

2012 Renewable Energy Rebate Program Fact Sheet



Colorado Springs Utilities
It's how we're all connected

Own your own power generation – protect the environment

Colorado Springs Utilities (CSU) is committed to being an environmentally friendly utility. Bringing clean, renewable energy to our community is everyone's responsibility. We want to help you do your part. Solar electric panels, or photovoltaics (PV), convert the renewable energy of the sun into useful electricity that is pollution-free and avoids burning fossil fuels.

The Renewable Energy Rebate Program (RERP) supports and encourages customers to install solar PV generating systems at their homes and businesses, which helps protect the environment, diversifies our energy supply, creates energy independence and reduces our summer peak capacity requirements.

Program overview

Beginning Jan. 1, 2006, CSU began offering business and residential customers a rebate to install solar PV. Combined with federal tax credits for solar (30 percent of the system cost), the RERP is making solar PV an attractive energy solution for our customer-owners to consider. Depending on the installation, 40 percent to 60 percent of the total system cost could be covered by rebates and tax credits. There has never been a better time to invest in solar PV.

Program goals

The RERP was launched with the following objectives:

- Support the intent of Amendment 37, a state law mandating utilities to increase renewable energy supply, now known as the Colorado Renewable Energy Standard
- Provide customer-side renewable energy solutions, in response to moderate customer demand
- Support renewable energy market development in our community
- Increase participation in the Renewable Energy Net Metering Program (see details on the following page)
- Gain experience with small-scale and distributed renewable energy systems; and
- Demonstrate environmental stewardship.

Available budget and rebate rate

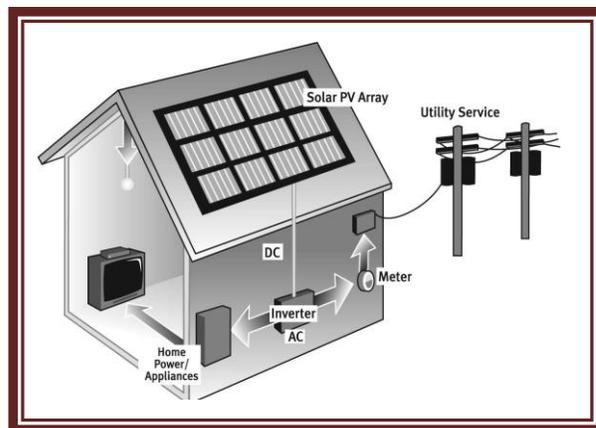
For the 2012 program year, the Utilities Board approved a \$1,083,308 budget for the RERP. The rebate rate for the 2012 program year is \$1.80 per AC watt (see explanation below). CSU plans to continue offering the RERP, pending Utilities Board approval of future program year budgets.

Solar basics

The RERP is designed to encourage solar installations that are connected to the electricity system, or grid. Grid-tied solar systems rely on power conditioning equipment, or inverters, to convert the direct current (DC) electricity produced by the solar panels, or modules, into alternating current (AC) electricity, which is delivered throughout the grid. Here is how a grid-tied system works:

Several PV modules are wired in series to create a PV array (see figure below). The PV modules convert solar radiation into DC electricity, which is fed into the inverter and converted to AC electricity. AC electricity from the system is delivered to the main panel, where it is interconnected to the grid. We provide rebates for this AC power output.

The average size of a residential PV system is 4 kilowatts. A properly designed, 4-kilowatt system will produce enough power to offset nearly all of a typical residential customer's annual electricity consumption.



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Net metering

When customers participate in the Renewable Energy Net Metering tariff, they can receive full credit for the energy produced. A utility meter records the difference between energy produced and consumed (i.e., generation from the PV system offsets retail electricity consumption), and the customer is billed for net consumption, or credited for net generation. Net metering is a significant advantage that increases the value of PV to the customer. To learn more about net metering, see Sheet No. 34 of our tariffs at <http://www.csu.org/residential/customer/documents/electrictariffs.pdf>.

Calculation of rebate payment

Because quality assurance is important, we have designed the RERP to encourage participating customers to design their PV systems for optimum performance. Rebate payments are based on expected power output in AC watts (rather than on the capacity rating of the array in DC watts). Several factors can degrade system performance from the optimum level including: module temperature; orientation (azimuth); tilt and shading of the array; and inverter efficiency. All of these factors affect how AC watts, and ultimately the rebate payment, are calculated. To calculate AC watts and rebate payment the following formulas are used:

1. **AC watts** - (# of modules) x (PTC module rating) x (inverter efficiency) x (de-rating factor for orientation and tilt) x (percent annual shading)
2. **Rebate payment** - AC watts x rebate rate

Where:

- **Number of modules** is the number of PV modules in the PV array.
- **PTC module rating** is the PV USA Test Condition (PTC) rating in watts, which adjusts for the fact that power output decreases as module operating temperature increases. The PTC ratings are different for each module, and can vary from approximately 87 percent to 92 percent of the Standard Test Condition (STC) rating provided by the module manufacturer. A typical decrease in power output is approximately 12 percent for crystalline-based solar modules.
- **Inverter Efficiency** is the power-conditioning efficiency of the inverter at 75 percent load. Efficiencies range from 90 percent to 96 percent depending on the inverter manufacturer and model number.
- **The de-rate factor for orientation and tilt** recognizes that the optimum orientation to maximize power output is south-facing and the optimum tilt angle is approximately 30 degrees from horizontal. Any configurations other than the optimum will degrade system output. The table below provides rate factors for various combinations of orientation and tilt.
- **Percent annual shading** recognizes that any shading of the PV array (by trees, buildings or mountains) will de-rate system output; PV systems do not produce energy when shaded. To determine percent annual shading, a Solar Pathfinder or Solmetric reading must be taken of the PV array location.
- **Rebate rate** is \$1.80 per watt in the 2012 program year.

	De-rating Factor	PV Array Tilt Angle From Horizontal (Degrees)					
		0	18	30	45	60	90
Orientation	South	0.89	0.97	1	0.97	0.89	0.58
	SSE or SSW	0.89	0.97	0.99	0.96	0.88	0.59
	Southeast or Southwest	0.89	0.95	0.96	0.93	0.85	0.6
	ESE or WSW	0.89	0.92	0.91	0.87	0.79	0.57
	East or West	0.89	0.88	0.84	0.78	0.7	0.52

Phases of participation

Participation in the RERP involves five basic phases, as illustrated on the following page:

1. Customer initiates the process by calling **668-8509** to verify availability of funds.
2. Installer (or customer) completes the system design and submits a Reservation Request (RR) form, a W-9, a floor/site plan, an Affidavit of lawful Presence and a signed Interconnection Agreement for Renewable Energy Net Metering.
3. CSU reviews the RR form and conducts a Pre-installation Inspection. If the RR form is approved, funds are reserved and a Reservation Confirmation letter is dated and sent. If the RR form is denied, a Denial Letter is sent, including the reason(s) for denial. If funds are unavailable, RR forms will be placed on a wait list in the order they are received.

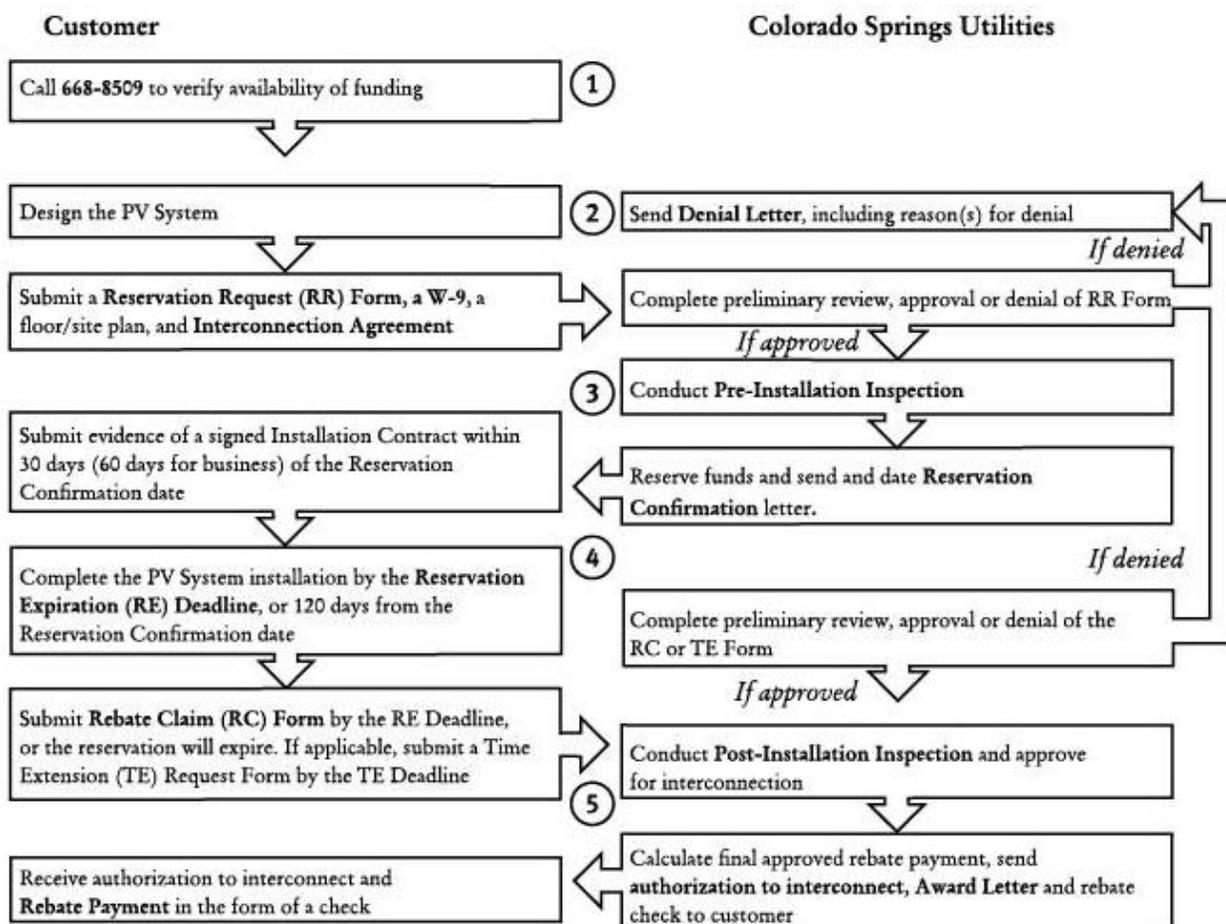
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4. Customer, or their installer representative, have thirty (30) days (sixty (60) days for business) from the Reservation Confirmation date to submit evidence of a signed Installation Contract, or the reservation will be void. Note: Customers installing Systems themselves must submit evidence of a deposit paid on the System components.
5. Customer must complete the installation and submit a Rebate Claim (RC) form by the Reservation Expiration (RE) Deadline, one hundred and twenty (120) days from the Reservation Confirmation date, or the reservation will expire. Funds liberated due to voided or expired reservations will go to the next customer on the wait list. If the reservation was voided or expired due to circumstances out of the customer's control, and the customer wishes to retain the reservation, the customer must submit a Time Extension (TE) Request form by the TE Deadline. TE forms will be reviewed and approved or denied at CSUs sole discretion. Time Extensions will be limited to thirty (30) days.
6. CSU reviews the RC form, conducts a Post-installation Inspection, approves the interconnection of the System, calculates the final rebate payment, and sends an Award Letter and rebate check to the customer.

Submittal deadlines and dates

Submittal	Deadline	Date
Installation Contract	Installation Contract Deadline	30 days (60 days for business) from the Reservation Confirmation Date
Rebate Claim (RC) Form	Reservation Expiration Deadline	120 days from the Reservation Confirmation Date
Time Extension (TE) Request Form (if applicable)	TE Deadline	Reservation Expiration Deadline

2012 Renewable Energy Rebate Program for Photovoltaics Process Flow



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CSU recommends:

- **Qualified installers**

If photovoltaic systems are not properly designed and installed, they may perform below expectations and produce less energy. That is why we recommend that all systems be designed and installed by professional installers certified by the Colorado Solar Energy Industries Association (COSEIA) or the North American Board of Certified Energy Practitioners (NABCEP). To find a complete listing of COSEIA-certified installers, visit: <http://www.coseia.org/> for a list of solar contractors by city.

- **Energy efficiency first**

We recommend that customers make cost-effective energy efficiency upgrades of lighting, appliances and electronics prior to PV installation. This ensures that you get the most out of your investment. Call 448-4800 or visit www.csu.org to find out about CSUs' efficiency rebates and other energy solutions for your home or business.

PROGRAM REQUIREMENTS

General requirements

- This program is for retrofit and new construction applications (with restrictions).
- Systems must be installed at a premise owned by the Customer and receiving CSU electric service, or in the case of new construction, at a premise titled in the Customer's name.
- Account must be current and non-delinquent.
- Equipment purchase(s) must be made, and installation(s) must occur, from January 1 to November 30, 2012.
- Eligible participants must receive electric service under the Renewable Energy Net Metering tariff at the installation premise.
- Total rebate payments may not exceed the total installed cost of the System.
- Reservations, and rebate payments, are offered on a first-come, first-served basis and are subject to eligibility and availability of funds. Reservations are non-transferable. Customers are encouraged to call **668-8509** to verify availability of funds prior to purchasing photovoltaic equipment.
- All environmental attributes generated from Systems installed under the RERP belong to CSU.
- PV system size must not exceed 120% of customer's previous 12-month Kilowatt-hour usage.

Required documentation and submittal deadlines

- Incomplete Reservation Request form(s) or those lacking the following will be denied: (1) a floor/site plan (2) a signed Interconnection Agreement for Renewable Energy Net Metering, (3) a completed IRS Form W-9 and (4) an Affidavit of Lawful Presence in the United States and copy of applicable identification (applies only to sole proprietorship, for business customers).
- Evidence of a signed Installation Contract must be submitted within 30 days (60 days for business) of the Reservation Confirmation Date.
- Incomplete Rebate Claim form(s) or those lacking the following will be denied: (1) an approved copy and final sign-off of the building permit for the installation and (2) a copy of the final purchase and installation invoices. Invoice(s) must be itemized and include date of purchase, purchase price and quantity purchased.
- Rebate Claim forms must be submitted by the Reservation Expiration Deadline or the reservation will expire.
- If a reservation is voided or expires, customers will forfeit their place in the queue for RERP funding and will be required to re-apply by submitting a new RR form. If the reservation was voided or expired due to circumstances out of the customer's control, and the customer wishes to retain the reservation, the customer must submit a Time Extension (TE) Request Form, received by CSU by the TE Deadline. TE forms will be reviewed and approved or denied at CSUs' sole discretion.

Solar photovoltaic system and installation requirements

- Qualifying PV modules must be included in the List of Eligible Photovoltaic Modules found at:
www.gosolarcalifornia.org/equipment/pv_modules.php
- Qualifying inverters must be included in the List of Eligible Inverters found at :
www.gosolarcalifornia.org/equipment/inverters.php
- All PV System components must:
 - a. Comply with the system design standards required in the Installation and Permitting clause (Section 4) of the Interconnection Agreement for Renewable Energy Net Metering
 - b. Be new equipment
 - c. Be for personal use only, NOT FOR RESALE

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PROGRAM REQUIREMENTS

Qualifying Systems must:

- Be owned by the customer and remain interconnected to CSUs' electric system and operational for a minimum of five (5) years, or the rebate payment amount will be billed to the customer.
- Have a minimum System capacity of 500 watts, and a maximum capacity of 10 kilowatts for residential and 25 kilowatts for business.
- Carry manufacturer and/or installer warranties for the following minimum specified period(s) as appropriate for the product installed, from the date of completion of the work. The warranty includes all materials, parts, service calls and labor for the period(s) as appropriate for the product installed.
 - PV system – five (5) years against defects in workmanship. Installer must provide warranty, unless system is installed by Customer.
 - Inverter – five (5) years against manufacturer defects. Manufacturer must provide warranty.
 - PV modules – twenty (20) years against degradation of performance below 80 percent of original output under Standard Test Conditions (STC). Manufacturer must provide warranty.

Qualifying Systems must NOT:

- Be interconnected to the electric system prior to inspection, testing, and written authorization from CSU.
- Be installed with a north-facing orientation (or any orientation other than from 90° East to 270° West).
- Be installed at a site that is more than 50 percent shaded on an annual basis.

Installation site is subject to inspection by CSU staff at any time, and if such site does not have the qualifying equipment installed, the Customer will be billed the rebate payment amount.

Disclaimers

1. **Customer is solely responsible** for installation of all equipment/products to the manufacturer's specifications. Customer is solely responsible for obtaining related building permits and completing the inspection process as required by local jurisdiction. CSU requires the Customer to submit proof of appropriate City/ County/State building permit for System installations prior to issuing rebate payment.
2. **CSU is not a party** – The Customer understands and agrees that CSU is not a party to any contract pertaining to the System installation. The Customer agrees to indemnify, to defend, and to hold harmless CSU its board members, officers, agents and employees against all claims, loss, damage, expense and liability asserted or incurred by other parties, including but not limited to CSUs' employees, arising out of or in any way connected with the RERP, the Interconnection Agreement, and the System, or the System's installation, operation or performance, and caused by acts, omissions, intent or negligence, whether active or passive, of Customer, its agents, employees, and suppliers, and excepting only such loss, damage or liability as may be caused by the intentional act or sole negligence of CSU.
3. **Disclaimer of warranties** – CSU makes no representations or warranties, expressed or implied, regarding the design, sizing, installation, construction, reliability, efficiency, performance, operation, maintenance, or use of any System or any make or model of equipment analyzed, discussed, selected, rejected, installed or otherwise considered by the Customer. Any decisions regarding the selection, design, installation, use and operation of systems and equipment shall be at the sole discretion and are the sole responsibility of the Customer. CSU is not liable or responsible for any act or omission of any contractor whatsoever.

Apply today

RERP rebates are offered on a first-come, first-served basis, and funds are limited. To secure your chances of receiving a rebate payment, apply today. Visit www.csu.org to download a Reservation Request form, or call **448-4800** to request a form by mail.

Log on to <http://www.energydepot.com/cosres/> to learn about saving more with energy-efficient products in your home or business. Our online Energy Efficiency Profile is your comprehensive source for reliable information about your energy use and changes you can make to save time and energy.