

Solar Tax Credit Update

December 13, 2007

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Oregon Department of Energy

Disclaimer

This
presentation
only covers
program
changes from
2007-2008



BETC

Business Energy Tax
Credit

Key Challenges

- Support diversity of sizes and location
- Achieve declining system cost
- Tracking of jobs and system details
- Continuous improvement of quality and performance

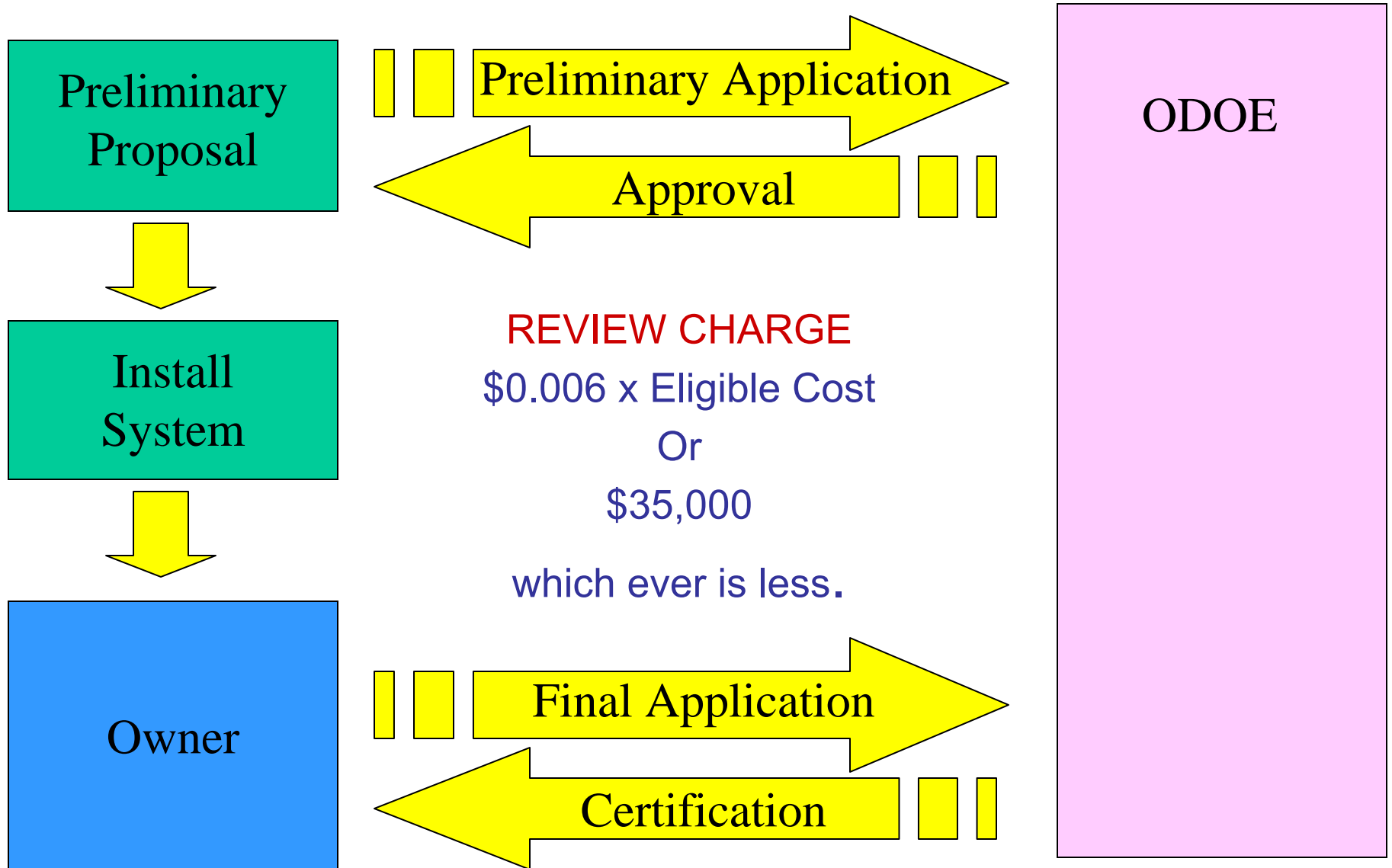
Key Changes

- Maximum eligible cost changed from from simple payback to size based
- Increased scrutiny of system before issuing final certification
- Reduced application charge
- Precertification valid for only 12 months
- TSRF must be >75 % for BETC projects

50% BETC for Solar Technologies

- Photovoltaics
- Solar Thermal
 - Solar Water Heating
 - Solar Space Heating
 - Pool Heating
- Passive Solar
- Manufacturing Facilities
- Builder Incentives

BETC Process



BETC Rates (percent of eligible cost)

Renewables

Eligible Cost	Year 1	Year 2	Year 3	Year 4	Year 5
≤ \$20k	50%				
> \$20k	10%	10%	10%	10%	10%

Conservation Measures

Eligible Cost	Year 1	Year 2	Year 3	Year 4	Year 5
≤ \$20k	35%				
> \$20k	10%	10%	5%	5%	5%

BETC Pass Through Option

- Owner releases right to tax credit in exchange for third party payment
- Payment depends on type
 - Conservation (35% Tax Credit)
 - 1 year 30.5% of project cost
 - 5 year 25.5% of project cost
 - Renewables (50% Tax Credit)
 - 1 year 43.5% of eligible cost
 - 4 year 33.5% of eligible cost
 - ODOE does **not** guarantee partners for projects

Time Constraints

- Application must be received before project commences
- Maximum eligible cost will decrease
- Projects must be completed and final certification applied for within 12 months of certification.
- Credit must be claimed within 8 years of tax credit date.

PV Eligible Cost

- Eligible Cost is the lesser of
 - Estimated Project Cost
 - Maximum Eligible Cost
- Download spreadsheet to calculate

Oregon PV Incentive Calculator

System Size	22	kW DC @ STC
TSRF	78%	System may be inspected to ensure TSRF > 75%
Module Tolerance	5%	percent deration on modules chosen
Public Building?	FALSE	True or False

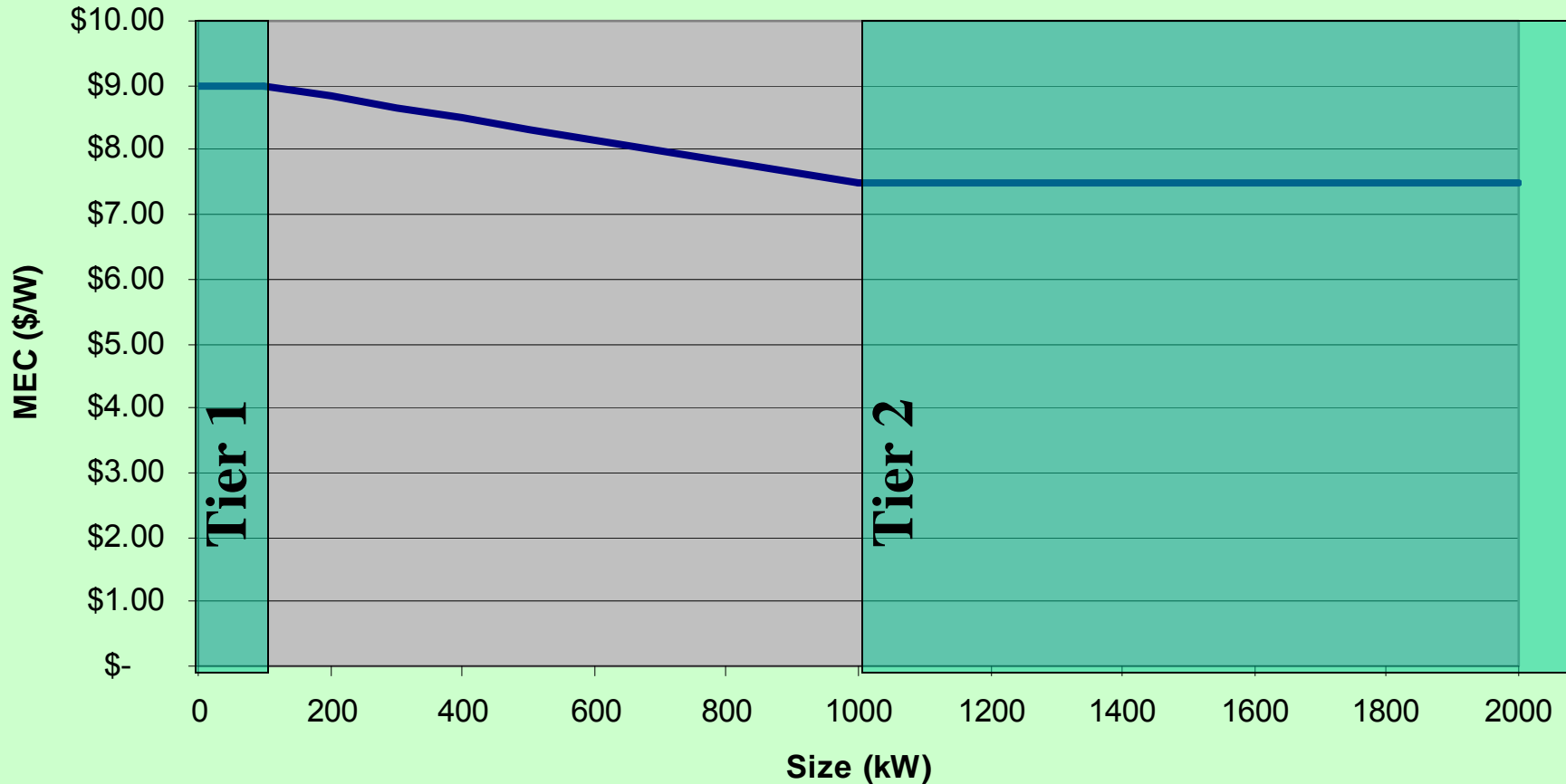
Estimated Project Cost	\$ 255,000	\$ 11.59	per Watt @ STC
Max Eligible Cost	\$ 188,100	\$ 8.55	per Watt @ STC

Eligible Cost \$ **188,100** (valid for 12 months from pre-cert date)

PV Maximum Eligible Cost

MEC Table

(note: tier 1 and 2 may not necessarily move to step 2 at the same time)



Incentive Steps

Each Tier has it's own threshold of installed kW. Once that threshold is met The MEC will automatically drop.

ODOE PV Step Tracker		12/13/2007	
	To Date	Step	Next Step
Tier 1	1,393 kW	1	4,000 kW
Tier 2	427 kW	1	4,000 kW

**Note : Online value is not most current.
Date of completed application review
set's incentive rate.**

PV System - Type and Size

8. System Description

▶ Attach the following additional information:

- Technical data sheet(s) for PV module(s).

Attach

a. System Type

	<u>type modifier</u>
□ DC , a pump or other direct current application, no battery storage	1.0
□ Grid , utility interactive system without battery backup	1.0
□ Grid w/Bat , utility interactive system that includes batter backup	0.9
□ Off-Grid , Remote or non-utility connected application with battery storage	0.8

b. PV Array(s)

Total array rated power: Watts_{Total} _____ Watts DC at STC

Sub Array 1

Rated power (Watts₁): _____ Watts DC at STC
Number of modules: _____ Module output: _____ Watts DC at STC
Module power tolerance: _____ % (enter the +/- rating of the module @ STC)
Module manufacturer: _____ Module model: _____
Inverter manufacturer: _____ Inverter model: _____

Sub Array 2

Rated power (Watts₂): _____ Watts DC at STC
Number of modules: _____ Module output: _____ Watts DC at STC
Module power tolerance: _____ % (enter the +/- rating of the module @ STC)
Module manufacturer: _____ Module model: _____
Inverter manufacturer: _____ Inverter model: _____

PV Module Tolerance

- Maximum Eligible Cost will be based on module warranty not “STC” watts

NE-165U1 **MULTI-PURPOSE MODULE**

165 WATT

ELECTRICAL CHARACTERISTICS	
Cell	Multi-crystal silicon
No. of Cells and Connections	72 in series
Open Circuit Voltage (Voc)	43.1V
Maximum Power Voltage (Vpm)	34.6V
Short Circuit Current (Isc)	5.46A
Maximum Power Current (Ipm)	4.77A
Maximum Power (Pm)*	165W
Minimum Power (Pm)*	148.5W
Encapsulated Solar Cell Efficiency (η_c)	14.44%
Module Efficiency (η_m)	12.68%
PTC Rating (W)**	144.80
Maximum System Voltage	600VDC
Series Fuse Rating	10A
Type of Output Terminal	Lead Wire with MC Connector

MECHANICAL CHARACTERISTICS	
Dimensions (A x B x C below)	
Weight	
Packing Configuration	
Size of Carton	66.93 x 38.19 x 5.12 / 1700 x 970 x 130mm
Loading Capacity (20 ft container)	168 pcs (84 cartons)
Loading Capacity (40 ft container)	392 pcs (196 cartons)

ABSOLUTE MAXIMUM RATINGS	
Operating Temperature	-40 to 194°F / -40 to +90°C
Storage Temperature	-40 to 194°F / -40 to +90°C
Dielectric Isolation Voltage	2200 VDC max.

149 WATT (10% less)

PV Total Solar Resource Fraction

b. Total Solar Resource Fraction (TSRF)

Tilt is the collector tilt from horizontal. Orientation is the direction the sub array faces where 180 equals true south. TOF is the tilt and orientation factor taken from the Oregon Department of Energy or Energy Trust of Oregon PV sun charts. The Shading Fraction is the annual loss due to external shading. The system TSRF is the power weighted average TSRF of each sub array as calculated below.

$$\text{TSRF} = (\text{Watts}_1 \times \text{TSRF}_1 + \text{Watts}_2 \times \text{TSRF}_2 + \text{Watts}_3 \times \text{TSRF}_3 + \text{Watts}_4 \times \text{TSRF}_4) \div \text{Watts}_{\text{Total}}$$

= _____

Sub Array 1

Tilt: _____° Orientation: _____° TOF: _____° Shading: _____
TSRF₁ = TOF x (1 – Shading Fraction) = _____

Sub Array 2

Tilt: _____° Orientation: _____° TOF: _____° Shading: _____
TSRF₁ = TOF x (1 – Shading Fraction) = _____

Sub Array 3

Tilt: _____° Orientation: _____° TOF: _____° Shading: _____
TSRF₁ = TOF x (1 – Shading Fraction) = _____

Sub Array 4

Tilt: _____° Orientation: _____° TOF: _____° Shading: _____
TSRF₁ = TOF x (1 – Shading Fraction) = _____

System TSRF ≥ 75%

Estimated Performance

11. Estimated Annual Energy Production

a. Solar Resource

Choose the city with the most similar solar resource (kWh/yr-W)

	<u>Solar Resource</u>
<input type="checkbox"/> Astoria, Seaside, Cannon Beach, Warrenton	1.03
<input type="checkbox"/> Burns, John Day, Canyon City, Hines	1.39
<input type="checkbox"/> Eugene, Roseburg, Springfield, Sweet Home	1.14
<input type="checkbox"/> Medford, Klamath Falls, Grant's Pass, Ashland	1.32
<input type="checkbox"/> North Bend, Coos Bay, Coquille, Bandon	1.26
<input type="checkbox"/> Pendleton, Enterprise, La Grande	1.31
<input type="checkbox"/> Portland, Hood River, Hillsboro, Oregon City	1.08
<input type="checkbox"/> Redmond, Bend, Prineville, Madras, Lakeview	1.43
<input type="checkbox"/> Salem, Lincoln City, Corvallis, Silverton	1.14

b. Estimated annual energy produced by entire array:

Total rated output ($\text{Watt}_{\text{Total}}$, from 8b) = _____

Total Solar Resource Fraction (TSRF, from 10b) = x _____¹

System Type Modifier (from 8a) = x _____

Mounting Type Modifier (from 8c) = x _____

Solar Resource (from 11a) = x _____

Annual useful energy produced = _____ kWh/yr

Estimated Cost

13. Estimated Project Cost	
Materials:	Estimated cost:
Labor:	Estimated cost:
Engineering:	Estimated cost:
Other: (Do not include Business Energy Tax Credit review costs.)	Estimated cost:

Signature Page

16. Read the statement below, sign and date.

- The Oregon Department of Energy is required by law to disclose information in this application to the public on request. Proprietary information may be exempt from disclosure. Mark on each page any information that you want kept confidential. The Director of the Oregon Department of Energy will make any decisions regarding public disclosure of information in this application.
- I understand that Oregon Department of Energy approval and certification of my project is for tax credit purposes only. The Oregon Department of Energy does not guarantee or in any way ensure the performance of any equipment, the quality of any system or the reliability of any dealer.
- The project will comply with all local, state and federal requirements. I will obtain all necessary permits.
- I will permit the Oregon Department of Energy or its agents to inspect the project at its discretion to make sure the project qualifies for the tax credit. I understand that if I give false information about the project, or if I refuse to permit the Oregon Department of Energy to inspect the project, I will not get the tax credit.
- I hereby release the State of Oregon and its commissions, agencies, officers, employees, contractors, and agents, and agree to defend and indemnify the foregoing from and against any claims, demands, or costs (including attorney and expert witness fees at trial and on appeal) arising from or in any way related to the Oregon Department of Energy's issuance or failure to issue any pre-certification or final certification for a Business Energy Tax Credit, or any party's inability to obtain a Business Energy Tax Credit.
- I understand that the sum of all financial incentives and the tax credit can not exceed the total eligible project cost.
- I have completed this form to the best of my knowledge.
- I have included an energy audit (or analysis) or energy use records, if applicable.
- I have enclosed a check to the Oregon Department of Energy or will pay by Visa or MasterCard for the review charge.
- I verify that the business/organization as project owner does not discriminate in providing access to its programs, services and activities on the basis of race, color, religion, ancestry, national origin, political affiliation, sex, age, marital status, sexual orientation, physical or mental disability, or any other inappropriate reason prohibited by law or policy of the state or federal government.
- I certify that I am the owner or the authorized agent.

Signature: _____ Title: _____

Print Name: _____ Date: _____

Send completed application with payment to:

Oregon Department of Energy
625 Marion St. NE
Salem, OR 97301-3737

If you have questions, call: **1-800-221-8035 (toll-free in Oregon) or (503) 378-4040**

or visit our Web site:

www.oregon.gov/energy

FAX: (503) 373-7806



OREGON
DEPARTMENT OF
ENERGY

PV Technical Requirements

(a sampling – read full document)

- Designed to last at least 25 years
- Performance w/o sacrificing aesthetics
- Mounting must not reduce expected life/durability of roof
- Built to code w/proper signage
- System Manual
 - System documentation (design, plan view, sun chart)
 - 2-year full warranty
 - Component datasheets
- Class 0.5 Performance Meter
- Voltages inside operating windows
- Voltage drop $< 2\%$ on AC and DC lines

Solar Thermal (ST)

- Three tier, declines over time

	Size (kBtu/day)	STEP 1	STEP 2	STEP 3
TIER 1	≤ 100	220	TBD	TBD
TIER 2	> 100 and ≤ 250	220	TBD	TBD
TIER 3	> 250	220	TBD	TBD

Solar Thermal Eligible Cost

Oregon ST Incentive Calculator

Solar Collector Mfg.		
Collector Model		
Certification #		
Gross Collector Area		ft ²
Public Building?	FALSE	True or False
Number of Collectors	2	
TSRF	100%	TSRF must be ≥ 75%
Total System Area	0	ft ²
Rated Output of System	36.8	kBtu/day
Estimated Project Cost	\$ 8,000	
Max Eligible Cost	\$ 8,096	
Eligible Cost	\$ 8,000	

“Standard Oregon Conditions” SOC

Collector Thermal Performance Rating (www.solar-rating.org)

Thousands of Btu Per Panel Per Day				
Category (Ti - Ta)	CLEAR DAY 2000 Btu/ft ² -day	MILDLY CLOUDY 1500 Btu/ft ² -day	CLOUDY DAY 1000 Btu/ft ² -day	
A -9 °F	n/a	26	n/a	10%
B 9 °F	n/a	23	n/a	20%
C 36 °F	n/a	20	n/a	30%
D 90 °F	n/a	13	n/a	40%
E -144 °F	n/a	1	n/a	0%

Collector SOC kBtu/day per panel (enter data above)


SRCC OG-100 Data Sheet

The SRCC is an independent third party rater of solar thermal collectors (OG-100) and solar water heating systems (OG-300)

www.solar-rating.org

The “Standard Oregon Conditions” rating of a collector are based on a weighted average of the mildly cloudy test results

Heliodyne, Inc. • Gobi 410

SOLAR COLLECTOR CERTIFICATION AND RATING  SRCC OG-100		CERTIFIED SOLAR COLLECTOR SUPPLIER: Heliodyne, Inc. 4910 Seaport Avenue Richmond, CA 94804 USA MODEL: Heliodyne Gobi 410 COLLECTOR TYPE: Glazed Flat-Plate CERTIFICATION #: 100-1981-085B	
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COLLECTOR THERMAL PERFORMANCE RATING							
Megajoules Per Panel Per Day				Thousands of Btu Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY 23 MJ/m ² ·d	MILDLY CLOUDY 17 MJ/m ² ·d	CLOUDY DAY 11 MJ/m ² ·d	CATEGORY (Ti-Ta)	CLEAR DAY 2000 Btu/ft ² ·d	MILDLY CLOUDY 1500 Btu/ft ² ·d	CLOUDY DAY 1000 Btu/ft ² ·d
A (-5°C)	61	52	31	A (-9°F)	58	49	29
B (5°C)	56	42	27	B (9°F)	53	40	26
C (20°C)	48	33	19	C (36°F)	46	31	18
D (50°C)	30	17	5	D (90°F)	28	16	5
E (80°C)				E (144°F)			

A-Pool Heating (Warm Climate) B-Pool Heating (Cool Climate) C-Water Heating (Warm Climate) D-Water Heating (Cool Climate) E-Air Conditioning

Original Certification Date: August 1, 1983

COLLECTOR SPECIFICATIONS			
Gross Area:	5.744 m ²	40.30 ft ²	Net Aperture Area: 3.558 m ² 38.30 ft ²
Dry Weight:	72.64 kg	160 lb	Fluid Capacity: 3.8 l 1.0 gal
Test Pressure:	1034 kPa	150 psig	

COLLECTOR MATERIALS		PRESSURE DROP													
Frame:	Aluminum Extrusion	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Flow</th> <th colspan="2" style="text-align: center;">Δ P</th> </tr> <tr> <th style="text-align: center;">ml/s</th> <th style="text-align: center;">gpm</th> <th style="text-align: center;">Pa</th> <th style="text-align: center;">in H₂O</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Flow		Δ P		ml/s	gpm	Pa	in H ₂ O				
Flow				Δ P											
ml/s	gpm	Pa	in H ₂ O												
Cover (Outer):	Low Iron Tempered Glass														
Cover (Inner):	None														
Absorber Material:	Tube - Copper / Plate - Copper														
Absorber Coating:	Black Chrome														
Insulation (Side):	Isocyanurate Foam														
Insulation (Back):	Isocyanurate Foam & Fiberglass														

TECHNICAL INFORMATION			
Efficiency Equation [NOTE: Based on gross area and (P) = Ti-Ta]			
S I Units:	η = 0.725	-3.2000 (P)/I	-0.0220 (P) ² /I
I P Units:	η = 0.725	-0.5639 (P)/I	-0.0022 (P) ² /I
	<u>Y Intercept</u>	<u>Slope</u>	
	0.737	-4.57	W/m ² ·°C
	0.737	-0.805	Btu/hr ft ² ·°F

Incident Angle Modifier [(S) = 1/cos θ - 1, 0° ≤ θ ≤ 60°]	Model Tested:	Gobi 408
K _{amb} = 1.0 -0.0900 (S)	Test Fluid:	Water
K _{amb} = 1.0 -0.09 (S) (Linear Fit)	Test Flow Rate:	56 ml/s 0.89 gpm

REMARKS:

October, 2007
 Certification must be renewed annually. For current status contact:
 SOLAR RATING & CERTIFICATION CORPORATION
 c/o FSECC • 1679 Clearlake Road • Cocoa, FL 32922 • (321) 638-1537 • Fax (321) 638-1010

ST Technical Requirements

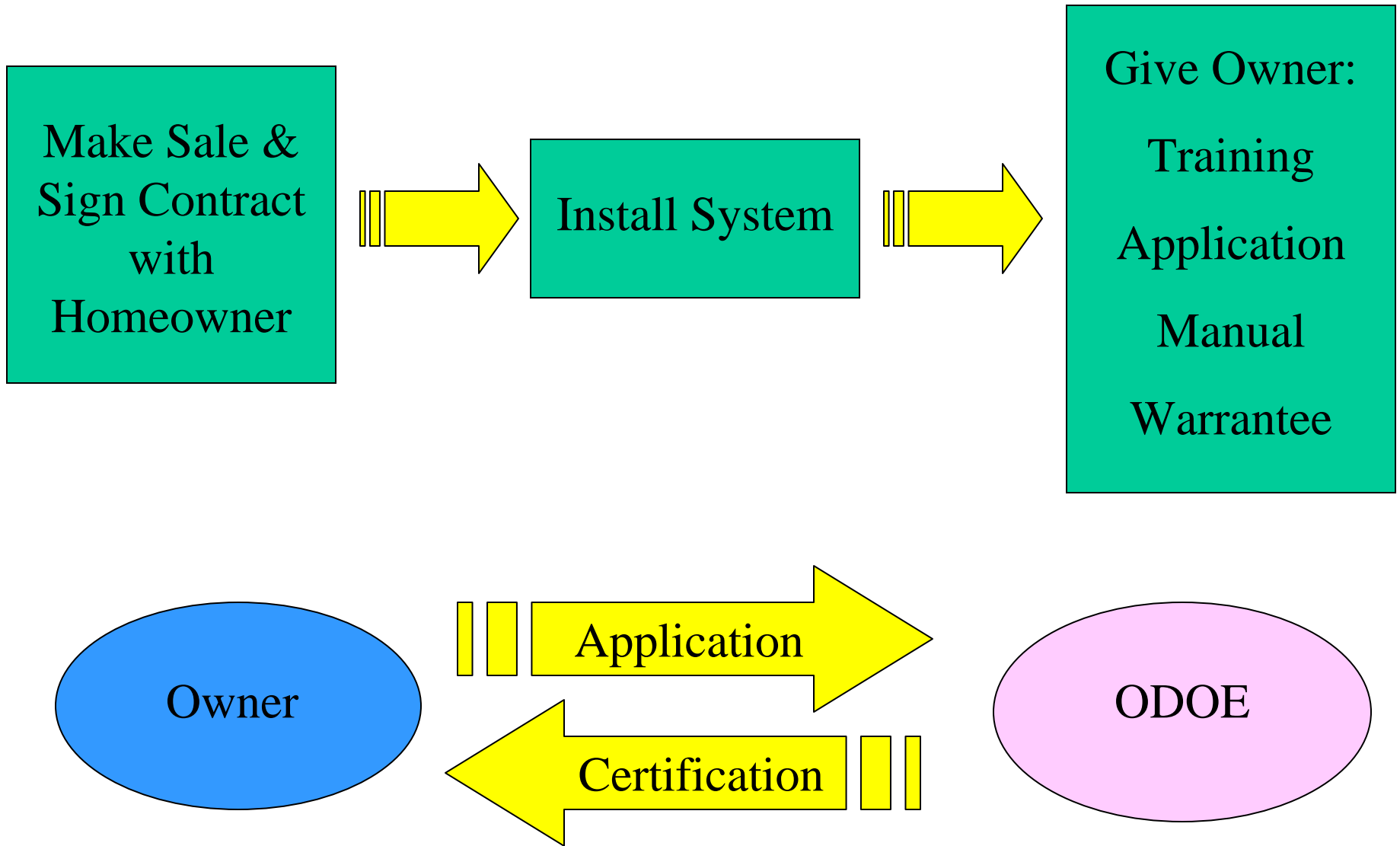
(a sampling – read full document)

- Designed to last at least 2+ years
- Performance w/o sacrificing aesthetics
- Mounting must not reduce expected life/durability of roof
- Built to code w/proper signage
- System Manual
 - System documentation (design, plan view, sun chart)
 - 2-year full warranty
 - Component datasheets
- Solar savings fraction $\leq 70\%$
- Adequate storage (1.25 gallons/ft² for DHW)
- Insulation - tank $\geq R15$, pipes $\geq R2.5$, potable $\geq R12$
- BTU meter on systems with SOC ≥ 250 kBtu/day

RETC

Residential Energy
Tax Credit

Residential Energy Tax Credit



RETC Groups and Maximums

- | | |
|-------------------------------|---------|
| 1. Alternative Energy Devices | \$1,500 |
| 2. Pools | \$1,500 |
| 3. Solar Electric | \$6,000 |
| – Maximum of \$1,500 per year | |
| 4. Alternative Fuel Vehicles | \$1,500 |
| 5. Appliances | \$1,000 |

System and installation requirements vary by technology.

Other RETC Changes

- Tank insulation bonus no longer available to SDHW Yield tables
- 2 year warranty requirement
- Different system types allowed in same year

HB 2620

1.5% for Solar on
Public Buildings

Solar on Public Buildings

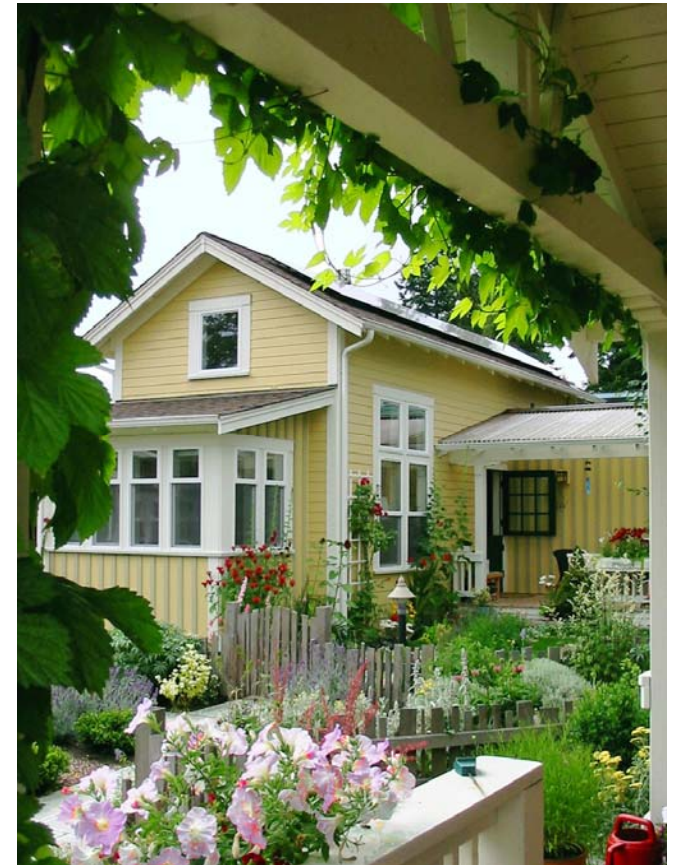
- Public Comment is OVER!
- Rules go into effect on January 1st
- Key Elements of 2nd Draft
 - Applies to \$1M+ projects
 - Must be on building and have TSRF > 75%
 - Passive & day lighting if savings > 20%
 - Public body must request ODOE advisory body review if it believes solar inappropriate.
 - Alternative financing allowed if affixed and >10 yrs
 - State funded projects must role funds to next project

BETC for Builders

High Performance
Homes and Solar
Equipment

Oregon High Performance Home

- Energy Efficiency
 - Exceed Fed Tax Credit Requirements (w/gas)
 - Improved Shell Insulation
 - Energy Star Certified
 - Ducts Inside, or no Ducts
- Renewable Energy (1kWh/yr/ft²)
 - Passive Solar and Daylighting
 - Solar Water Heating
 - Solar Electric
 - Geothermal
 - Wind



Oregon HPH Builder Tax Credits

- Shell and HVAC **\$3,000**
- Up to **\$9,000** for renewables



TCCT

Tax Credit Certified
Technician

Purpose of TCCT

- Provide verification of tax credit applications that system meets ODOE requirements
- Establish an entry level of expertise for participation with tax credit programs
- Serve as a third party certification while industry develops its own certification.

Who can be a TCCT?

- Anyone that provides sales, installation or service of solar equipment
- Anyone is knowledgeable about solar equipment design, selection, site evaluation and the state tax credit program rules (OAR 330-070)
- Must take responsibility for verifying system will perform according to ODOE requirements and is designed to last

Technologies

- Photovoltaics (PV)
- Solar Thermal Systems (ST)
- Ground Source Heat Pumps
- Premium Efficient Duct Systems
- Heat Pumps

2008 Changes

- 24 month warranty
- 2008
 - testing ODOE, NABCEP, BCD, or approved
 - Last year for ODOE test
- 2009
 - ODOE test, NABCEP, BCD or approved
- 2010 everyone must have either:
 - NABCEP “Light”
 - LRT/STL
 - Approved alternate

Getting Certified

1. Attend a initial program training
2. Sign and annual agreement with the Oregon Office of Energy
3. Pass technical test
 - ODOE Exam
 - NABCEP Certification
 - Solar Specialty License (LRT, STL)

Staying Certified – Each Year

1. Renew annual agreement with the Oregon Office of Energy
2. Attend conference call
3. Attend 2 hours/year of related technical continuing education
4. Verify/Commission 2 systems

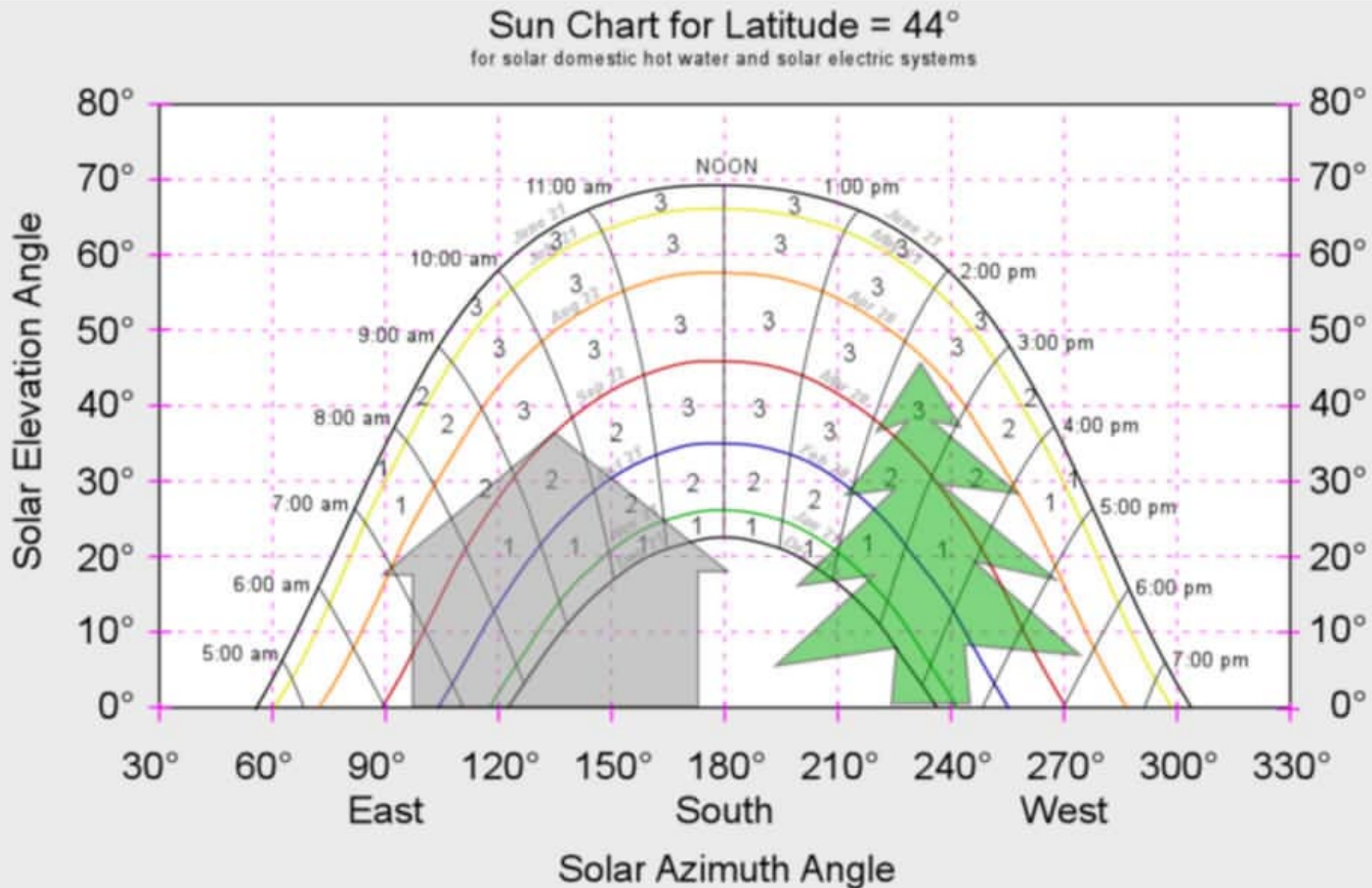
Sun Charts

Estimating losses from tilt,
orientation and external shading

Total Solar Resource Fraction

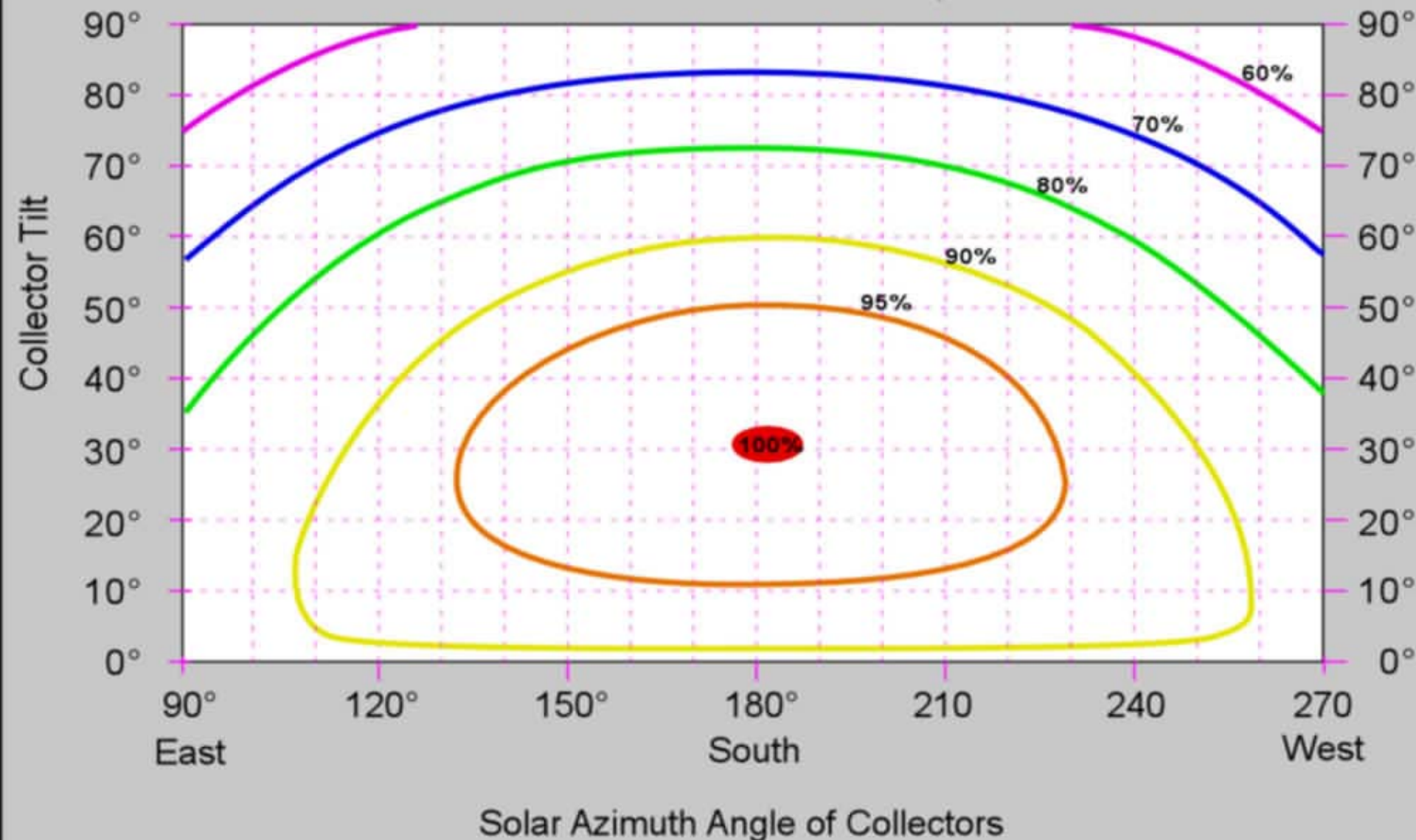
- Acceptable Methods and Tools
 - ODOE Sun Chart
 - ETO approved Sun Chart tools
- BETC
 - $\text{TSRF} \geq 75\%$ - Full Credit
 - $\text{TSRF} < 75\%$ - Not Eligible for Tax Credit
- RETC
 - $\text{TSRF} \geq 75\%$ - Full Credit
 - $\text{TSRF} \geq 50\%$ - 75% of Full Credit
 - $\text{TSRF} < 50\%$ - Not Eligible for Tax Credit

SunChart – Shading Losses



TOF Graph

TOF Values for Oregon West of Cascades
for solar domestic hot water and solar electric systems



Resources

Staff and Website

Web site & Contacts

- www.oregon.gov/energy
- Tax credit administrative specialists
 - Angie Whitehorn (RETC) (503) 378-2697
 - Lisa Hull (BETC) (503) 378-6330
 - Linda Kutnar (BETC) (503) 373-7803
- Conservation Services Manager
 - Suzanne Dillard (503) 373-7565
- Technical support
 - Christopher Dymond (503) 378-8325
 - Rob Delmar (503) 378-

ODOE Handouts

- Program Brochures
 - BETC, RETC, SELP
- Consumer Guides
 - Solar Electric
 - *Solar Water Heating*
 - *High Performance Homes*
- Solar & Green Magazine
- Call ODOE if you need more (800) 221-8035

ODOE Web Site

The screenshot shows the Oregon Department of Energy website in a Mozilla Firefox browser window. The address bar shows <http://www.oregon.gov/ENERGY/>. The page features a navigation menu on the left, a main content area with a 'Harvesting Clean Energy 8' conference announcement, and a right sidebar with a 'Tax Credits' dropdown menu. A red arrow points from a 'Click Here' text box to the 'Federal Tax Credits' link in the dropdown menu.

OREGON.gov
Oregon Department of Energy

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Inside the Office
Staff Directory
Renewable Energy
Energy Facility Siting
Nuclear Safety
Energy Loan Program
Energy Home Page

Harvesting Clean Energy 8

Bringing agriculture and clean energy production together to advance opportunities for rural economic development.

Harvesting CLEAN ENERGY
JANUARY 27-29, 2008
Portland, Oregon
<http://www.harvestcleanenergy.org/conference>

What We Do

Conservation
* Assistance for schools, businesses, residents, and government

Renewable Energy & Climate Change
* Meeting the challenge of climate change in Oregon
* Information on RPS, solar, wind, biomass, hydro

Nuclear Safety & Energy Facility Siting
* Process of siting large energy facilities and pipelines
* Hanford cleanup, emergency preparedness and more

Energy Loans
* Promoting energy conservation and renewable energy

Inside the Office
* About the office, staff directory, meetings & more
* Annual Performance Measures Report

Rulemaking Schedules
Business Energy Tax Credit
Residential Energy Tax Credit
Appliance Standards
1.5% Solar for Public Buildings
Renewable Portfolio Standard
HB2210 - Biofuels
Criminal Background Checks

Energy Saving Ideas
* Energy Assistance Resources
* Gas Price Information

Legislation
* Summary of Energy Legislation Passed by the 2007 Session
* Energy Policy Act of 2005: New Federal Tax Credits
* Renewable Portfolio Standard Information

Working Groups
* Climate Change Integration Group
* Renewable Energy Working Group
* Solar Energy Working Group
* Small Scale Hydroelectric Working Group
* Oregon Wind Working Group

Energy Program List
Jobs & RFPs
Energy Loan Program
Tax Credits
Building Codes
Transportation
Public Purpose Charge
Renewable Energy
Energy Education
Financial Resources

Quick Picks
Liquefied Natural Gas (LNG) and Oregon
Energy Loan Program
Solar Information

Click Here

Solar
Pass-Through Option
Sustainable Buildings

Residential Energy Tax Credits
Business Energy Tax Credits
Federal Tax Credits

Enter search term(s) Find
Text Size: A+ A- A
Text Only Site Accessibility

Downloads: 001_Tech_Req_..., PVAp.doc, BETC_Solar_ME..., Solar_Public_Buil...
<http://www.oregon.gov/ENERGY/RENEW/Solar/Support-BETC.shtml>
Start | ODOE Programs | Microsoft PowerPoint... | State of Oregon: Orego... | Solar_Public_Buildings_D... | 7:53 PM

BETC for Solar Web Page

Renewable Resources Information for Solar Professionals - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.oregon.gov/ENERGY/RENEW/Solar/Professionals.shtml

OREGON.gov

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Glossary

Home

Information for Solar Professionals

Becoming a Solar Professional

Anyone interested in offering solar energy sales, installation or professional services should obtain both training, and must obtain the necessary licenses to legally do work in Oregon. Typical licenses include:

Business license [Starting A Business](#)

Contractor licenses

- General <http://www.oregon.gov/CCB/>
- Electrical <http://www.contractors-license.org/or/or.htm>
- Plumbing <http://www.contractors-license.org/or/or.htm>

Installer licenses

- electrical journeyman
- limited renewable technician (LRT)
- plumbing journeyman
- solar thermal license (STL)

Tax Credit Certified Technicians

To receive a **residential** tax credit for solar water heating and solar electric systems, ODOE requires that the systems be field verified by a "tax credit certified technician". Homeowner installs are allowed but will require additional inspection by ODOE staff or an ODOE contracted representative.

To receive a **business** energy tax credit, ODOE does **not** require commercial systems be field verified by a tax credit certified technician. However, systems that receive a business energy tax credit will be randomly selected for inspection.

TCCT Application Form [PDF](#)

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Business Energy Tax Credits for Solar

General Information

Oregon offers a tax credit of up to 50 percent, a maximum eligible cost, or \$20 million, which ever is less. The tax credit is claimed over 5 years (10 percent per year). If the eligible project costs are \$20,000 or less, the tax credit may be taken in one year.

- Apply for a preliminary certification before you begin the project.
- The application fee is 0.6% of the estimated system cost up to \$35,000.
- Maximum eligible cost is determined differently for each technology and will be reduced over time.
- Preliminary certifications for PV and Solar Thermal (ST) are only valid for 12 months after which time the applicant will need to re-apply. Exemption: preliminary certifications for public building projects are valid for 36 months.

Businesses - Solar Electric Systems (PV)

All PV system must meet minimum technical requirements. The amount of the credit cannot exceed the maximum eligible cost which can be calculated using a downloadable spreadsheet (see below). The rate (\$/W) will decrease automatically as the statewide cumulative total watts that pre-certified exceeds 4MW increments.

Technical Requirements [PDF](#)

PV Application [Word](#) [PDF](#)

Sun Chart worksheet [PDF](#)

Maximum Eligible Costs Calculator [Excel](#)

Businesses - Solar Thermal Systems (ST)

All ST system must meet minimum technical requirements. The amount of the credit cannot exceed the maximum eligible cost which can be calculated using a downloadable spreadsheet (see below). The rate is based on the rated output of the collectors under "Oregon Standard Conditions" (SOC) The SOC rating of a collector is based on SRCC OG-100 test results. Collector ratings can be found on the SRCC website www.solar-rating.org.

Technical Requirements [PDF](#)

ST Application [Word](#) [PDF](#)

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Maximum Eligible Cost

Solar Thermal for 2008

- Tier 1 = \$220/kBtu
- Tier 2 = \$220/kBtu
- Tier 3 = \$220/kBtu

PV as of 12/13/07

- Tier 1 = \$9.00/W_{STC}
- Tier 2 = \$7.50/W_{STC}

(Click to enlarge)

Maximum Eligible Cost Rate