

# Solar Electric Systems: Installation Checklist & Financial Incentive Guide

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This publication is for those who have already made the decision to install a residential or business solar electric system with a maximum capacity of 25 kW.

If you have not made the decision to install a solar electric system and would like to learn more, refer to CAM 420 – *Solar Electric Systems* – for an overview of Department of Planning and Development (DPD) land use and permitting requirements, Seattle City Light's (SCL) interconnection requirements for connecting to the electricity grid, and technical considerations.

This CAM guides you through the process of permitting, interconnecting to the electrical grid, and installing a solar electric system. DPD and SCL have developed this CAM together to ensure that your solar electric system is installed safely and provides the maximum benefit to you as a solar energy generator. Additionally, this CAM provides information about various financial incentives available to customers installing solar electric and/or other renewable energy systems. This CAM is also designed to make customers aware of Washington State's Renewable Energy Production Incentive

Program and how to take advantage of this production-based incentive program. This incentive program requires measuring the output of renewable energy systems and a Seattle City Light installed production meter is required.

## THE STEPS:

**First step - Selection:** Select a solar system designer and installer. Evaluate your electric production needs, goals and costs. Determine the size of the system you want to install. An average residential-sized system is 2.5 kilowatts and total installed costs run from \$15,000 to \$25,000. Be sure to consider using components manufactured within the State of Washington in order to maximize your production-based incentive payments. Your designer/installer can assist in determining the appropriate size, location and components which best serve your needs.

**Second step - Interconnection:** Contact SCL or check the web site for downloadable forms and information about connecting to the SCL electrical grid. You will need to complete and submit the following forms:

--*Interconnection Application*

--*Interconnection Agreement*

--*Application for Electric Service* (necessary for the installation of a production meter)

An SCL Electric Service Representative is available to meet with you or your designer at your property to review your submitted forms, to review the design of your system, and to sign the

*Interconnection Agreement.* You may begin your installation after the *Agreement* is signed. If you intend to take advantage of the Washington State Renewable Energy Production Incentive Program, the SCL representative will also advise you on the location and installation of a production meter.

**Third step - Electrical Permit:** Apply on-line or in-person at the DPD Applicant Service Center (ASC), pay for and receive an electrical permit. Zoning, setbacks, and roof height and exposure may impact your installation. Contact DPD for land-use and electrical permit information if you have questions about your particular property.

**Fourth step - Installation:** Have your solar electric system installed and call DPD for an electrical inspection. New construction requires both a cover inspection and a final inspection; existing structures require only a final inspection. Be sure to install a production meter base in a location that is approved by SCL before your final inspection if you will be applying for production-based incentives. After passing the DPD electrical inspection, you must notify SCL that you have passed the inspection. If you are not planning to apply for the production-based incentives – this is your last step and you may use your solar electric system after SCL confirms your system passed the inspection. Continue for production-based incentive steps.

**Fifth step – Production Meter:** After verifying that you have passed the electrical inspection, SCL will visit the site for a second time to confirm that the meter socket and the meter location meet the utility’s specifications. After

this visit, SCL will install a production meter. Setting the production meter allows you to commence operation and acts as a “certificate of completion” to qualify for the State’s production-based incentive program.

**Sixth step – Washington State Approval and Certification:** To take advantage of the State’s Renewable Energy Production Incentive Program and to secure an annual incentive from SCL, complete the Washington State Department of Revenue’s (DOR) *Renewable Energy Cost Recovery Certification* form and mail or fax it to the Department of Revenue as directed on the form. DOR will assign a tax reporting number and return the approved form to you.

**Seventh step - Apply for \$\$:** SCL will read the production meter when your utility meter is read. SCL will record the number of kilowatt-hours produced by your solar electric system between July 1<sup>st</sup> and June 30<sup>th</sup> of each year. Incentive payments are based on your annual kilowatt-hour production. By August 1 of each year, SCL will mail to you a completed *Annual Incentive Payment Application* form confirming the kilowatt-hours produced in the previous year. Customers will be asked to confirm the annual production by mailing the signed *Annual Incentive Payment Application* back to SCL with a copy of the DOR *Certification* form.

Note: This production incentive process differs slightly from the process outlined by the State.

For your federal tax credit, consult your tax professional to obtain the maximum credit through your annual income tax filing.

**Eighth step - Receive \$\$:** You will receive your incentive payments from SCL by December 15<sup>th</sup> of each year.

Your tax professional can advise you of your federal tax savings as a result of taking advantage of the federal renewable energy tax credit.

**Ninth step - Record retention:** You, the solar energy generator, must maintain all records of your energy production and incentive payments received for a period of five years. SCL or the Department of Revenue upon five working days notice may review the records.

**Tenth step - Smile:** Enjoy watching your electrical meter run backward and your electrical bills go down while the sun produces electricity and cash for you.

## **THE DETAIL\$:**

### ***FINANCIAL INCENTIVES***

Financial incentives, available as a result of state and federal legislation, are designed to offset some of your installation costs. The incentives are based on various factors such as the amount of electricity produced, where the system components were manufactured, and your expenses installing the system.

### ***WA State Renewable Energy Production Incentive Program***

In May 2005, Governor Gregoire signed Substitute Senate Bill 5101 which established a production-based incentive with a base payment of 15 cents per kilowatt-hour (kWh) capped at \$2,000 per year, for individuals, businesses, or local governments who

generate electricity from solar, wind or anaerobic digester systems. This program runs through June 30, 2014.

On August 6, 2006, the Washington Department of Revenue (DOR) issued Rule 273 (WAC 458-20-273) establishing how the new law is to be implemented. DOR requires the renewable energy system to be DOR certified and assigned a Tax Reporting Number.

If you are interested in participating in the Washington State Renewable Energy Incentive Program, SCL and DPD recommend that you complete the interconnection paperwork, obtain an electrical permit and install your generating system prior to applying for the DOR certification. The DOR form requires that you provide your electrical permit number and the date of your final inspection. If you do not have a Tax Reporting Number, they will assign one (Revenue form # 41 0094 – see step six and the DOR link below).

The Department of Revenue determined that incentives or payments are not considered taxable income for tax reporting purposes.

In order to take advantage of the Washington State Renewable Energy Production Incentive Program, a SCL installed production meter is required. This is a second electric meter that measures only the output from your system and is used to record the amount of electricity generated each year. The production meter reading will record the number of kilowatts produced by the renewable energy system.

The amount of your incentive payment is calculated using the formula and multipliers established by state law (RCW 82.16.120). The base payment is

fifteen cents (\$0.15) per “economic kilowatt hour” which is then multiplied by adding the applicable rate multipliers contained in the table below.

which are capped at a percentage of utility sales. For more information see Washington State Department of Revenue’s [Special Notice](#).

Note: The incentive amount may be uniformly reduced if requests for the incentive exceed the available funds,

<b>Customer-generated power using:</b>	<b>Rate* (multiplier)</b>
<b>Solar modules</b> manufactured in Washington	<b>2.4</b>
<b>Inverter</b> manufactured in Washington attached to solar or wind generating equipment	<b>1.2</b>
<b>Blades</b> of wind generator manufactured in Washington	<b>1.0</b>
<b>Anaerobic digester, or solar</b> equipment not described above	<b>1.0</b>
All other electricity produced by <b>wind</b>	<b>0.8</b>

\* RCW 82.16.110 (2) "Economic development kilowatt-hour" means the actual kilowatt-hour measurement of customer-generated electricity multiplied by the appropriate economic development factor.

Example: You install a photovoltaic system with solar modules and an inverter - both of which are manufactured in Washington State. The system produces 2,000 kilowatt hours (kWh) between July 1<sup>st</sup> and June 30<sup>th</sup>. To calculate the incentive payment, the two factors for manufacturing in Washington (2.4 for modules + 1.2 for inverter) are added together to become a factor of 3.6. This factor of 3.6 is multiplied by the \$0.15 to get the amount of \$0.54 paid per kilowatt-hour. Now, the number of kWh produced - 2000 kWh - is multiplied by \$0.54. This is the calculation: 2,000 kWh x \$.54 = \$1,080.00. This is the amount that would be paid to you by SCL.

Note: Ownership of the renewable energy credits or "green tags" remains with the customer-generator.

### ***Washington State Sales Tax Exemption***

The sales of solar electric (and solar hot water) systems are exempt from state sales taxes. Consult your designer/installer for details on this tax exemption.

### ***Federal Incentive Program***

The Federal Energy Policy Act of 2005, including amendments ([H.R. 6, § 1335](#) or [26 USC § 25D \(2005\)](#)) allows individuals and businesses to claim a 30% federal income tax credit for the cost of solar technology installations placed in service after December 31, 2005 and before January 1, 2009. The credit applies only to the net costs remaining after all state and utility incentives have been taken each year. The residential credit is capped at \$2,000 for solar energy installations.

Be aware that the Federal Income Tax Credit applies to both solar hot water and solar electric systems individually. Consult your tax professional for details about these federal incentive and deadline requirements. "These credits are claimed on Internal Revenue Service Form 5695. See the [IRS](#) instructions for this form or consult your tax professional for further information."

See the Database of State Incentives for Renewable Energy (DSIRE) web site listed at the end of this CAM for additional information and links.

Note: Please be aware that many of these incentive programs also apply to anaerobic digesters and wind powered renewable energy systems.

### ***THE CITY'S REQUIREMENTS***

#### ***Seattle City Light Interconnection Requirements***

Safe interconnection between your solar electric system and the SCL electrical grid is important to both you, the customer-generator, and to SCL. The interconnection documents detail the agreement between customers and SCL. Customers must complete and sign an *Interconnection Application*, an *Interconnection Agreement* and an *Application for Electric Service*. The agreement holds SCL customers accountable for meeting SCL's *Interconnection Standards*. A non-refundable application fee of \$100 is paid with the *Interconnection Application* submittal. If you intend to apply for production-based incentive payments, you will need to submit \$47 with the *Application for Electric Service* to pay for the meter installation. One check can be made

out to Seattle City Light for both applications.

A production meter is a second electric meter installed on your renewable energy system. The production meter measures only the output from your system and is used to record the amount of electricity generated each year. The meter is installed between the generating system inverter and your electric panel. SCL will read your production meter in addition to your regular meter, so SCL requires that the location of the production meter be approved by SCL.

SCL customers within Seattle city limits must comply with DPD's permitting requirements, which at minimum, consists of obtaining an electrical permit and may also include land use approvals. SCL customers outside of the City of Seattle must comply with the permitting requirements of the Washington State Department of Labor and Industries (L&I) or other relevant local jurisdiction. All SCL customers must comply with SCL's Interconnection Standards and sign an *Interconnection Agreement*.

#### ***DPD Requirements***

**Electrical permits** are required and are issued by DPD. Calls for inspections should be made before 7 a.m. of the day the inspection is desired. For new building installations, call for an inspection prior to covering any of the wiring or equipment and then call again for a final inspection after the installation cover has been completed. For existing building installations, only a final inspection is necessary. Upon successfully passing the inspection,

the DPD electrical inspector will place a sticker on the system showing that it has passed the electrical inspection. SCL will verify that the installation has passed a final inspection before installing a production meter.

**Land-use** requirements will depend on your zoning and the location of your solar installation. Rooftop installations may have height restrictions and freestanding installations may have setback requirements. See CAM 420 for details or contact a land-use planner at the Applicant Service Center if you are uncertain about your planned installation.

#### **FOR FURTHER ASSISTANCE**

##### **Seattle City Light – Customer Generation**

--- *Interconnection forms via Internet and program information*

[www.seattle.gov/light/Conserv/cgen](http://www.seattle.gov/light/Conserv/cgen)

##### **Seattle City Light – Conservation Helpline**

— *Interconnection forms by mail and incentive program assistance*

206.684.3800

##### **SCL Service Centers**

###### **- Interconnection Assistance**

North Service Center  
(projects north of Denny Regrade)  
1300 N 97th Street, Seattle  
206.615.0600

South Service Center  
(projects south of Denny Regrade)  
3613 4th Avenue S, Seattle  
206.386.4200

##### **DPD Applicant Services Center**

— *Permit application and issuance, plan review*

20th floor of Seattle Municipal Tower  
700 Fifth Avenue, Seattle, WA 98104  
206.684.8850

[www.seattle.gov/dpd/asc](http://www.seattle.gov/dpd/asc)

##### **State of Washington – Department of Revenue**

--- *The Department of Revenue in conjunction with WSU Climate and Rural Energy Development Center are responsible for the administration of the state incentive program.*

<http://dor.wa.gov/content/home/taxtopics/solarenergy.aspx>

##### **U.S. Department of Energy**

--- *Solar Energy Technologies*

*Program: Photovoltaics - A consumer resource that covers solar basics, uses and research & development at the national level.*

<http://www.eere.energy.gov/solar/photovoltaics.html>

##### **Internal Revenue Service**

--- *Federal tax forms and instructions for the Residential Energy Credit*

Help line: 1.800.829.1040

<http://www.irs.gov/>

##### **Database of State Incentives for Renewable Energy (DSIRE)**

--- *A comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy.*

<http://www.dsireusa.org/>