

Solar and LEED

REACHING FOR THE NEXT
LEVEL

Possible LEED Points from Solar

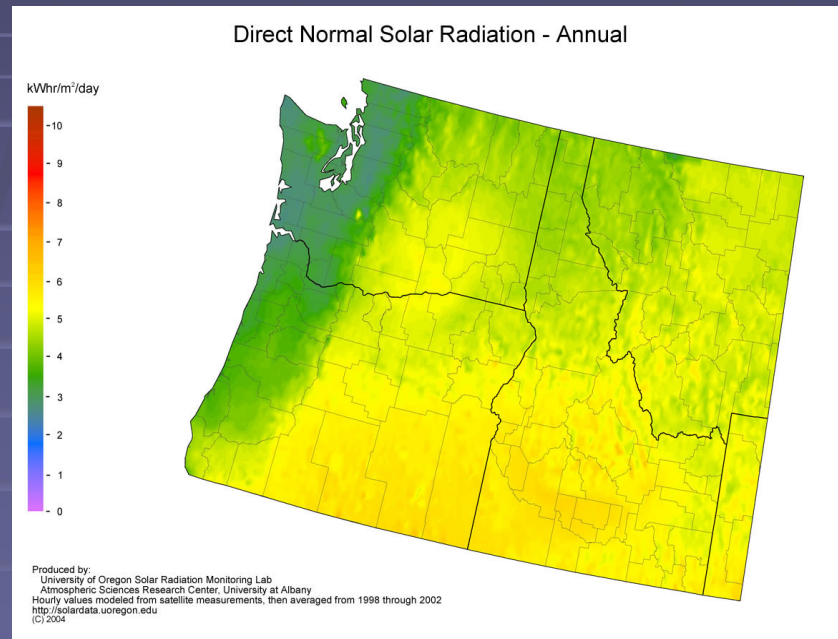
- EA Credit 1 - Optimize Energy Performance
 - 1 point for each 3.5% improvement over baseline
 - 0-10 points possible
- EA Credit 2 - Onsite Renewable Energy
 - 2.5% - 1 point
 - 7.5% - 2 points
 - 12.5% - 3 points
- EA Credit 6 - Green Power
 - 1 point for minimum of 2 years of at least 35% green power
 - May retain first two years of solar Green Tags to help qualify

Example

- Solar Project #1
 - 12.5% of usage 3 points
 - Optimizing Energy Performance 3 points
- *Both Solar Electric (PV) and Solar Hot Water qualify*

Solar resource in “Rainy Willamette Valley”

4.1 average full sun hours equivalent per day



Germany produces more solar power than any country with less sun than is available in Oregon.

Solar in Oregon

- Hot Water
 - Most cost-effective use of Solar
 - Incentives similar to PV
 - Must be matched to demand
- Photovoltaic (PV)
 - Up to 2 MW may be net metered
 - *Full retail credit*
 - Carry forward credit up to one year
 - Aggregate meters on same account, location and tariff
 - Large local manufacturing base coming online

Cost of Solar

- Solar Hot Water is usually most cost effective, but savings varies with use
 - About \$7,000 for a household sized unit, installed
- PV runs from about \$7.50 to \$11.00 per DC Watt installed.
 - Each Watt generates about 1.08 kWh per year for an ideal installation in Portland

Federal Incentives

- Federal
 - Energy Tax Credit
 - Immediate investment tax credit for 30% of project cost
 - MACRS
 - Accelerated depreciation with 5 year class life
 - Sunset date
 - Credit currently due to expire end of 2008
 - House and Senate developing extensions

State Incentives

- Recent Legislative Changes
 - Renewable Portfolio Standard (RPS)
 - 25% from new renewable sources by 2025
 - Business Energy Tax Credit (BETC)
 - 35% increased to 50% for renewable generation
 - Property tax exemption
 - Now applies to all net metered facilities
 - Interaction between BETC & Kicker eliminated
 - 1.5% for Solar on publicly funded buildings
- Solar Investment can earn LEED or Solar tax credits, but not both

Utility Based Incentives

- Energy Trust of Oregon (ETO)
 - \$1.00 - \$1.50 per Watt for Commercial
 - ~\$2.25 per Watt for Government / Non-profit
- EWEB
 - \$1.00 per Watt
- Others vary
- <http://www.dsireusa.org/>

WHO

- Building owners with tax liability
 - Discounted pass through available for BETC
 - Federal Energy Tax Credit can't be taken under Alternative Minimum Tax (AMT)
 - *House bill would change this*
- Third Party Financing
 - Government buildings
 - Non-profits
 - Building owners without tax liability

3rd Party Options

- Leasing System
 - Third party leases system to host
- Purchase Power from system owner (PPA)
 - Third party is long-term system owner
- PPA with Host Option to purchase system
 - Purchase at depreciated Fair Market Value
- Host Ownership Consideration
 - *What are the owner's motivations?*
 - *What are the costs to the owner?*

Ownership Model Comparison

	No Solar	Direct Purchase	PPA	Flip
Net Investment	\$0	(\$355,000)	\$0	(\$25,476)
Operating Labor	\$0	(\$30,346)	\$0	(\$22,988) years 7-20
Reserve Fund	\$0	(\$22,824)	\$0	(\$21,552) years 7-20
Power Purchase	(\$195,679)	\$0	(\$195,679)	(\$40,265) years 1-6
Total Outlay	(\$195,679)	(\$408,170)	(\$195,679)	(\$110,281)
Energy Savings	\$0	\$195,679	\$195,679	\$195,679
Net Savings (Cost)	\$0	(\$212,491)	\$0	\$85,398

Source: Energy Trust of Oregon (adapted)
Assumes 100 kW System with Installed Cost of \$900,000, 20 year life...

When

- NOW
 - Federal Energy Credit set to expire end of 2008
 - Solar is ramping up in Oregon

CSV Model

- Small upfront investment by host
- Power Purchase Agreement for approximately 7 years
- Small buyout
- Balance of system life 20+ years free power

East Portland Community Center

- ~90 kW on New Pool
- 12.5% of Consumption
 - 3 points under EA 2
- Reaching for Platinum
- \$100,000 buy-in provided by grant
 - *No cost to city*
- Educational Benefits
- Summer 2008

Questions?

CSV's mission:
Create innovative partnerships to help
businesses, government and stakeholders develop
solar opportunities for a sustainable future

Sandra Walden

Real Energy Solutions
621 SW Alder St., Suite 310
Portland, Oregon 97205

503 709 0820 cell
503 241 0279 office
503 241 2204 fax

swalden@c-s-v.com

Philip Krain

Commercial Solar Ventures
621 SW Alder St., Suite 310
Portland, Oregon 97205

971 322 8647 cell
503 241 2204 fax

philip@c-s-v.com

Steve McGrath

Sustainable Solutions
Unlimited LLC
PO Box 22946
Portland, Oregon 97269

503 706 1624 cell
503 786 3899 office

steve@solutions21.com

Thank you!