

FINANCING RESOURCES FOR SOLAR PV IN WASHINGTON STATE

Evergreen State Solar Partnership

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INTRODUCTION

This report provides a brief summary of the financing options and incentives currently available in Washington State for solar photovoltaic (PV) systems. It is intended primarily for local governments, utilities, and other entities who wish to address the financial barriers of solar adoption. Unless otherwise noted, the programs summarized here are targeted at the residential market.

The Economics of Solar PV

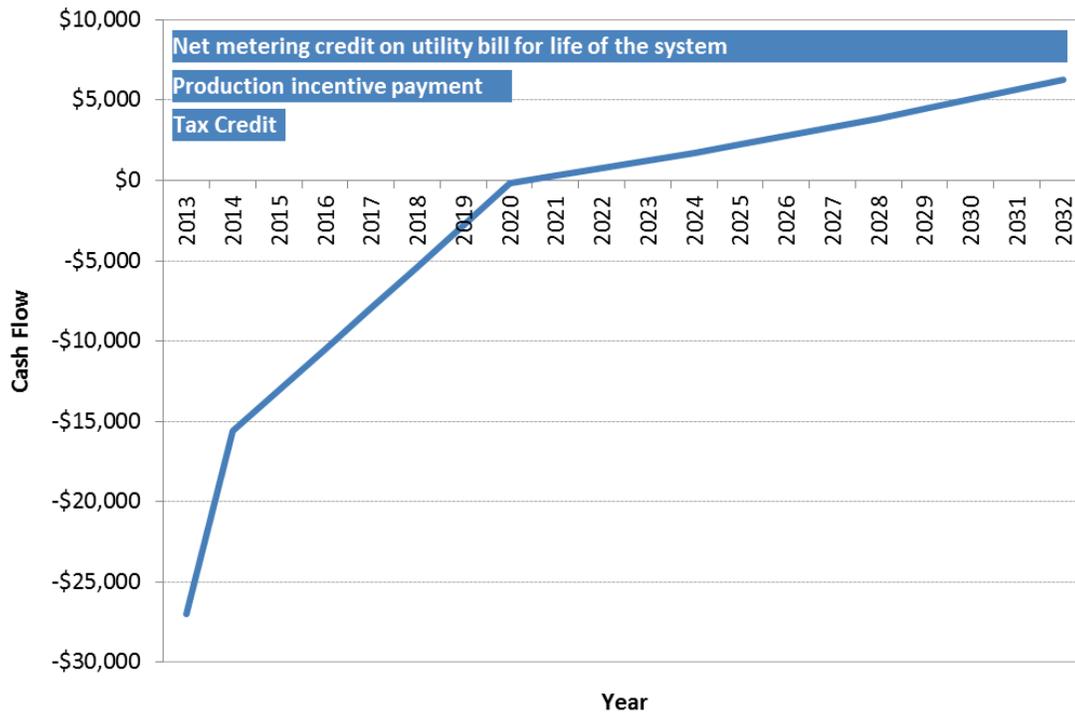
In the state of Washington, as elsewhere, the cost of solar PV has fallen dramatically in the past decade. The typical residential rooftop PV system in 2013 costs between \$5 and \$7 per watt installed. Increasingly, homeowners find solar an attractive long-term investment. However, for many, the initial cost (\$20,000 - \$30,000) remains a significant barrier. The following is an overview of incentives and financing available to Washington residents. We make the distinction between *incentives*, which make solar a more attractive investment, and *financing*, which makes that investment possible in the first place. Without financing options, only those with the resources for self-financing will be able to take advantage of incentives, thus an equitable solar policy will support both incentives and financing.

Solar System Cash Flow Example

Figure 1 illustrates a typical solar cash flow scenario for a 4 kilowatt system installed in Western Washington with made-in-Washington equipment, in early 2013. The Federal tax credit, the State production incentive and utility net metering interact to provide a full return on investment within approximately eight years. In the first year, the homeowner recoups 30% of the installed cost as a tax credit. Also starting in the first year, the homeowner earns the production incentive and offsets their electric bill by the retail value of the net metered electricity produced. As of June 30, 2020, the production incentive ends, but the homeowner continues to reap the benefit of the electricity produced, offsetting their expenses at the retail rate. Although costs and incentives vary with equipment selection, a homeowner can expect to recover their entire investment within 8 – 13 years. Most systems are warrantied for 20 years or more and can continue to produce power well beyond the warranty period.

As can be seen, incentives make solar a sound investment, even before factoring in all of the environmental and societal benefits such as local job creation and energy independence. However, the incentives in Washington do not remove the need to find the initial cash and the incentives are only fully available to entities with a tax credit appetite. To provide the upfront cash, and in some cases, the tax credit appetite, homeowners need other options, including loans, community solar, group purchasing, or a lease option.

Figure 1: Example 4 kW Residential PV System Cash Flow



EXAMPLES OF FINANCING & INCENTIVES IN WASHINGTON

Highlighted below are examples of different programs in Washington that combine solar incentives and financing options.

Snohomish County PUD Solar Express Loan and Rebate Program

Through its Solar Express program, Snohomish PUD provides financial assistance to their customers who want to install a solar energy system on their home or business. Residential customers can get either a direct cash incentive payment or a low-interest loan to finance their system. The cash incentive is equal to \$500 per installed kilowatt up to a \$2,500 limit for solar PV systems and \$500 per system for solar hot water. The solar PV incentive limit for business customers is \$10,000. Instead of the cash incentive payment, residential customers may apply for a 2.9% APR loan of up to \$25,000 for a solar PV system and up to \$14,000 for a solar hot water system. These Solar Express offerings are provided in addition to Washington State’s production incentive for solar PV and federal tax credits. Each project that participates in the Solar Express program helps Snohomish PUD to meet its RPS mandate, and since these projects are defined as Distributed Generation, they contribute double their value in installed capacity towards the RPS goal.

For more information:

Energy Hotline: 425-783-1700 | Toll-free: 877-783-1000 ext 1700

Website: www.snopud.com/solarexpress

City of Ellensburg Community Solar

The Ellensburg community solar PV project, the first in the nation, is owned by the City of Ellensburg's Electric Utility. The project uses a unique financing approach in which people in the community are partnering with the City to fund the project. In return for their contributions, participants receive the power produced by the solar project in the form of a solar credit on their utility bills over the next 20 years. The minimum initial buy-in for utility customers is \$250. Customers may continue to increase their contribution at any time. As the funding comes in, the project continues to grow. Ellensburg completed Phase IV in the winter of 2012. In addition, contributors qualify for the state production incentive program, equivalent to \$0.30 per kilowatt-hour up to a maximum of \$5,000 per year through June of 2020. Participants can sell, assign, or donate their shares to any other individual or commercial utility customer at any time.

For more information:

Phone: 509-962-7124 | Email: energyservices@ci.ellensburg.wa.us

Website: <http://www.ci.ellensburg.wa.us/index.aspx?NID=310>

Seattle City Light Community Solar Program

Seattle City Light partnered with Seattle Parks and Recreation to locate three solar-powered picnic shelters in Jefferson Park in the Beacon Hill neighborhood of Seattle. This community solar model allows people to invest in solar energy even if they are not able to install solar panels at their home or business. Customers of Seattle City Light were invited to participate as one of 500 founding members of this inaugural community solar project. Members contributed \$600 each to cover the upfront cost of the equipment and in return receive credit on their electric bill for their portion of power produced plus the \$0.54 per kilowatt-hour state production incentive payment for their portion of electricity produced until the incentive program ends in June 2020. After June 2020, the Seattle Parks and Recreation, the site host, will take ownership of the equipment and receive credit for the electricity produced from that point forward.

For more information:

Phone: 206-684-3800 | Email: SCLEnergyAdvisor@seattle.gov

Website: <http://www.seattle.gov/light/solar/community.asp>

Solarize Washington Program

Solarize Washington is an initiative designed to bring together grassroots sustainability groups, local installers, and neighbors to design, purchase, and install solar PV systems throughout a specific neighborhood. Participating neighbors collectively enjoy significant discounts through the group purchase of solar PV installations. The competitively-selected installer benefits from a concentrated market and well-informed customers. Groups interested in sustainability benefit from the success of a streamlined development process that expedites the use of solar energy technology. The program has been offered by Seattle City Light and Snohomish PUD.

For more information:

Website: <http://solarizewa.org/>

SOLAR INCENTIVES

Washington State Policy Incentives

The following state programs and policies have a direct impact on the economic payback of solar PV.

Washington State Renewable Energy Production Incentive

Funded by state taxpayers and administered by the WA Department of Revenue, the production incentive provides PV system owners with a payment of \$0.15 to \$0.54 per kilowatt-hour of solar energy produced. Qualifying community solar projects receive a production incentive of \$0.30 to \$1.08 per kilowatt-hour. The incentive is capped at \$5,000 per person per year. The incentive rate depends on the type of technology used, with Washington-made equipment receiving a higher rate, and the rates may be reduced if the program becomes oversubscribed. As of the date of this report, incentive payments will be made until June 30, 2020. The incentive program is designed to reward:

- Washington made products
- Actual energy produced (versus capacity installed)
- Immediate action (the sooner you install, the longer you have to claim incentives)

Since this program was established in 2005, the number of distributed generation systems has grown dramatically and two solar panel manufacturers have been established in Washington.

Net Metering

Net metering is a simple and effective way to incentivize solar PV by allowing system owners to receive credit for excess electricity produced by their system. Under Washington law, all utilities are required to offer net metering for grid-connected systems up to 100 kilowatts in size. Net-metered systems that produce more electricity than needed are credited for the excess production at retail electric rates on the next month's utility bill. Credits carry forward month to month for a year period ending annually on April 30. Remaining credits are zeroed out on May 1 with no payment to the customer. To strengthen the net metering program in Washington, the US Department of Energy has recommended an increase in the maximum allowable system size from 100 kilowatt to 2 megawatts (see Freeing The Grid, 2011).

Initiative 937 Renewable Portfolio Standard

Passed by ballot initiative, Washington's Renewable Portfolio Standard (RPS) requires utilities serving more than 25,000 customers to acquire at least 15% of their electricity from renewable energy sources by the year 2020. Utilities can acquire renewable generation by purchasing and operating a system themselves, by providing a financial incentive for their ratepayers to purchase and operate a system, or by purchasing renewable energy credits (RECs) from a renewable energy producer. PV systems less than 5 megawatts in size are categorized as "distributed generation" sources, which count as double their installed capacity toward meeting RPS goals. In states where the RPS contains a specific "solar carve out" there is a market for solar RECs, but due to the transaction costs associated with REC sales, there is not currently a developed market for the solar RECs produced on Washington rooftops.

Tax Credit Incentives

In addition to the state policies that support the economics of solar, there are state and federal tax credits that can help solar pay back. It is advisable to consult with a tax specialist to determine how these credits might apply to the tax situation of a particular individual or business.

Tax Credit (Federal)

A taxpayer may claim a one-time tax credit of 30% of qualified expenditures for a solar PV system that serves a residence that is owned and used by the taxpayer. Expenditures include labor and assembly costs in addition to the equipment. If the tax credit exceeds tax liability, the excess amount can be carried over to the next taxable year. A 30% tax credit is also available for businesses that purchase a solar PV system. Systems must be placed in service before December 31, 2016.

Contact: U.S. Internal Revenue Service | <http://www.irs.gov> | 1-800-829-1040

Sales Tax Exemption (State)

In Washington State, solar PV systems of 10 kilowatts or less are exempt from sales tax and systems greater than 10 kilowatts are eligible for a 75% sales tax rebate. The tax exemption applies to labor and services related to the installation as well as sale of the equipment. The exemption is available to both residential and commercial consumers. This tax exemption will expire June 30, 2013, and it is unclear whether it will be extended.

Contact: Washington State Department of Revenue | <http://dor.wa.gov> | 1-360-705-6642

Modified Accelerated Cost-Recovery System (MACRS) Bonus Depreciation (Federal)

Commercial, industrial, and agricultural businesses can recover investments in solar PV equipment through depreciation deductions over a property life of five years. Projects installed by December 31, 2013 may qualify for 50% first-year bonus depreciation.

Contact: U.S. Internal Revenue Service | <http://www.irs.gov> | 1-800-829-1040

Local Utility Incentives

Some local utilities offer their customers incentives and rebates in addition to the State incentives and tax credits described above.

Snohomish County PUD Solar Express Rebate Program

A cash incentive payment for residential and commercial customers (described in this report).

Website: <http://www.snopud.com/solarexpress>

Chelan County PUD Sustainable Natural Alternative Power (SNAP) Program

Customers voluntarily pay extra on their utility bills, and these donations are distributed once a year to local producers of solar or wind power.

Website: <http://www.chelanpud.org/snap.html>

Okanogan County PUD Sustainable Natural Alternative Power (SNAP) Program

Customers voluntarily pay extra on their utility bills, and these donations are distributed once a year to local producers of solar or wind power.

Website: <https://www.okanoganpud.org/energy-services/snap-net-metering>

Phone: 509-422-8427 or 800-922-7011

Orcas Power and Light Member Owned Renewable Energy (MORE) Program

The program is funded by voluntary member donations, which are used to provide production payments to producers of renewable energy within the service territory.

Website: <http://www.opalco.com/energy-services/renewable-generation/m-o-r-e/>

SOLAR FINANCING OPTIONS

The following resources may be available to help homeowners cover the upfront cost of a solar PV installation.

Utility Loans

The following utilities provide low-cost financing options to their customers for solar energy projects.

Clallam County PUD - Residential and Small Business Solar Loan Program

Low interest loan of up to \$15,000. No application fee.

Phone: (360) 565-3249 | E-Mail: info@clallampud.net | Website: <http://www.clallampud.net/>

Clark Public Utilities - Solar Energy Equipment Loan

Loan amounts up to \$30,000. Interest rate of 5.25%. Loan term up to 7 years.

Phone: (360) 992-3362 | E-Mail: mailbox@clarkpud.com | Website: <http://www.clarkpublicutilities.com>

Port Angeles Public Works & Utilities - Solar Energy Loan Program

Low-interest loan of 2.5% above the one year LIBOR.

Phone: (360) 417-4718 | E-Mail: rkajfasz@cityofpa.us | Website: <http://www.cityofpa.us/>

Richland Energy Services - Residential Energy Conservation & Solar Loan Program

Loan amounts up to \$15,000. Interest rate between 3% and 6% for a term of up to 10 years.

Phone: (509) 942-7432 | E-Mail: msheeran@ci.richland.wa.us | Website: <http://www.ci.richland.wa.us/index.aspx?NID=174>

Snohomish County PUD - Solar Express Loan Program

Residential customers only. Loan amount up to \$25,000. Interest rate of 2.9% over a 10-year term.

Phone: (425) 783-1700 | Website: <http://www.snopud.com/>

Public-Private Co-financing and Revolving Loans

In public-private co-financing, the state or local government either provides a portion of the loan along with a private lender or provides funding for a credit enhancement strategy that subsidizes the private-lender loan. The Washington State Department of Commerce has managed programs for Energy Efficiency Credit Enhancement and local governments are encouraged to contact Glenn Blackmon for more information at glenn.blackmon@commerce.wa.gov. The following credit enhancement strategies are the most common.

Loan loss reserve funds

A loan loss reserve (LLR) account is usually funded initially by the state or local government in order to back private-lender loans up to a specific amount. In the event of a loan default, a portion of the loan is paid out of the loan loss reserve fund, thus reducing the risk to the private lender. In the event of significant losses, the public funding in the reserve fund is capped at a limited amount, often 10% of the total principal, and losses in excess of this amount are the responsibility of the private lending institution. Thus, the total public risk is kept to a minimum while ensuring careful lending practices by the private lender. The primary benefit of loan loss reserve funds is to increase access to financing by reducing the risk profile of individuals who otherwise might not be eligible for a loan. In most cases, the loan loss reserve does not result in significantly decreased interest rates or improved loan terms.

Example: Puget Sound Cooperative Credit Union (PSCCU) Energy Smart loan program

Low-interest loan (4.25 to 8.74%) up to \$50,000, credit scores as low as 500, terms up to 15 years.

Backed by loan loss reserve account funded by Snohomish County with funds from the Department of Energy's Energy Efficiency and Conservation Block Grant. This LLR-backed loan is available to Snohomish County residents only; a similar non-LLR loan is available outside of the county.

Contact: 1-800-273-1550 | askus@pscuccu.org | <http://www.pscuccu.org/pdf/snoco.pdf>

Subordinated Debt

Subordinated debt is a loan provided by the state or local government in addition to a private sector loan. In the event of a default, the subordinated loan absorbs the loss before the private lender is impacted, thus reducing the risk profile of the private loan. Similar to loan loss reserves, subordinated debt increases access to financing for those who otherwise might not have access. In some cases, improved lending terms are also associated.

Interest Rate Buy-Down

With interest rate buy-down programs, state or local governments use funds to pre-pay a portion of the interest rate required by a private lender. Buy-down programs do not necessarily increase access to financing but instead the buy-down program reduces the overall cost of a loan and improves the borrower's ability to pay.

Example: Banner Bank Community Energy Challenge Loan Program

Residential loan amounts up to \$50,000, interest rates as low as 1%, and terms up to 10 years.

Commercial loans up to \$150,000, interest rates as low as 1%, and terms up to 5 years. Interest rates for renewable energy projects may be higher than for energy efficiency projects. This is a grant-funded interest rate buy-down program for qualifying projects through the Community Energy Challenge program. Although the primary intent is to fund energy efficiency projects, solar PV can be included if it is incorporated into the overall energy savings plan. Available to both residents and businesses in Whatcom, Island, Skagit, and San Juan counties.

Contact: 1-360-676-6099 | <http://www.CommunityEnergyChallenge.org>

Revolving Loans

Revolving loan funds can be initially funded by a number of methods, such as appropriations, bond sales, or tax revenue. Direct loans are made out of the fund, and the fund is replenished as loan

payments are made. Once the initial capital is loaned out, additional loans cannot be made until loan repayment is received. In some cases, revolving loans are associated with lower interest rates, increased accessibility, and extended loan tenors.

For more information:

www1.eere.energy.gov/wip/solutioncenter/financialproducts/revolvingloanfunds.html

Example: Community Food Co-op Farm Fund

Low-interest (3%) revolving loan fund for Whatcom and Skagit County farmers. Micro-loan amounts up to \$5,000 with a maximum 2-year loan term. The solar project must be specific to the farm operation.

Contact: 360-734-8158 | info@communityfood.coop |

<http://www.communityfood.coop/participate/giving-back/farm-fund/>

Green Loans

Some banks and credit unions provide loans targeted at energy efficiency or renewable energy improvements for homes and businesses. These “green” loan products often have lower interest rates and fees than home equity loans or other financing products because the lender assumes that the cost savings resulting from the energy improvement can be used to pay back the loan, thus reducing the overall risk. In addition, the solar equipment is typically used for collateral rather than the home.

OBe Credit Union Green Loans

Loans for green home improvements including solar.

Phone: 800-642-4014 | Website: www.obee.com/pages/loans-and-credit-cards/thurston-energy.php

Umpqua Bank’s Greenstreet Lending

Preferred loan rates with no origination fees, no closing costs, and flexible terms. For residential and small business customers.

Phone: 866-790-2121 | Website: <http://umpquabank.com/GreenStreet/landing.aspx>

Puget Sound Cooperative Credit Union (PSCCU) Energy Smart loan program

Low-interest loan (4.49 to 7.99%) up to \$35,000, terms up to 15 years.

Contact: 1-800-273-1550 | askus@psccu.org | www.pscu.org/efficiency.php

Generations Credit Union

Loan amounts between \$2,500 and \$30,000. Interest rates starting at 4.99%. For Thurston County residents, an interest rate of 2.90% is available for solar energy projects.

Phone: 360-357-5660 | Website: http://www.generationscreditunion.com/html/hc_hi.htm

Islander Bank

Loans up to \$10,000, rates from 4.5%, and terms up to 10 years. For home improvements and San Juan Island residents only. \$100 loan fee.

Phone: 360-378-2265 | Website: <http://www.islandersbank.com/services/loans.html>

Property Assessed Clean Energy (PACE)

The PACE model was used, mostly in California, as a public financing mechanism for residential energy and conservation projects. By creating special tax assessment districts, state and local governments could provide homeowners with upfront funds for approved home improvements in exchange for additional property tax payments. However, in this model, the state or local government places a senior tax assessment lien on the residential property, putting the home mortgage provider second in line in case of default. Due to federal mortgage regulator concerns about the soundness of this practice, residential PACE programs are on indefinite hold. Compared with other financing options, the PACE model does provide an option for homeowners who otherwise might not have access to self-financing; however, the administrative fees and interest rates are generally higher. PACE programs are not available at this time in Washington State.

For more information: <http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/pace.html>

Group Purchase Model

Solarize Washington. See description above. Website: <http://solarizewa.org/>

Third-Party Ownership

Under third party ownership, a solar finance company owns the installation and the building occupant pays a monthly fee for the use of the solar energy equipment. There are two models:

- **Solar Lease.** Under this model, a solar finance company designs, purchases, and installs the solar system. In some cases the company also provides operation and maintenance services. The building owner hosts the system on their property and pays a fixed monthly fee over the life of the contract, usually 15 – 20 years. Typically, the building owner is guaranteed a minimum amount of production from the PV system.
- **Power Purchase Agreement (PPA).** Under this model, a solar finance company designs, purchases, installs, operates, and maintains the solar system. The homeowner hosts the system on their property and purchases all of the energy produced, typically at a cost that is competitive with the local electric utility rate.

For further reading: www1.eere.energy.gov/wip/solutioncenter/financialproducts/ppa.html

In places where energy costs and solar insolation are high (e.g. Arizona, California), the monthly fee is often less than or equal to the monthly electric savings, making this a very attractive option for those who can't get the cash to purchase a full solar system, or can't take advantage of the 30% federal tax credit. For example, in California, in 2012, over 70% of residential systems installed were owned by third parties. However, in Washington, where we have relatively low electric rates and a seasonal solar resource, it's difficult to offer the same value proposition.

Currently, third-party ownership models are limited to new construction in Washington State. The following mechanisms need to be in place before this becomes a more widespread option:

- Legal or regulatory clarity for third-party solar ownership models
- Local financial incentives available to 3rd parties or users of 3rd party systems

The Washington legislature and the Washington Utilities and Transportation Commission (UTC) are currently reviewing proposals to provide legal/regulatory clarity for third-party ownership models. Nevertheless, the state production incentive is not available to third party owners or customers who use leased systems, so even with legal clarity, it may not be feasible for solar financing companies to operate in Washington.

There is some concern that allowing third party owners to finance systems in Washington would result in national solar finance companies dominating the installation market, and offering consumers a less attractive option than ownership. Oregon provides an example of a state that has adopted third-party ownership models. In Oregon, the availability of third-party ownership models has made solar PV more accessible to people who don't have the means to purchase a system up front or to self-finance the project. Some local installers have partnered with national companies to provide third-party options; other installers are working to develop their own third-party products in order to offer customers the option. For many installers that offer a third-party option, over 50% of their customers elect this option and their business is growing. Regulators and legislators in Washington might look closely at the Oregon experience as they seek to balance concerns for consumer protection with the need to expand options for solar access, for residential, commercial, and institutional customers.

FOR FURTHER READING

Speer, Bethany. "Residential Solar Photovoltaics: Comparison of Financing Benefits, Innovations, and Options." National Renewable Energy Laboratory Technical Report NREL/TP-6A20-51644. October 2012.

"Third-Party Loans with Credit Enhancements: Loan Loss Reserves and Interest Rate Buy Downs." U.S. Department of Energy, Energy Efficiency & Renewable Energy, Solution Center.
Website: www1.eere.energy.gov/wip/solutioncenter/financialproducts/thirdpartyloans.html