



## Roof Mounted Photovoltaic Solar Panels

This **Advanced Method and Material** was developed jointly by the City of Bellingham Building Department and Sustainable Connections to assist and encourage private electric generation capability while assuring that such electric generation capability does not create structural, fire or life safety hazards.



## BENEFITS

From 2007 to 2009 Bellingham was the #1 EPA certified Green Power Community in America. In 2009, Bellingham ranked as the #1 Small City by the NRDC Smarter Cities Program. The many benefits of solar energy systems include:

- Lower energy bills and energy conservation
- Clean energy production that helps meet green house gas reduction targets and climate action goals
- New economic opportunities and green jobs
- Power for secure, local energy

Solar electric systems can displace a portion of utility power used to meet home or business electricity needs. Solar electric systems may be operated independently (off grid) or they may be interconnected to the grid. Off grid systems require storage for a back up battery. A grid connected, customer-owned generation system is operated parallel to the PSE electricity distribution system for the purpose of offsetting part or all of a customer's electricity needs.

Net metering refers to an interconnected customer generation system with a meter that reads the net difference between the customer's electricity generation and electricity consumption. Any excess electricity generated by the customer during a billing period is credited to the customer. PSE offers a net metering program for interconnected systems up to 100 kilowatts (kW).

## POLICY/CONDITIONS

The installation of roof mounted PV solar panels meeting all of the following criteria will not create a requirement for structural review or a building permit:

- Total dead load of panels, supports, mountings, raceways and all other appurtenances weighs no more than four pounds per square foot.
- The total PV solar panel system weight will not exceed 1,000 pounds.
- Panels are to be mounted no higher than 18" above the plain of the roof to which they are affixed.
- Supports are installed to spread the dead load across as many roof framing members as needed to ensure that no point loads in excess of fifty pounds are created.
- Attachment to the roof will be as specified by the mounting system manufacturer.
- All portions of the system must remain at or below height limitations of any code or regulation enforced by the City of Bellingham.
- Electric permits and inspection approvals are required for all PV installations that connect to the building's electric system.

## SCOPE

Single-family, two-family and townhome buildings which fall under the scope of the International Residential Code.

## DEFINITIONS

PV means Photovoltaic

## PERMIT REQUIREMENTS

In general, the person installing the solar system obtains any required permits. For specific information applicants should contact the **COB Permit Center/Building Services Division** for more information: (360) 778-8300 or [permits@cob.org](mailto:permits@cob.org).



## Roof Mounted Photovoltaic Solar Panels (cont'd)

### REFERENCES / SOURCES

*Solar Guide for Residential Buildings* (City of Portland, OR)

*Installation of Roof Mounted Solar Panels*, revised June 17, 2009 (Clackamas County, OR)

*Solar Energy Systems Guide*, revised August 19, 2009 (City of Seattle, DPD)

### FINANCIAL INCENTIVES

#### Federal Tax Credit

Individuals and businesses that install solar energy systems are eligible for a federal tax credit of 30% of the system cost (the total of installation and materials). Individuals use Residential Energy Credits IRS Form 5695 and businesses use the Investment Credit IRS Form 3468. Updated forms can be found on the IRS website, [www.irs.gov](http://www.irs.gov)

#### State Sales Tax Exemption

Beginning July 1, 2009, solar electric systems are eligible for a partial reduction or exemption from state sales taxes, depending on the system's size and year of installation. Consult your contractor for details on this tax exemption. The tax reduction/exemption is scheduled to expire June 30, 2013.

#### Washington Renewable Energy Production Incentive

As of August 2006, Washington State provides financial incentives for electricity generated from renewable energy resources. Eligible electricity producing renewable energy sources include solar, wind and biomass. The incentive is based on the total number of kilowatt-hours of electricity generated between July 1 and June 30 (or the closest regular billing cycle) of the following year.

Customers who want to receive the incentive must have a PSE production meter installed. Customers with eligible generation systems certified by the Washington State Department of Revenue will qualify for annual incentive payments as follows:

- \$0.15 /kWh for a PV system with no "Made in Washington" components
- \$0.18 /kWh for a PV system with a "Made in Washington" inverter
- \$0.36 / kWh for a PV systems with "Made in Washington" panels
- \$0.54 / kWh for a PV systems with "Made in Washington" panels and inverter

The program is capped at \$5,000 per year per customer and expires in 2020. Further information and application forms are available at [www.seattle.gov/light/solar](http://www.seattle.gov/light/solar).



### ADDITIONAL RESOURCES

#### Northwest Solar Center

A program of the WSU Cooperative Extension Energy Program, the Center provides solar energy resources and educational opportunities. (206) 396-8446 [www.northwestsolarcenter.org](http://www.northwestsolarcenter.org)

#### Solar Washington

The local chapter of the American Solar Energy Society, which promotes the development of solar and renewable energy through education and training. Events, articles, newsletter and links are posted on the web. [www.solarwashington.org](http://www.solarwashington.org)

#### US Department of Energy Efficiency and Renewable Energy

This division of the Department of Energy has a focus on enhancing renewable and sustainable energy production. Their web site provides a wealth of information and links to information on types of energy, state information, funding and a consumer guide. [www.eere.energy.gov](http://www.eere.energy.gov)

#### Energy Star

Energy Star is a joint program of the U.S. Department of Energy and the U.S. Environmental Protection Agency, providing consumer information on energy efficient products and practices. [www.energystar.gov](http://www.energystar.gov)



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