

## Own your own power generation – protect the environment

Colorado Springs Utilities (“Springs Utilities”) 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

Springs Utilities began offering business and residential customers a rebate to install solar PV in January 2006. Combined with federal tax credits for solar (thirty percent (30%) of the system cost), the RERP is making solar PV an attractive energy solution for our customer-owners to consider.

### 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

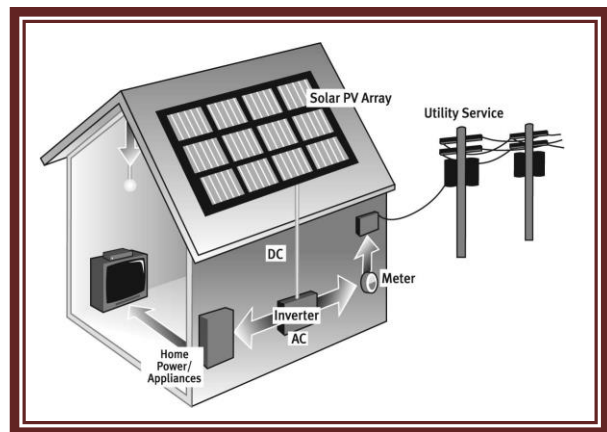
For the 2018 program year, the Utilities Board approved a \$160,000 budget for the RERP, divided between residential and commercial. The rebate rate for the 2018 program year is \$0.25 per AC watt (see calculation below).

### 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 together in a string or multiple strings to create a PV array (see figure below). The PV modules convert solar radiation into DC electricity, which is fed into the inverter(s) 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. Some businesses may wish to retain Renewable Energy Credits for the solar PV they install. No rebate is paid in this instance.

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



# 2018 Renewable Energy Rebate Program Fact Sheet

## 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. The credited energy is carried over, month-to-month, and can be used whenever consumption exceeds 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/CSUDocuments/tariffelec.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. Several factors can degrade system performance from the optimum level. Rebate payments are based on expected power output in AC watts (rather than on the capacity rating of the array in DC watts). 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 unshaded)
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 eighty-seven (87) percent to ninety-two (92) percent of the Standard Test Condition (STC) rating provided by the module manufacturer. PTC module ratings for all RERP qualifying PV modules are listed here: [www.gosolarcalifornia.org/equipment/pv\\_modules](http://www.gosolarcalifornia.org/equipment/pv_modules).
- **Inverter Efficiency** is the power-conditioning efficiency of the inverter at seventy-five (75) percent load. Efficiencies range from ninety (90) percent to ninety-six (99) 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 thirty (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.

	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	0.60
	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

- **Percent annual un-shaded value** 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 unshaded value, a Solar Pathfinder, Solmetric SunEye, or other similar reading must be taken of the PV array location.
- **Rebate rate** is \$.25 per watt in the 2018 program year; applications are accepted year-round on a first come, first serve basis.

# 2018 RENEWABLE ENERGY PHOTOVOLTAIC Fact Sheet

## PHASES OF PARTICIPATION

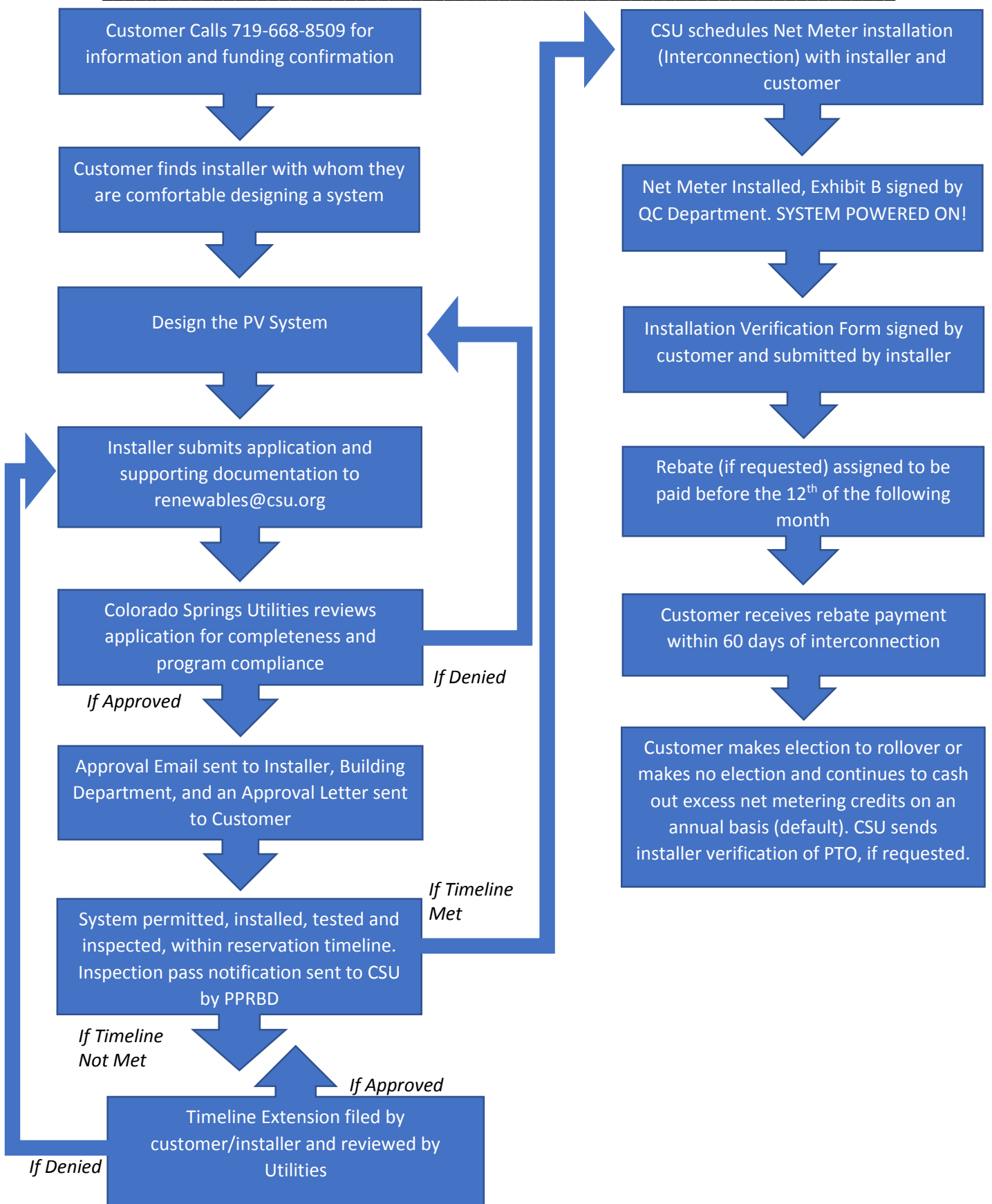
1. Customer initiates the process by calling **719-668-8509** to verify availability of funds and have questions answered.
2. Installer (or customer) completes the system design and submits a Net Metering/Reservation Request (NM/RR) form, a W-9, a Utility Approval Review Package, a copy of applicable identification for the Affidavit of lawful Presence, a copy of the shading analysis, and a signed Interconnection Agreement for Renewable Energy Net Metering.
3. Springs Utilities reviews the customer application. If the application is approved, funds are reserved, and a Reservation Confirmation email is dated and sent to the installer and PPRBD. If the application is denied, a Denial email is sent, including the reason(s) for denial. If funds are unavailable, applications will be placed on a wait list in the order they are received, or will be approved for Non-Rebate Net Metering upon the customer's request.
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 an Installation Verification (IV) form by the Reservation Expiration (RE) Deadline, one hundred 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 Springs Utilities' sole discretion. Time Extensions will be limited to thirty (30) days. If, for whatever reason, the Installation Verification cannot be completed within the 120-day window, the customer may reapply with a new Net Metering and Rebate Reservation form. Applications and resubmissions will always be approved on a first come, first served basis.
6. Springs Utilities reviews the IV form, approves the interconnection of the System, schedules an appointment for Net Meter installation.
7. Once the Net Meter has been installed, Springs Utilities calculates the final rebate payment and sends a rebate check to the customer. Rebates are approved for payment every month before the 12<sup>th</sup>. Rebates are paid once a month, before the end of the month. For your rebate to be paid in a given month, the IV form must be received and approved, and Exhibit B (internal Utilities interconnection document) must be received and processed by the RERP Program Manager before the first of the month.

### Submittal deadlines and dates

Submittal	Deadline	Date
Net Metering/Rebate Reservation (NM/RR) Form	December 31, 2018	December, 2018 – last day to submit NM/RR
Installation Contract	Installation Contract Deadline	Thirty (30) days (sixty (60) days for business) from the Reservation Confirmation Date
Installation Verification (IV) Form	Reservation Expiration Deadline	One hundred twenty (120) days from the Reservation Confirmation Date and prior to Interconnection Inspection
Time Extension (TE) Request Form (if applicable)	TE Deadline	Reservation Expiration Deadline; last day to submit TE is December 31, 2018

# 2018 RENEWABLE ENERGY PHOTOVOLTAIC Fact Sheet

## 2018 Renewable Energy Rebate Program for Photovoltaics Process Flow



# 2018 RENEWABLE ENERGY PHOTOVOLTAIC Fact Sheet

## SPRINGS UTILITIES RECOMMENDATIONS

### Self-Education

Before requesting bids from solar contractors, Springs Utilities recommends educating yourself about how solar works, the different solar options you can pursue (i.e. battery storage), the benefits of using different types of equipment (i.e. string vs micro vs power optimizer inverters). Much information can be found by researching online, but Springs Utilities highly recommends calling 719-668-8509 and speaking with the Renewable Energy Program Manager to begin your research.

### Identify Your Objectives

Solar has the potential to provide many benefits, but not everyone pursues solar for the same reasons. Knowing what you want to get out of a solar project is an essential step before reaching out to installers for proposals. For instance:

- Do you want to install solar to increase your energy independence?
- Do you want to install solar to save money?
- Do you want to install solar to do your part for the environment?
- Do you want to install solar to stay on the cutting edge of technology?
- Do you have tax credit/tax haven goals for the year?
- Do you need to meet renewable energy targets for your organization?
- Will solar help you with branding or marketing? Will it help you tell your story?

### Qualified installers

If photovoltaic systems are not properly designed and installed, they may perform below expectations and produce less energy. Additionally, poorly/improperly installed systems can cause inspection delays and unnecessary complications. Spring Utilities recommends that customers obtain at least three bids from separate installers. We recommend researching installer reviews online, and thoroughly vetting installers over the phone before requesting a bid. Colorado Springs Utilities does not partner with or recommend any installer, but many installers in Colorado Springs and the surrounding areas are very experienced working with the Colorado Spring Utilities Renewable Energy Program. A list of installers who successfully submitted applications to Colorado Springs Utilities in 2017 can be found here: [www.csu.org/pages/renewable-energy](http://www.csu.org/pages/renewable-energy). Colorado Springs Utilities appreciates the economic benefit of a growing renewable energy sector within the service territory and warmly welcomes application submissions from new installers.

### Site Surveys

Springs Utilities recommends that customers request a site survey from each installer providing a proposal. Many aspects of a solar installation cannot be appropriately assessed or determined remotely, and have significant impact on system design, compliance and cost. Most installers perform free site surveys as part of their bidding process. Items that should be assessed with a site survey:

- Electrical set up/electrical plan
- Placement of components, such as inverter(s), meters, disconnect(s)
- Actual roof or site measurements
- Actual production potential
- Condition of roof or site
- Structural condition of your house or building

### 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 719-448-4800 or visit <https://www.csu.org/Pages/residential.aspx>, and select WAYS TO SAVE to find out about Springs Utilities' efficiency rebates and other energy solutions for your home or business.

# 2018 RENEWABLE ENERGY PHOTOVOLTAIC Fact Sheet

## PROGRAM REQUIREMENTS

### General requirements

- Reservation Request forms will be accepted beginning January 2, 2018.
- Systems must be installed at a premise owned by the Customer and receiving Springs Utilities electric service, or in the case of new construction, can be installed in the account holder's name (usually the builder) and then transferred to the homeowner.
- Account must be current and non-delinquent.
- Equipment purchase(s) and installation(s) must occur, from January 2 to December 31, 2018 and only after the Reservation Request form has been approved.
- 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 **719-668-8509** to verify availability of funds prior to purchasing photovoltaic equipment.
- All environmental attributes generated from Systems installed under the RERP belong to Springs Utilities, if a rebate is assigned.
- PV system size must not exceed one hundred twenty (120) percent of customer's previous twelve (12)-month kilowatt-hour usage at the single premise meter where the System will be interconnected, or 10kWAC for residential systems.

### Required documentation and submittal deadlines

- Incomplete Net Metering/Reservation Request form (NM/RR) or those lacking the following will be denied: (1) a floor/site plan, wide view meter picture, line diagram, specification sheets (2) a signed Interconnection Agreement for Renewable Energy Net Metering, (3) a completed IRS Form W-9, (4) a copy of applicable photo identification for the Affidavit of Lawful Presence (applies only to sole proprietorship, for business customers) and (5) a copy of the shading analysis conducted at the installation site.
- Evidence of a signed Installation Contract must be submitted within thirty (30) days [sixty (60) days for business] of the Reservation Confirmation Date.
- Incomplete Installation Verification form(s) or those lacking a copy of the final purchase and installation invoices will be denied. Invoice(s) must be itemized and include date of purchase, purchase price and quantity purchased.
- Installation Verification forms must be submitted by the Reservation Expiration Deadline and prior to the interconnection inspection.
- 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 NM/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 Springs Utilities by the TE Deadline. TE forms will be reviewed and approved or denied at Springs Utilities' 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](http://www.gosolarcalifornia.org/equipment/pv_modules).
- Qualifying inverters must be included in the List of Eligible Inverters and meet Pikes Peak Regional Building Department arc fault requirements: [www.gosolarcalifornia.org/equipment/inverters](http://www.gosolarcalifornia.org/equipment/inverters).
- 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 and all local Pikes Peak Regional Building Department requirements.
  - b. Be new equipment and for personal use only, NOT FOR RESALE

### Qualifying Systems must:

- Be owned by the customer and remain interconnected to Springs Utilities' 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 five hundred (500) watts, and a maximum capacity of ten (10) kilowatts for residential and one hundred (100) kilowatts for commercial customers. Commercial systems over 100kW will be reviewed and approved, case-by-case, at Utilities sole discretion.

# 2018 RENEWABLE ENERGY PHOTOVOLTAIC Fact Sheet

- 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 eighty (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 Springs Utilities.
- Be installed with a north-facing orientation (or any orientation other than from 90° East to 270° West), to receive a rebate.
- Be installed at a site that is more than fifty (50) percent shaded on an annual basis, to receive a rebate.

Installation site is subject to inspection by Springs Utilities 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. Springs Utilities requires the Customer to pass the appropriate City/ County/State building permit inspection for System installation prior to issuing rebate payment.
2. **Springs Utilities is not a party** – The Customer understands and agrees that Springs Utilities is not a party to any contract pertaining to the System installation. The Customer agrees to indemnify, to defend, and to hold harmless Springs Utilities 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 Springs Utilities' 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 Springs Utilities.
3. **Disclaimer of warranties** – Springs Utilities 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. Springs Utilities 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](http://www.csu.org) to download a Reservation Request form, or call **719-448-4800** to request a form by mail.