

## Renewable Energy Fact Sheet

### Solar Energy

There has been increasing interest among EPUD customers in harnessing the power of clean and renewable energy to help offset a portion of the energy use at their home or business. As a public utility founded on principles of local control, energy conservation, and renewable energy, it is natural for EPUD to support the development of small-scale power systems in our service territory where it is beneficial to all our Customer-Owners. The goal of this fact sheet is to help those interested in developing solar energy systems for themselves.



#### What is a solar energy system?

In Oregon, solar electric and solar water heating systems make up the majority of solar-powered energy systems. Installing a solar water heater provides a powerful pre-heat to residential electric water systems, reducing the amount of electricity required to heat water for your demands.

We consider a solar electric system 25 kilowatt (kW) or less in size residential-scale. These systems produce electricity usable in your home or business that offsets the amount of power purchased from EPUD.

When your solar electric system produces more than your home consumes, the surplus is returned to the electric grid and you may receive a credit from EPUD.

#### How do solar power systems do in Oregon? Is my home or business appropriate for solar?

Even the Southern Willamette Valley receives as much sunshine as the average U.S. city. While the solar resource is not as abundant as in the desert southwest, many Oregonians are investing in solar energy systems. In Oregon, more than 17,000 households use solar energy systems to generate electricity or heat water.

Solar systems work best on south- or southwest-facing roofs. East or west facing surfaces may also work. It's important to minimize the shading from trees, buildings, chimneys or roof gables.

#### How much do solar energy systems cost?

Solar electric system prices vary depending on the contractor and the system configuration. Typical solar water heating systems cost about \$6,500 to \$10,000, depending on a variety of site factors. Typically, contractors will measure the average cost in terms of the installed capacity. For example, systems can cost \$8 to \$11 per installed watt of solar capacity. Incentives and tax credits can cover more than 50% of the total cost.

#### What effect do solar energy systems have on my home's value?

A solar system has the combined benefit of reducing your energy costs and may add value to your home. The benefit 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: your electric water heater. Residential solar water

heating systems typically save 1,500–3,000 kilowatt-hours (kWh) of electricity. 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 EPUD's service area, a 1-kilowatt solar electric system, optimally oriented with minimal shade, will produce a little more than 1,000 kWh per year. A 3-kilowatt residential system will supply about 3,000 kWh annually, or 20% of an average EPUD customer's annual electricity needs. Improving your home's energy efficiency will reduce your energy use so your solar system will meet a higher percentage of your needs.



### What equipment makes up a solar energy system?

In most applications, both solar electric and solar water-heating systems utilize panels mounted on your roof. Solar water heating panels, called collectors, are usually 30-50 ft<sup>2</sup> in size. A typical system has one or two collectors. Photovoltaic panels require about 100 ft<sup>2</sup> of area for each kW installed.

A solar water heating system typically includes an 80-gallon solar storage tank installed near your existing 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 electricity to be used by your home or business. The inverter is a little bigger than a briefcase and installs indoors near your breaker panel or outdoors in a shaded location.

### What is EPUD Net-Metering?

Qualified net-metered solar electric systems will be interconnected with the EPUD electric grid. The State of Oregon obligates EPUD to enter into net-metering agreements with renewable energy facilities with rated capacities of 25 kW or less.

As a net-metered facility, EPUD will allow the customer-generator to "bank" any surplus electricity produced by means of a credit on their bill. EPUD will install a bi-directional meter that will "spin backwards" during those periods where a customer-generator is producing more electricity than they are consuming. Interconnecting the system lowers the overall cost of the facility because it avoids costly battery storage.

### What are the benefits?

The economic benefits of installing a solar energy system are dependent on your particular site and the size of your installed system. It is very important to understand what kind of resource you have on your property. There are certainly environmental benefits from offsetting a portion of your home's energy use with clean and renewable energy produced right in your backyard.



# Overview of Tax Credits and Incentives

## SOLAR ELECTRIC RESIDENTIAL

### Tax Credits—

Oregon: \$3/installed watt, up to 6,000 (\$1,500 claimed per year, over 4 years)

Federal: 30% of total installed cost, less any cash incentives

### EPUD Incentives—

\$1.50/watt up to \$5,000 based on rated capacity of solar panels in Watts

## COMMERCIAL

### Tax Credits—

Oregon: 50% of eligible cost claimed over 5 years at 10% of eligible cost/year, eligible cost may be capped, must apply before equipment purchase

Federal: 30% of total installed cost, less any cash incentives, IRS Form 648– Investment Credit (business claims credit on return, doesn't need to “apply” for credit)

### EPUD Incentives—

\$1.50/watt up to \$10,000 based on rated capacity of solar panels in watts

## SOLAR WATER HEATING RESIDENTIAL

### Tax Credits—

Oregon: \$0.60 per kilowatt-hour, up to \$1,500

Federal: 30% of total installed cost, less any cash incentives

### EPUD Incentives—

\$600 for each eligible solar water heating system, zero-interest loan up to \$7,500 for qualified customers, take up to 60 months to repay

## COST EXAMPLES

The following treatment of tax and utility incentives does not constitute tax advice. To avoid IRS penalties, please consult with a tax professional.

### Residential Solar Electric System – 2,000 watts

\$19,000	Total Installed Cost *
- \$3,000	EPUD Incentive: \$1.50/watt
\$16,000	Amount Homeowner Pays Contractor
- \$6,000	OR Tax Credit: \$3/watt w/\$6,000 cap**
- \$4,800	Federal Tax Credit: 30% of \$15,000
<b>\$5,200</b>	<b>Final Cost to Homeowner</b>

### Commercial Solar Electric System – 10,000 watts

\$95,000	Total Installed Cost*
- \$15,000	EPUD Incentive: \$1.50/watt
\$80,000	Amount business pays contractor
- \$41,563	OR Tax Credit: 50% of eligible costs**
- \$24,000	Federal Tax Credit: 30% of \$80,000
<b>\$14,437</b>	<b>Final Cost to Business</b>

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

\*\*Maximum Eligible Costs (MECs) vary by project. Typical MEC is 10-15% less than total costs.

NOTE: Credits and incentives are subject to change.

## FOR MORE INFORMATION

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

Oregon Solar Energy Industries Assn.  
[www.oregonseia.org](http://www.oregonseia.org)  
(503) 236-0367

Energy Star  
[www.energystar.gov](http://www.energystar.gov)  
(503) 236-0367

Lane County Land Management  
[www.lanecounty.org/PW\\_LMD](http://www.lanecounty.org/PW_LMD)  
(541) 682-3823

## Steps for Participation

- ◆ Call or email EPUD to discuss general operational characteristics of solar electric systems, your goals for installing a solar electric system, and details about our incentive program.
- ◆ Consider the characteristics of your home or business. What are your budget, roof life, and sun exposure? While there are many great incentives available for EPUD customers wishing to go solar, will additional financing be required too?
- ◆ Working from EPUD's list of qualified solar professionals, get bids from multiple contractors. If you are applying for Oregon Department of Energy Tax Credits, then contractor must be listed with them too.
- ◆ Select a contractor and complete your chosen contractor's contract for work, if provided.
- ◆ Complete and submit the EPUD Application for Generation Interconnection and Customer Incentive provided by your installer to secure your utility incentive. After EPUD receives and approves the required documentation, you and your contractor will receive written notice to proceed with the installation.
- ◆ An EPUD Net Metering Agreement is required for all grid-tied solar electric systems. Please sign and return to EPUD this Contractor-provided form.
- ◆ After EPUD ensures that you have the correct bidirectional meter in place for your system, your selected installer completes the installation of your system. Typical time for completion ranges significantly based on contractor schedules, but can be six to ten weeks.
- ◆ Your system will undergo building and electrical inspections by Lane County. In addition, EPUD will provide a final inspection to ensure the installation meets utility specifications and customer expectations. EPUD releases the incentive once the contractor provides final invoices to EPUD.

