

Solar Electric System (Photovoltaic)

Oregon Department of Energy

ELIGIBILITY – To qualify for a tax credit, you must have an Oregon income tax liability. The photovoltaic system must be attached to real property (e.g. no RVs or house boats) associated with your primary or secondary residence. All equipment must be new (not previously used). The tax credit is claimed when you file your state income tax. Systems must be installed according to state license and permitting laws. All photovoltaic systems installed at a residence within a 5 year period are considered a single device, as limited by the maximum credit amounts.

CREDIT AMOUNT - The Oregon Residential Energy Tax Credit Program provides a tax credit for photovoltaic systems of \$3 per peak watt of installed capacity. The maximum credit for a PV system installed on or after November 4, 2005 is \$6,000. The maximum credit that can be claimed in any one year is \$1,500 maximum per year, not to exceed 50 percent of the net cost of the system after utility incentives and/or Federal tax credits. The amount of the tax credit may be reduced if the system has losses from sub-optimal tilt, orientation or external shading. The attached “sunchart” worksheet is used to determine the combined impact of tilt, orientation and external shading on system performance.

SYSTEM VERIFICATION – An Oregon Department of Energy tax credit certified solar PV technician must install or verify installation of the system to qualify for the tax credit. A list of companies that employ tax credit certified solar PV technicians can be found on the Oregon Department of Energy’s Web site. Homeowners, who install their own PV systems or use a solar PV technician who is not tax credit certified, should contact a tax credit certified solar PV technician to verify that their system meets Residential Energy Tax Credit standards. For homeowners who live in areas where there is no tax credit certified solar PV technician within 100 miles, please call the Oregon Department of Energy (1-800-221-8035) to discuss verification of the system.

PASS-THROUGH OPTION – If you are a full-time Oregon resident and do not have an Oregon income tax liability, you may choose to transfer your tax credit to another full-time Oregon resident or Oregon business that does have tax liability. The Pass-through Option will allow you to transfer your tax credit to an individual or business with an Oregon tax liability who will make a lump-sum payment to you based on a percentage of the certified tax credit amount. To use this option, complete this application form first. Your application will be reviewed for eligibility. A Pass-through Option Application will be sent to you in return. You and your pass-through partner (the tax credit recipient) will complete and sign the Pass-through Option Application and mail it to the Oregon Department of Energy. You are responsible for finding your own pass-through partner. The Oregon Department of Energy will then issue the tax credit certification to the pass-through partner. The pass-through option is a one-time transfer and is final. There may be tax implications. We advise you to consult with your tax preparer.

PROCESS – Don't wait to apply for the tax credit. The Oregon Department of Energy should receive the application **no later than April 1** of the year following the purchase to get a tax credit Certificate back by the April 15 filing deadline.

Take the following steps to receive your tax credit:

1. **Submit a completed Application and Verification Form for Tax Credit Certification Photovoltaic System.** Your tax credit certified solar technician should complete the technical sections, sun chart, and the technician verification section of the form. Once completed, mail the signed application to the Oregon Department of Energy. Include the sun chart, proof of payment (dated receipts, contracts, or invoices marked paid by your technician). If the paperwork you submit demonstrates that your system qualifies for the tax credit, the Oregon Department of Energy will approve your application and send you a signed Certification specifying the qualifying tax credit amount.
2. **Claim the tax credit on your state income tax form each year for four (4) years (maximum of \$1,500 per year).** The credit must be claimed starting in the tax year in which the alternative energy device was purchased (down payment) if the device is operational by April 1 of the next following tax year. Proof of purchase must be a contract or invoices dated in the year for which the applicant is claiming the credit.
3. **Keep your Certification, a copy of your application, and proof of payment with your tax records.** (Do not attach them to your tax return.) If your return is audited, the Oregon Department of Revenue will request copies of the information from you. Tax credits not taken in the first year may be carried forward up to five years.

If you have questions concerning claiming the credit on your Oregon tax return, contact the Oregon Department of Revenue at 1-800-356-4222 or 503-378-4988.

If you have any questions, please call the Oregon Department of Energy toll-free: 1-800-221-8035. (In Salem, call 503-378-4040.) Or consult the Department of Energy Web site (www.oregon.gov/energy).





Application and Verification Form
for Residential Energy Tax Credit Certification

Solar Electric System (Photovoltaic)

Oregon Department of Energy

625 Marion St. NE
Salem, OR 97301-3737
Toll-free: 1-800-221-8035
Salem: (503) 378-4040 Fax (503) 373-7806
Web site: www.oregon.gov/energy

Don't forget...
...to sign your application
and include your receipt

1. APPLICANT INFORMATION (Homeowner completes)			
Name:		Social Security No.*:	
Mailing address:		Daytime phone:	
City:	Oregon County:	State:	Zip:
Site address (if different):			
City:	Oregon County:	State:	Zip:
If different than mailing address, please explain:			
Name of electricity utility company:			
Name of natural gas utility company:			
Purchase Date:		Operational Date:	
		Number of People in Household:	
Installation date:		Number of people in household:	
2. SYSTEM DESCRIPTION (Tax credit certified technician completes)			
System Type (check one)			
<input type="checkbox"/> Utility Independent system ("off-grid" – not connected to an electric utility)			
<input type="checkbox"/> Utility Interactive system (connected to electric utility services) Ask your electric utility about net metering. It allows you to run your meter backwards when you have surplus solar electric power and credit your electric bill for the kilowatt hours produced.			
Expansion of existing system capacity (if applicable)			
<input type="checkbox"/> Application is for new capacity being added to an existing system. Previous peak PV capacity of system: _____ watts.			

* The request for your Social Security Number is authorized by Section 405, Title 42, of the United States Code. You must provide this information. It is used to establish your identity for tax purposes only.

FOR OFFICE USE ONLY
File no.:
Date received:
Tax credit amount: \$
Tax year:

2. SYSTEM DESCRIPTION (Continued)

PV Modules

1. Module manufacturer: _____ Model: _____
2. Rated peak output per module (name plate): _____ watts
3. Number of modules: _____
4. Peak PV capacity (multiply line 2 by line 3) : _____ watts
(this is additional new capacity and must be at least 200 watts)
5. Total capacity of system (including previous capacity if applicable) _____ watts

Inverter

6. Inverter manufacturer: _____ Model: _____

Energy Storage (if present)

7. Charge controller manufacturer: _____ Model: _____
8. Battery manufacturer: _____ Model: _____
9. Number of batteries: _____ Storage: _____ kWh

3. SYSTEM PERFORMANCE ESTIMATION (Tax credit certified technician completes)

10. Total Solar Resource Fraction %
(from Step 4 of Solar Site Assessment Worksheet)
11. Annual Solar Resource for location¹ kWh/yr-kWp
12. System Efficiency Modifier² %
13. Estimated Annual Production (line 4 x line 10 x line 11 x line 12) kWh

4. TAX CREDIT CALCULATION (Tax credit certified technician completes)

The Oregon State tax credit is the **lesser** of **\$6,000**, **50% of the Net System Cost** or **\$3.00 per watt** (\$2.25 per watt for systems with TSRF between 50% and 75%).

Net System Cost Calculation

14. System Cost (attach invoice to this application) \$ _____
15. Utility Incentive (from Energy Trust of Oregon or local utility)..... \$ _____
16. Federal Tax Credit (subtract line 15 from line 14 then multiply by 0.3) \$ _____
17. **Net System Cost** (lines 15 and 16 subtracted from line 14)..... \$ _____
18. **50% of Net System Cost** (line 17 divided by 2) \$ _____

Tax Credit Calculation

19. If TSRF (line 10) \geq 75%, multiply line 4 x \$3.00/watt..... \$ _____
20. If 50% \leq TSRF (line 10) < 75%, multiply line 4 x \$2.25/watt \$ _____
21. **Tax Credit** is the lesser of lines 18, 19 or 20 (max \$6000) \$ _____

(Tax credit taken at a maximum rate of \$1,500 per year)

¹ Solar Resource data is based on PVWatts calculator with assumed system efficiency of 80%. Units are expressed in kWh/yr-Wp.

Astoria	1.03	Burns	1.39	Eugene	1.14
Medford	1.32	North Bend	1.26	Portland	1.08
Pendleton	1.31	Redmond	1.43	Salem	1.14
Hood River	1.19				

¹ Grid-tied systems w/o batteries = 100% Grid-tied with battery backup = 90%, Off Grid systems = 80%.

² Grid-tied systems w/o batteries = 100% Grid-tied with battery backup = 90%, Off Grid systems = 80%.

5. PASS-THROUGH OPTION (Homeowner completes)

No - I want to keep the full tax credit myself

Yes - I want to transfer my tax credit to **Oregon resident** **Oregon business (see below)**

- If your solar PV tax credit is \$1,500 or less:
 - Your pass-through partner (either resident or business) will pay you 95% of the certified tax credit amount
 - Your pass-through partner will receive 100% of the tax credit to be taken in one year
- If your tax credit is more than \$1,500:
 - And your pass-through partner is a full-time Oregon resident, the partner will pay you 86% of the certified tax credit amount
 - And your pass-through partner is an Oregon business, the partner will pay you 80% of the certified tax credit amount
 - Your pass-through partner (either resident or business) will receive 100% of the tax credit with a maximum amount of \$1,500 filed per year

To use this Pass-through Option, complete this application form first. Your application will be reviewed for eligibility. A Pass-through Option Application will be sent to you in return. You are responsible for finding your own pass-through partner (either a full-time Oregon resident or a business with Oregon state tax liability). You and your pass-through partner (the tax credit recipient) will complete and sign the Pass-through Option Application and mail it to the Oregon Department of Energy. The Oregon Department of Energy will then issue the tax credit certification to the pass-through partner. **Important: The pass-through is a one-time transfer and is final. There may be tax implications. We advise you to consult with your tax preparer.**

6. TECHNICIAN VERIFICATION (Tax credit certified technician completes)

To be completed by a tax credit certified solar PV technician who should **initial** if statements are **TRUE**. Homeowners who live in areas where there is no tax credit certified solar PV technician within 100 miles, please call the Oregon Department of Energy (1-800-221-8035) to discuss verification of the system.

Annual Energy Production and Savings

_____ Estimate annual useful energy production of system: _____ kWh per year

System Documentation

_____ Owner has a system manual and instruction for regular and emergency operation and required maintenance of the system.

_____ System has been properly permitted and inspected by local code jurisdiction.

Jurisdiction: _____ Permit number: _____

System Quality and Longevity

_____ Owner a written _____ month full warranty for the system. The Oregon Department of Energy requires that Tax credit Certified Technicians and their employers provide at minimum a 24-month full warranty (all parts and labor). (If homeowner installed, warranty applies to equipment only.)

_____ System and all equipment are new (not previously installed or used).

I verify the above items are true and that this system meets all the requirements of ORS 469.160 through 469.180 and complies with all local building code requirements. By signing below, I certify that the system described in this application is installed and that **all the information contained herein is accurate and true.**

Tax credit certified technician's name (please print): _____

Tax credit certified technician's company: _____

Phone No.: _____ Date: _____

Tax credit certified technician's signature: _____

7. HOMEOWNER VERIFICATION (Homeowner completes)

I understand that the Oregon Department of Energy does not make any warranty concerning the performance, operation, installation, or any other characteristic or feature of this system. Department of Energy approval is only for purposes of obtaining the Oregon Residential Energy Tax Credit.

Homeowner: Please **initial** if statements are TRUE:

_____ I give the Oregon Department of Energy permission to inspect this installation upon agency request.
Note: Refusing access for inspection may result in denial of this application.

_____ The technician's estimate annual useful energy production of system: _____ kWh per year

_____ The technician has provided me with an owner's manual and instructed me in its regular and emergency operation and proper maintenance.

_____ I verify that the system has been properly permitted and inspected by local code jurisdiction.
Jurisdiction: _____ Permit number: _____

_____ The technician and the company employing the technician gave me a written _____ month full warranty for the system. Oregon Department of Energy Tax Credit Certified Technicians are required to provide at minimum a 24-month full warranty (all parts and labor). (If homeowner installed, warranty applies to equipment only.)

_____ System and all equipment are new (not previously installed or used).

_____ **I have attached proof of payment** for this installation that includes an **itemized parts list**. (e.g. receipt of payment or a copy of the contract for the system marked "paid" and dated; or, for do-it-yourself systems, an itemized receipt of payment for materials).

We do not sell information from this application as a mailing list. However, the Oregon Department of Energy may be required to disclose the name, address and phone number from your application under the Oregon Public Records law ORS 192.410 et seq. We can withhold the address and phone number following a written request explaining personal safety concerns, such as a temporary restraining order. The Oregon Department of Energy does not endorse any company that requests the information.

By signing below, I (we) certify that the system(s) described in this application is (are) installed and that the information contained herein is accurate and true.

Signature of Purchaser: _____ Date: _____

Signature of Joint Purchaser: _____ Date: _____

Complete the following if two or more persons are purchasing this system and file separate tax returns.

Name: _____ Address: _____ % ownership: _____

Name: _____ Address: _____ % ownership: _____

Name: _____ Address: _____ % ownership: _____

Note: The Oregon Department of Energy certifies the energy efficiency of systems and equipment for the Oregon Residential Energy Tax Credit program. It is the applicant's responsibility to ensure compliance with all other eligibility requirements. If you have questions concerning claiming the credit on your Oregon tax return, contact the Oregon Department of Revenue at 1-800-356-4222 or 503-378-4988.



Solar Site Assessment Worksheet

A tool for estimating the impact of collector tilt, orientation and shading

To estimate the performance of a solar energy system we need to know how much solar energy is available for your collector. This worksheet is used to estimate the impact of tilt, orientation and external shading on how much solar energy your solar collectors can collect. The Total Solar Resource Fraction (TSRF) represents the fraction of energy a particular collector would receive when compared to one in the same city, but that has optimal tilt, orientation and no external shading. For example, a collector with a TSRF of 80 percent indicates that 80 percent of the solar energy at your location over a year will be available to the solar collector.

For simplicity we have separated calculating the TSRF into two parts. The first part is to determine the impact of collector tilt and orientation. This Tilt and Orientation Factor (TOF) is estimated using one of the following plots. The second part is to use a sun chart to estimate how much energy is lost on an annual basis from external shading from plants, buildings or other obstructions. The combination of these two effects will provide your collector's TSRF.

Step 1: TOF TOF graphs (right) show the impact of tilt, and orientation on annual performance of a solar collector. TOF values range from 100% (no loss) at the center of the inner circle to less than 60% (40% or more loss) in the upper left and right corners.

Azimuth angles are based on true polar orientation, adjusted for magnetic declination (16-20 degrees for most of Oregon)

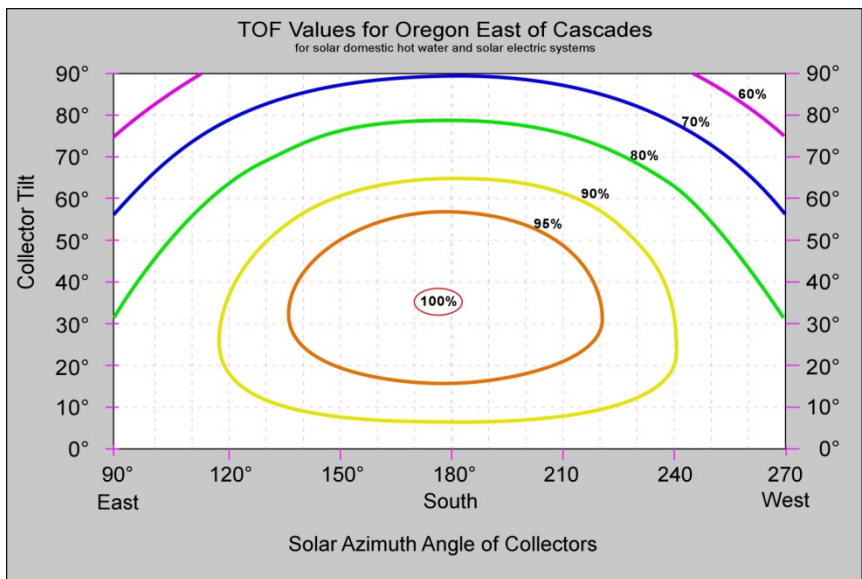
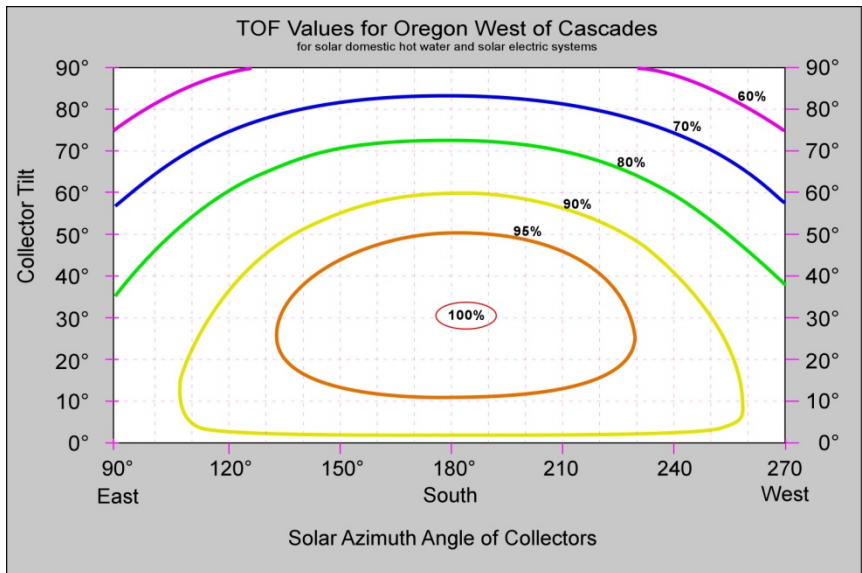
Use the upper graph if your system is installed West of the Cascades. Use the lower graph if your system is installed East of the Cascades.

Draw a dark X mark the graph for your collector's tilt and azimuth angle. Interpolate between the nearest two lines to estimate the TOF value to the nearest 1%.

Collector Tilt = _____ °
(angle from horizontal)

Solar Azimuth = _____ °
(collector orientation)

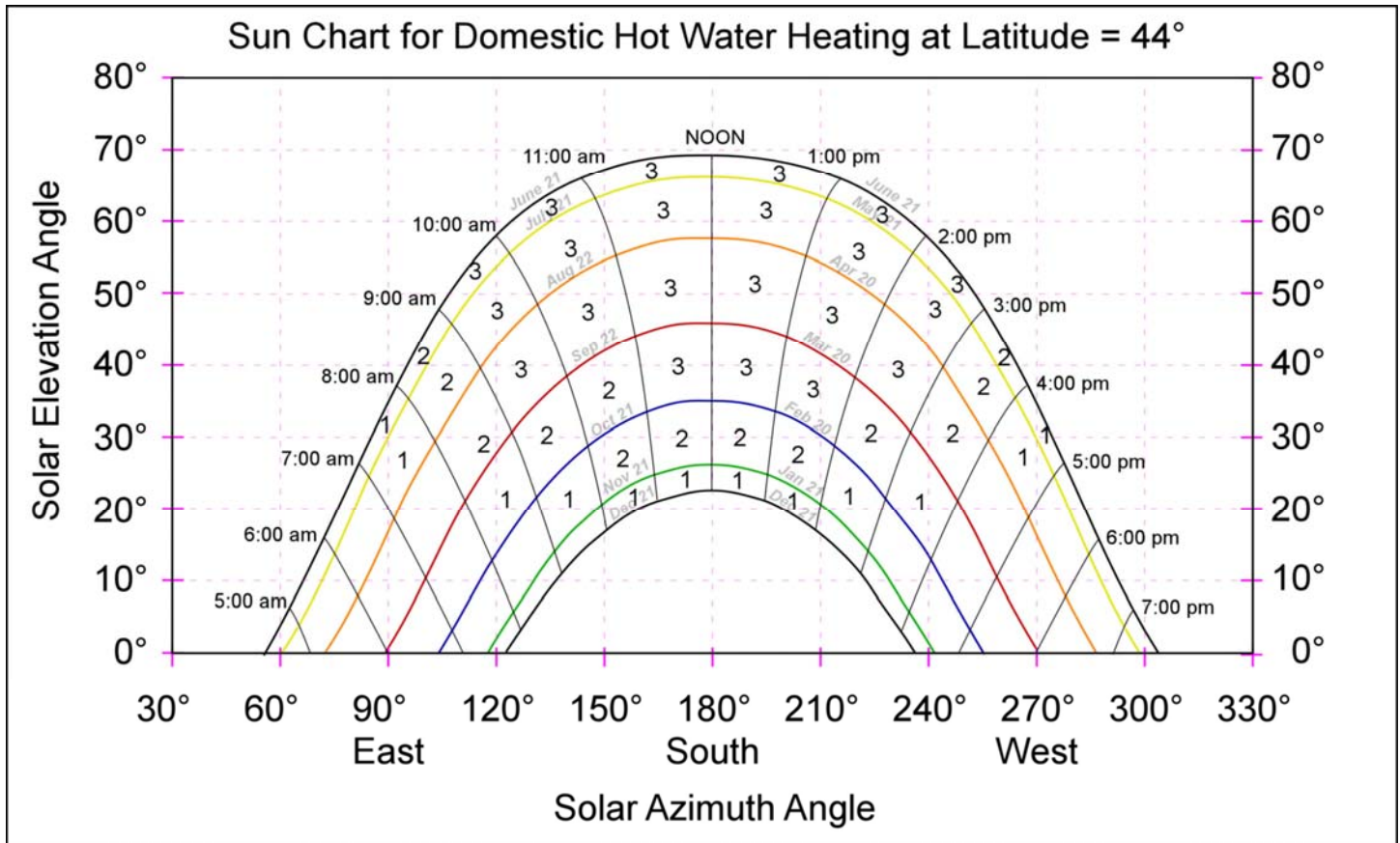
TOF = _____ %
(value from graph)



Solar Site Assessment Worksheet (continued)

For solar water heating and solar electric systems

Step 2: Shading – From the midpoint of the solar array, draw the skyline on the graph below. Use the elevation angles and solar azimuth angles to determine the location of the obstructions. A solar site assessment tool such as the Pathfinder™, or Solmetric Suneye is recommended for increased accuracy. Energy Trust of Oregon sun charts can be used in lieu of the sun chart below. Draw deciduous trees with a dotted outline and fill with light shading. Year-round obstructions like buildings, or evergreen trees should be drawn with solid outlines and filled with heavy shading.



Add up the solar fraction numbers in the sections that have shading. For solar electric systems, partial shading in one section must be counted fully (no fractional amounts). Any deciduous tree shading below the Sept 22/March 20 line can be counted at half value to account for the fact that some light will get through these obstructions when the trees lose their leaves. This sum of all these values inside obstructed areas represents the percent of energy lost to external shading. The **percent not shaded** is 100% minus the value obtained from the shaded areas of the sun chart above.

Example: If the sum of the shaded boxes on the Sun Chart is 10, the percent not shaded will be: 100% - 10% = 90% (or 0.90)

Step 4 – Calculate the Total Solar Resource Fraction using the following equation:

1. Tilt and Orientation Factor (value from TOF graph) _____ %
2. Percent not shaded (From Sun Chart Worksheet) _____ %
3. **Total Solar Resource Fraction** = TOF x Percent Not Shaded = _____ %