electric
ATTN: Residential PV Applications
2090 Hilltop Circle
Roseville, CA 95747
ResSolar@roseville.ca.us

For questions or assistance please contact Raena Kinsella at Roseville Electric (916) 774-5676
rkinsella@roseville.ca.us

SECTION EIGHT – Terms and Conditions

A. Each of the undersigned declares under penalty of perjury that:

- The site installation is located within the service territory of Roseville Electric.
- The above described PV system is intended primarily to offset part or all of the Applicant's electrical needs at the site of installation.
- The Applicant has read and understands the program requirements set forth in this Application and has agreed to abide by these requirements.
- If a rebate is paid, the Applicant understands that the specified system must be mounted permanently and remain in operation in Roseville for no fewer than 10 years.
- The Applicant understands that program funds are limited, reservations are required and that rebates are available on a first-come-first-served basis.
- The applicant understands that Roseville Electric Residential rates and rate structure may change over time and that current rates will apply.
- The Applicant understands that program funds are not reserved until RE confirms the reservation; a letter will be e-mailed to the customer and contractor with the reservation approval.
- The Applicant agrees that the selection, purchase, and ownership of the equipment is their sole responsibility. Roseville Electric makes no representation as to the safety, reliability, and/or efficiency of the equipment selected or components thereof.
- Roseville Electric makes no warranty, whether expressed or implied, including warranty of merchantability of fitness for any particular purpose, use, or application of the equipment.
- The information provided in this form is true and correct to the best of their knowledge.

Required Application Signature

Installing Contractor Name (PRINT)	Date
Installing Contractor Signature	

Residential Solar Energy Program Interconnection Application

B

Form B - To be completed by the Roseville Electric Customer-generator

SECTION ONE – General Information

IMPORTANT NOTE: Applicant must complete this form and meet all energy efficiency requirements per California State law Senate Bill (SB)1. By installing cost effective energy efficiency measures before installing a solar electric system, the owner can lower the overall size and cost of the system and reduce monthly energy bills.

Complete all sections and sign this form. . Submit the Form B and a copy of the energy audit along with this Roseville Electric Solar Energy Application.

Customer-generator Information		
Name (as appears on electric bill)	Roseville Electric Account #	
Installation Address (street and Zip)	Telephone	E-Mail
CIRCLE CONTRACT TYPE		
Owned	Leased	PPA
Solar Lending Company or PPA Provider Information		
Name of Company	Telephone	Fax
Mailing Address (street, city and zip)	City of Roseville Business License #	
Contact Name	Contact Phone	Contact E-Mail
Solar System Installer		
Name of Company	Telephone	Fax
Mailing Address (street, city and zip)	City of Roseville Business License #	Contractor's License #
Contact Name	Contact Phone	Contact E-Mail
Solar System Information		
Number of panels	CSI Rating	Estimated Installation Date
Energy Use Information		
I have reviewed my available 12 months of energy usage from Roseville Electric online audit at www.roseville.ca.us/EnergyAudit (You must enter your Roseville Electric Utility account number to obtain the report)	My annual kWh use from this report is:	

January 2014

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

CITY OF ROSEVILLE CALIFORNIA

Roseville Electric

Residential Solar Energy Program Interconnection Application

B

Application Type	Initial One Only
The PV system is owned or leased by the RE customer-generator and applying for BOTH a PV rebate and interconnection.	
The PV system is owned or leased by the RE customer-generator and is NOT applying for a rebate, system needs interconnection only.	
The PV system is on a PPA contract with a 3rd party provider, and the RE customer-generator is applying for interconnection only.	

SECTION TWO – Energy Efficiency Disclosure

Customer's requesting rebates must complete this section. PPA Agreement applications skip this section; PPAs are not eligible for rebates.

I used the following services and/or tools to learn about how I could save money with conservation and other energy efficiency measures that could be installed at my home.

Applicant must visit **All** Roseville Electric Web Links, check the box to show completion:

- ☐ *Energy Efficiency Rebates* - www.roseville.ca.us/Rebates
- ☐ *Reduce Energy Use* - www.roseville.ca.us/SaveEnergy
- ☐ *Lower My Bill* - www.roseville.ca.us/LowerMyBill

Applicant must visit **All** Third Party Web Links, check the box to show completion:

- ☐ *Energy Star Appliances* - www.energystar.gov
- ☐ *American Council for an Energy Efficient Economy* - www.aceee.org
- ☐ *California Go Solar* - www.gosolarcalifornia.org

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

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Roseville Electric

Residential Solar Energy Program Interconnection Application

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Initial here _____	I had an energy efficiency audit completed on the home or I have completed a self-guided energy assessment of my home that identified cost effective energy efficiency improvements. To access the online audit, go to: www.roseville.ca.us/EnergyAudit (*Online Home Energy Assessment)*
	Prior to investing in a solar energy system I installed the following energy saving measures in my home: (STATEMENT REQUIRED)
	I intend to install the following energy efficiency measures on my home: (STATEMENT REQUIRED) by: _____ (date)

SECTION THREE - General Requirements for Interconnection & Access to Net Metering Tariffs

The Customer-generator must initial each of the items below

Initial here _____	**I have read and understand the terms set forth in the Roseville Electric Residential Solar Energy Program Applictions (Forms A and B) for system interconnection with Roseville Electric.**
Initial here _____	The Contractor listed in the Roseville Electric Residential Solar Energy Program Installation Application (Form A) is authorized by the Customer-generator to receive confidential Customer-generator account billing and electric usage information pertaining to this installation.

By initialing the boxes above and signing this agreement, Customer-generator authorizes Roseville Electric to release information to the contractor named in Form A regarding Customer-generator usage and billing information, solar energy system location, size and operational characteristics as requested in the course of this interconnection process. Roseville Electric is granted permission to share information with authorized recipients for a period of three years from the date this agreement is received by Roseville Electric. In addition, Customer-generator authorizes Roseville Electric to release to the California Energy Commission information regarding Customer-generator facility size and operational characteristics (excluding customer-generator name, contact information, other personal information and solar energy system location) as requested from time to time pursuant to the California Energy Commission's rules and regulations.

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

CITY OF ROSEVILLE CALIFORNIA
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Residential Solar Energy Program Interconnection Application

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RULE 21

It is recommended that all applicants and their contractors obtain copy of Roseville Electric's Rule 21 from Roseville Electric's web site (www.roseville.ca.us/Rule21), read and understand all interconnection requirements. Failure to abide by these requirements could result in a delay in interconnection and payment of any rebate. All systems installed in parallel to Roseville Electric's distribution grid must meet these requirements.

1. **Access to Roseville Municipal Code Customer-owned solar electric generation rates.**
   - Per Roseville Municipal Code, access to the rate is conditioned upon the Customer-generator meeting all Rule 21 equipment and operational standards.
   - Failure to meeting and/or maintaining Rule 21 equipment and operational standards may result in the loss of access to solar net metering.
2. **Permission to Interconnect**
   - **Customer-generators must not operate their solar energy system in parallel with Roseville Electric's Distribution System until they receive the signed Interconnection Approval, Form D, from Roseville Electric; and the net meter has been installed.** Unauthorized Parallel Operation could result in injury to persons and/or damage to equipment and/or property for which the Customer-generator may be liable. Roseville Electric shall have the right to disconnect the solar energy system from Roseville Electric's system. Customer-generators solar energy system shall remain disconnected until the building inspector has approved the solar system installation.
   - **Safe Operation of your solar energy system:** Notwithstanding any other provision of this Application, if at any time Roseville Electric determines that either (a) the Customer-generators facility, or its operation, may endanger Roseville Electric personnel, or (b) the continued operation of the Customer-generators facility may endanger the safe and reliable operation of Roseville Electric's electrical system, Roseville Electric shall have the right to disconnect the solar energy system from Roseville Electric's system. Customer-generators solar energy system shall remain disconnected until such time as Roseville Electric is satisfied that the unsafe condition(s) have been corrected.
3. **Meter Access**
   - Your meter must remain unobstructed by locked gates or pets. Additionally, meter access must be maintained at all times for meter reading and system maintenance. Any animals owned by the customer-generator, including pet dogs, should not have access to these areas to avoid hindering Roseville Electric service personnel, preventing them from completing their work.
4. **Document and Cost Requirements**
   - Other Documents and/or Costs *may* be required and there may be requirements for interconnection in addition to the above list**,** depending on the specifics of the planned Generating Facility. Other approvals and/or other agreements may be needed for special Roseville Electric programs or regulatory agency requirements.

Residential Solar Energy Program Interconnection Application

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SECTION FOUR - Interconnection Terms & Conditions

Terms and Conditions

The undersigned declares under penalty of perjury that:

- The site installation is located within the service territory of Roseville Electric.
- The above described generating system is intended primarily to offset part or all of the Applicant's electrical needs at the site of installation.
- The Applicant has read and understood the program requirements set forth in the Application (Forms A & B) and has agreed to abide by those requirements.
- If a rebate is paid, the Applicant understands that the specified system must be mounted permanently and remain in operation in Roseville for no fewer than 10 years.
- The Applicant understands that program funds are limited, reservations are required and that rebates are available on a first-come-first-served basis.
- The Applicant understands that program funds are not reserved until Roseville Electric confirms the reservation; a letter will be e-mailed to the customer-generator and contractor with the reservation approval.
- The applicant understands that Roseville Electric Residential rates and rate structure may change over time and that the current applicable rates will apply.
- The Applicant agrees that the selection, purchase, and ownership of the equipment are his or her sole responsibility. Roseville Electric makes no representation as to the safety, reliability, and/or efficiency of the equipment selected or components thereof.
- The Applicant acknowledges that Roseville Electric is not responsible for any taxes that may be imposed as a result of any financial rebates from Roseville Electric.
- Roseville Electric makes no warranty, whether expressed or implied, including warranty of merchantability of fitness for any particular purpose, use, or application of the equipment.
- The information provided in this form is true and correct to the best of his or her knowledge.

IMPORTANT: This application MUST be fully completed, signed and returned to Roseville Electric before the system will be considered for interconnection and potential rebates.

Customer-generator Name (PRINT)	Date
Customer-generator Signature	

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

CITY OF ROSEVILLE CALIFORNIA
Roseville Electric

Residential Solar Energy Program Installation Certificate

C

Form C – to be completed by the Installer

Installation certificates are required for each installed solar 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-generator Name	Telephone	Email
Installing Contractor	Installer Telephone	Email

SYSTEM INFORMATION								
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

January 2014

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

CITY OF ROSEVILLE CALIFORNIA

Roseville Electric

Residential Solar Energy Program
Installation Certificate

C

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)

RE USE

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/m²)	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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For more information please call Roseville Electric
at (916) 79-POWER (797-6937)

CITY OF ROSEVILLE CALIFORNIA
Roseville Electric

Residential Solar Energy Program Installation Certificate

C

SHADING ANALYSIS

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	

Monthly Shading	Shading Derate Factors (%)
July	
Aug	
Sep	
Oct	
Nov	
Dec	

PROOF OF INSTALLATION

Contractor must submit accompanying documentation 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.

The following item is attached: _____

CONTRACTOR SIGNATURE

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

Signature:	Date:
Print Name:	

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

January 2014

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

CITY OF ROSEVILLE CALIFORNIA

Roseville Electric