

# SOLAR NOW!

GOOD ENERGY for OREGONIANS

## Build Oregon's Solar Future

There's never been a better time to go solar, right here in Oregon. Whether you live in Portland, Pendleton, Redmond or Roseburg, solar makes sense. With a solar electric or solar water heating system, you can:

- Enjoy free, reliable energy
- Reduce project costs by over half with incentives and tax credits
- Tap into abundant Oregon sunshine
- Be an energy leader

### Solar Now! makes it easy

Four Oregon organizations have teamed up to help Oregon homeowners learn about and install solar energy systems. **Solar Oregon** and **Energy Trust of Oregon**—both nonprofits—are working with **City of Portland Bureau of Planning and Sustainability** and **Oregon Department of Energy** to offer you:

- Free workshops and expert advice
- Cash incentives from Energy Trust\*
- State of Oregon energy tax credits
- Information about federal tax credits
- Referrals to qualified contractors
- Access to affordable financing

To learn more or attend a free workshop in your area, go to [www.SolarNowOregon.org](http://www.SolarNowOregon.org) or call **1-877-546-8769**.

*\* Energy Trust solar electric incentives are available to Oregon customers of Portland General Electric and Pacific Power. Solar water heating incentives are available to Oregon customers who heat their water with electricity from PGE or Pacific Power or natural gas from NW Natural or Cascade Natural Gas. If you are not a customer of these utilities, go to [www.solarnoworegon.org/otherincentives](http://www.solarnoworegon.org/otherincentives) to learn about opportunities in your area.*

**The Solar Now! campaign connects Oregonians with the resources and assistance they need to choose solar energy. Solar Now! is brought to you by Solar Oregon, City of Portland Bureau of Planning and Sustainability, Energy Trust of Oregon and Oregon Department of Energy.**

### Is Oregon sunny enough for solar?

Yes! Even Portland and the rainy Willamette Valley receive as much sunshine annually as the average U.S. city. In fact, solar is Oregon's most abundant renewable resource. Today, more than 17,000 Oregon households use solar energy systems to generate electricity or heat water.

### Did you know?

Half of the electricity we use in Oregon is generated by power plants that burn fossil fuels. The emissions from these plants contribute to climate change and pollution. The sun is a clean, renewable source of energy that can help us reduce our dependence on fossil fuels.

### Is your house good for solar?

Solar works best on south-facing roofs, though east or west oriented roofs may be suitable as well. There should be little or no shading from trees, buildings, chimneys or roof gables on or adjacent to your home. Remember, locations with no shading in winter may be shaded by spring and summer foliage.



# Solar Systems 101

## What is a solar energy system?

The two most common solar energy systems that you can add to your home: solar water heating and solar electric. A solar water heating system preheats the water that goes into your existing water heater, which reduces the amount of gas or electricity your water heater consumes.

A solar electric system generates electricity that can be used throughout your home, which reduces the amount of electricity you need to purchase from your power company. When your system generates more electricity than you use, the excess goes into the grid and you receive a credit from your utility.

## How much do solar energy systems cost?

System prices vary. A typical solar water heating system costs \$6,500–\$10,000.

For a solar electric system, the cost depends on the size of the system and the ease of installation, with an average cost range of \$8,000–\$11,000 for each kilowatt (kW) of capacity. However, incentives and tax credits can cover up to 70 percent of the cost. And low-interest rate financing is available with GreenStreet lending through Umpqua Bank (an Equal Housing Lender).

## How does a solar energy system increase a home's value?

A solar system has the combined benefit of reducing your energy costs and may add value to your home. The added value is up to 20 times your annual energy cost savings, according to *The Appraisal Journal*.

At today's electricity and gas prices, a solar water heating system or a 2-kilowatt solar electric system could each save the average family of four \$175 or more a year. Based on these savings, each system could add up to \$3,000 to the value of a home.

## How do you choose the right type of solar energy system?

A solar water heating system is one of the most affordable ways to go solar and can offset one of the biggest energy users in your home. Residential solar water heating systems typically save 1,500–3,000 kilowatthours (kWh) of electricity or 80–150 therms of gas per year. That's 60% of the energy used to heat water in an average Oregon home. In the summer, your system may meet 100% of your hot water needs.

With a solar electric system, energy production is directly proportional to system size. In Portland, a 1-kilowatt solar electric system, optimally oriented with minimal shade, will produce approximately 1,000 kWh per year. A 3-kilowatt residential system will supply about 3,000 kWh annually, or 25% of an average Oregon home's annual electricity needs (an average four-person household uses 12,000 kWh/year). Improving your home's energy

efficiency will reduce your energy use so your solar system will meet a higher percentage of your needs.

## What components are installed with a solar energy system?

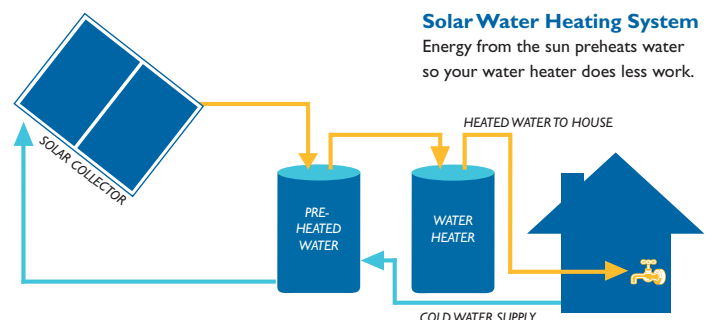
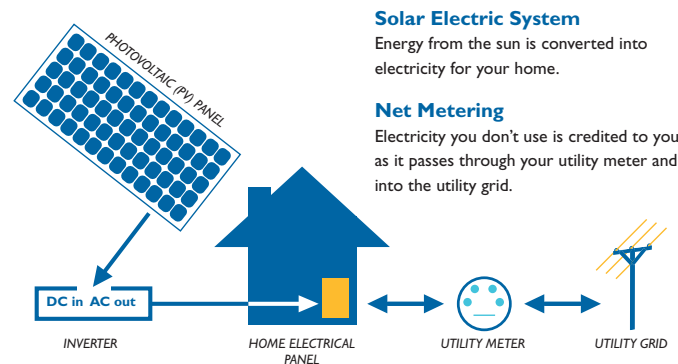
Both solar electric and solar water heating systems utilize panels that are most commonly mounted on your roof. Solar water heating panels, called collectors, are usually 30-50 square feet in size. A typical system has one or two collectors. Photovoltaic panels require about 100 square feet of area for each kW installed.

A solar water heating system typically includes an 80-gallon solar storage tank that is installed near your existing electric or gas water heater. Both conventional tank and tankless units are compatible with solar water heaters. If you don't have room for a second tank, units that contain the solar storage and an electric water heater in a single 120-gallon tank are available.

A solar electric system includes a wall-mounted inverter to change the DC electricity produced by the panels into AC "household" electricity. The inverter is a little bigger than a briefcase and can be installed indoors near your breaker panel or outdoors in a shaded location.

## Can homeowners install their own solar energy system?

Yes. However, to qualify for an Energy Trust incentive, a system must be installed by an eligible contractor. To be eligible for a state energy tax credit, a system must pass an Oregon Department of Energy inspection.



## Cost Examples

The following treatment of tax incentives does not constitute tax advice and cannot be used to avoid IRS penalties. The prices listed below are examples only.

### Solar electric system—2,000 watts

*Pacific Power customer\**

\$20,000	Total installed cost ***
- \$4,000	Energy Trust incentive (\$2.00/watt)
\$16,000	Amount homeowner pays contractor
- \$6,000	Oregon tax credit (\$3.00/watt, \$6,000 cap)
- \$4,800	Federal tax credit (30% of \$16,000)
\$5,200	Final cost to homeowner

\*\*\*Solar electric systems costs vary and depend on size. Typical systems range from \$8-\$11 per watt installed.

### Solar water heating system—2,200 kWh/year

*PGE Customer\**

\$8,500	Total installed cost**
- \$880	Energy Trust incentive (\$0.40/kWh)
\$7,620	Amount homeowner pays contractor
- \$1,320	Oregon tax credit (\$0.60/kWh, \$1,500 cap)
- \$2,000	Federal tax credit (30% of \$7,620, \$2,000 cap)
\$4,300	Final cost to homeowner

\*\*Prices for solar water heating systems range from \$6,500-\$10,000.

## Tax Credits and Incentives

### Solar electric

#### Tax credits

*Oregon:* \$3.00 per watt, up to \$6,000

\$1,500 claimed per year over 4 years

*Federal:* 30% of installed cost less cash incentives

#### Energy Trust incentive

Up to \$20,000, based on rated capacity of solar panels in watts<sub>DC</sub>

*PGE customers\*:* \$2.25 per watt<sub>DC</sub>

*Pacific Power customers\*:* \$2.00 per watt<sub>DC</sub>

### Solar water heating

#### Tax credits

*Oregon:* \$0.60 per kWh, up to \$1,500

*Federal:* 30% of installed cost less cash incentives, up to \$2,000

#### Energy Trust incentive

Up to \$1,500, based on rated annual energy savings

*Electric hot water:* \$0.40/kWh (PGE/Pacific Power customers\*)

*Gas hot water:* \$0.30/kWh (NW Natural/Cascade Natural Gas customers\*)

*State tax credits and incentives also available for solar pool heating.*

**\*If you are not a customer of these utilities, go to [www.solarnoworegon.org/otherincentives](http://www.solarnoworegon.org/otherincentives) to learn about opportunities in your area.**

## Choosing a Solar Contractor

Many reputable solar contractors provide services in Oregon. Energy Trust maintains a list of licensed solar trade ally contractors, which is available at [www.energytrust.org/solar](http://www.energytrust.org/solar). Oregon Department of Energy maintains a list of tax credit-certified solar technicians at [www.oregon.gov/ENERGY](http://www.oregon.gov/ENERGY). The contractors on these lists are trained to meet program requirements and complete incentive and tax credit applications, but neither Energy Trust nor the State of Oregon endorse or guarantee their performance. It is your responsibility to interview and select your contractor carefully.

### Questions to ask a solar contractor

**What is your CCB license number?** All contractors in the State of Oregon are required to have a Construction Contractor's Board (CCB) license. Before asking for bids, verify that their license is active and review their history at [www.hirelicensedcontractor.com](http://www.hirelicensedcontractor.com).

**What kind of solar experience do you have?** Ask potential contractors how many systems of the type you're considering they have installed and request references. If you are considering both solar water heating and solar electric, you may want to consider a contractor who can install the systems simultaneously.

**What kind of warranty and maintenance agreement do you offer?** A system warranty is essential. Energy Trust trade allies and Oregon Department of Energy tax credit-certified technicians must provide a two-year system warranty that covers any repairs resulting from defects in equipment or contractor workmanship. However, some installers offer longer warranties.

**What products does your company offer?** If you are looking for a particular style or brand of product, confirm that your contractor is authorized to install what you want. Some contractors offer only one brand of inverter, module or collector.

### Tips for evaluating bids

Make sure the bids you receive are based on the same criteria. Solar water heating system bids should estimate the energy the system will save annually in kilowatt hours or therms. Solar electric system bids should state system size in watts or kilowatts, and estimate the electricity the system will produce yearly. Both should include all costs associated with the project, including hardware, installation, permitting and warranties.

Questions? Call **1-877-546-8769**  
or go to [www.SolarNowOregon.org](http://www.SolarNowOregon.org).



## Resources



[www.solaroregon.org](http://www.solaroregon.org)



[www.oregon.gov/ENERGY](http://www.oregon.gov/ENERGY)  
1-800-221-8035



[www.energytrust.org](http://www.energytrust.org)  
1-866-368-7878



[www.portlandonline.com/bps/solar](http://www.portlandonline.com/bps/solar)  
503-823-7581

## Easy Steps to Solar

- Attend a free solar workshop.
- Consider your budget, roof life and sun exposure. Affordable financing available through GreenStreet Lending.
- Get bids from several solar contractors. (Must be listed with Energy Trust if applying for cash incentives or GreenStreet Lending financing and with Oregon Department of Energy if applying for tax credits).
- Select a contractor.
- Sign a contract with your installer and an Energy Trust application, if you are eligible.\*
  - Your contractor will submit the application to Energy Trust to secure your incentive. Systems must be pre-approved before installation.
  - Energy Trust pays your incentive to the contractor and the contractor deducts it from the installation cost up front.
- If installing solar electric, sign a net-metering agreement with your electric utility. Your contractor will provide the form.
- Your contractor installs your system.
  - From the time you select your contractor to installation completion usually ranges from two weeks to two months.
- Complete and submit the application for your Oregon Residential Energy Tax Credit. Your contractor will provide the form and assist you.
  - Oregon Department of Energy will provide you with a tax credit certificate for your files.
  - Complete IRS Residential Energy Credit Form 5695 to submit with your federal tax return.
  - Claim your federal and Oregon tax credits when you file your income tax returns.

*\* Energy Trust serves Oregon customers of PGE, Pacific Power, NW Natural and Cascade Natural Gas. If you live outside Energy Trust's service territories, please visit [www.solaroregon.org/otherincentives](http://www.solaroregon.org/otherincentives) to see if your utility provides incentives for solar installations.*

The Solar Now! campaign sponsors—Solar Oregon, Oregon Department of Energy, Energy Trust of Oregon and City of Portland Bureau of Planning and Sustainability—do not install solar energy systems or equipment. This work is done by independent businesses that are solely responsible for the quality and performance of their installations. Energy Trust of Oregon provides financial incentives and quality assurance. Oregon Department of Energy provides tax credits. City of Portland Bureau of Planning and Sustainability provides Portland residents with customer service, information and resources. Solar Oregon provides solar workshops, tours and education.

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