

This checklist does not include battery requirements. For a system with batteries, use *Form 231B: Battery-Based Solar Electric Installation Checklist*

Project Information

Verifier	<input type="checkbox"/> Energy Trust <input type="checkbox"/> Trade Ally*	Verification Date(s) 1 st : 2 nd :	Time of Measurement
Customer		Trade Ally Contractor	PowerClerk #
Site Address		City	Zip
Ambient Temperature (°F)	Solar Radiation (W/m ²)	Inverter Output (watts _{AC})	Initial Meter Reading
Notes:			

*Solar Trade Ally that has qualified for Random Verification status shall complete the 1st installation checklist column and sign below.

Installation Checklist (Requirement numbers refer to sections of the [Solar Electric Installation Requirements.](#))

Verification 1 st 2 nd	2.1	General
<input type="checkbox"/> <input type="checkbox"/>	2.1.1	System installed on real property in Oregon and grid-tied to <input type="checkbox"/> PGE or <input type="checkbox"/> Pacific Power.
<input type="checkbox"/> <input type="checkbox"/>	2.1.2	System meets local utility interconnection and net metering requirements, if applicable.
<input type="checkbox"/> <input type="checkbox"/>	2.1.3	Installation is of industry standard and workmanlike quality.
<input type="checkbox"/> <input type="checkbox"/>	2.1.4	System is designed to optimize annual performance, without sacrificing good aesthetics.
<input type="checkbox"/> <input type="checkbox"/>	2.1.5	Installation is consistent with schematic diagram and documentation.
<input type="checkbox"/> <input type="checkbox"/>	2.1.6	Installation is consistent with physical layout diagram.
<input type="checkbox"/> <input type="checkbox"/>	2.1.7	System complies with all applicable codes and jurisdictional inspection(s) have been passed. Permit # _____ Date _____
	2.2	Materials
<input type="checkbox"/> <input type="checkbox"/>	2.2.1	Materials used outdoors are UV-resistant and listed for outdoor locations.
<input type="checkbox"/> <input type="checkbox"/>	2.2.2	Materials are designed to withstand the temperatures to which they are exposed.
<input type="checkbox"/> <input type="checkbox"/>	2.2.3	Dissimilar metals that have galvanic action are isolated.
<input type="checkbox"/> <input type="checkbox"/>	2.2.4	Aluminum is not placed in direct contact with concrete.
<input type="checkbox"/> <input type="checkbox"/>	2.2.5	Stainless steel fasteners are used on modules and racking. High quality fasteners are used elsewhere.
<input type="checkbox"/> <input type="checkbox"/>	2.2.6	Structural members are made of approved materials.
<input type="checkbox"/> <input type="checkbox"/>	2.2.7	Rails used for mounting modules are aluminum or stainless steel (residential, roof mounted only)
	2.3	Equipment and Installation
<input type="checkbox"/> <input type="checkbox"/>	2.3.1	All system components are new.
<input type="checkbox"/> <input type="checkbox"/>	2.3.2	All components are mounted securely.
<input type="checkbox"/> <input type="checkbox"/>	2.3.3	All building penetrations are sealed and fire resistance is maintained
<input type="checkbox"/> <input type="checkbox"/>	2.3.4	All electrical components are listed and meet required standards.
<input type="checkbox"/> <input type="checkbox"/>	2.3.5	Inverter and modules meet minimum warranty requirements.
<input type="checkbox"/> <input type="checkbox"/>	2.3.6	All electrical components are listed for the voltage and current ratings necessary for the application.
<input type="checkbox"/> <input type="checkbox"/>	2.3.7	Equipment is not modified such that it voids the listing or manufacturer warranty.
<input type="checkbox"/> <input type="checkbox"/>	2.3.8	Required overcurrent protection devices installed and accessible.
<input type="checkbox"/> <input type="checkbox"/>	2.3.9	Means of inverter disconnection are installed and designed to be safely switched under load.
<input type="checkbox"/> <input type="checkbox"/>	2.3.10	Terminations torqued to specification, secured, and strain-relieved. Wire ends coated with terminating compound.
<input type="checkbox"/> <input type="checkbox"/>	2.3.11	Conduit, conductors, and electrical boxes are secured and supported according to code and product ratings.

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<input type="checkbox"/>	<input type="checkbox"/>	2.3.12	Conduit used for DC conductors is EMT. Heavy-weight flexible steel or hospital grade MC may be used per OESC.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.13	Grounding conductors (EGC and GEC) are copper and 6 AWG or sized according to Code.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.14	Twist-on wire connectors are not used on DC conductors or ground wires.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.15	Junction boxes and combiner boxes are listed and suitable for their environment and conditions of use. Boxes used in damp or wet locations are appropriately waterproofed.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.16	Permanent engraved, stamped or printed labels are applied to system components as required by Code.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.17	Disconnect switch cover plates (not switch handles) are secured closed for safety.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.18	Inverter is installed in an appropriate location, shaded by a permanent structure if necessary, meets all mfg. specs.
		2.4	Array Mounting
<input type="checkbox"/>	<input type="checkbox"/>	2.4.1	If roof-mounted, the roofing material has at least 10 years of useful life remaining.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.2	If roof-mounted, the roof system is capable of handling additional load of the System.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.3	Array racking and mounting systems engineered and installed to meet wind, snow and seismic load requirements.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.4	All roof penetrations made watertight using roofing industry-standard methods of flashing.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.5	All mounting hardware is installed according to manufacturer specifications.
		2.5	Solar Access
<input type="checkbox"/>	<input type="checkbox"/>	2.5.1	Solar resource is documented with an Energy Trust approved tool from location where shading is most significant.
<input type="checkbox"/>	<input type="checkbox"/>	2.5.2	Total Solar Resource Fraction (TSRF) is 75% or greater at all points on the array(s).
		2.6	Performance
<input type="checkbox"/>	<input type="checkbox"/>	2.6.1	Array sized to operate within the inverter current, voltage and power limits at the record high and low temperatures. System size does not exceed 125% of inverter output power rating.
<input type="checkbox"/>	<input type="checkbox"/>	2.6.2	Wires sized to keep voltage drop at or below 2% in the DC conductors from the array to the inverter.
<input type="checkbox"/>	<input type="checkbox"/>	2.6.3	Wires sized to keep voltage drop at or below 2% in the AC conductors from the inverter to point of tie-in with the main distribution or a pre-existing sub-panel.
<input type="checkbox"/>	<input type="checkbox"/>	2.6.4	AC voltage at the inverter is within the operating limits specified by the inverter manufacturer.
<input type="checkbox"/>	<input type="checkbox"/>	2.6.5	Voltage mismatch is minimized, allowing the inverter to operate within its maximum power point window. All modules in a string are installed at the same tilt and orientation.
		2.7	Output Meter
<input type="checkbox"/>	<input type="checkbox"/>	2.7.1	A qualifying production meter is installed on the AC output of the System.
<input type="checkbox"/>	<input type="checkbox"/>	2.7.2	If multiple-inverter system, output combined before meter or one electric meter installed for each inverter.
<input type="checkbox"/>	<input type="checkbox"/>	2.7.3	UV-resistant label identifying meter as the Solar Generator Output.
<input type="checkbox"/>	<input type="checkbox"/>	2.7.4	Meter reading consistent with setting of 000000 or 999999 at time of shipment to the installer.
		3.0	Customer Manual
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Complete and accurate System Overview page <input type="checkbox"/> Inverter owner's manual* <input type="checkbox"/> Electrical as-built diagram <input type="checkbox"/> Manufacturer data sheets for modules and inverter(s)* <input type="checkbox"/> Contractor 2-yr parts & labor warranty* * not applicable to third-party owned systems	
		Owner Education	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Owner understands basic system operation. <input type="checkbox"/> Owner understands proper shut-down and start-up procedure. <input type="checkbox"/> Owner understands potential performance impacts of shading. <input type="checkbox"/> Owner understands required maintenance. <input type="checkbox"/> Owner knows who to call in the case of an emergency. <input type="checkbox"/> Owner can accurately read meter.	

Trade Ally Self-Verification Signature (For use by Solar electric Trade Allies on Random Verification status.)

I certify that the system listed on this **Form 231—Solar Electric Installation Checklist** was installed as indicated on the Incentive Application and that the system complies with the [Solar Electric Installation Requirements](#) in effect. Should a subsequent random verification of the system identify a Program violation, I understand that I will be required to remedy the violation within thirty (30) days of the random verification report. If I do not cure the violation, I will be required to refund to Energy Trust an amount equal to the incentive funds paid by Energy Trust for this system.

Trade Ally Name	Trade Ally Representative Signature	Date
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