



Solarize Seattle: Northeast

January 28, 2012

solarize seattle northeast

Northwest SEED

- ▣ Program manager, logistics hub
- ▣ Trusted non-profit with technical and program expertise



Sustainable NE Seattle

- ▣ Community outreach lead
- ▣ Volunteer-driven neighborhood sustainability organization



A&R Solar/NW Wind & Solar

- ▣ Competitively selected installation team
- ▣ Installed over 500 kW in 2011



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Northwest SEED saw the success of the Portland Solarize campaigns and decided to take it on with a Seattle flavor.

Outline

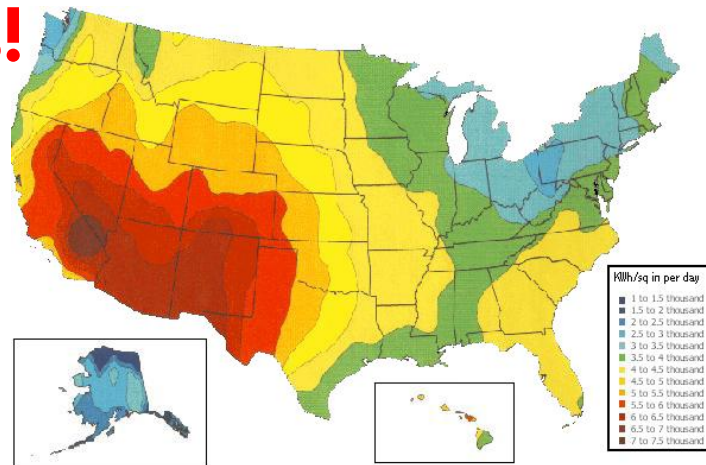
- Solar in Seattle
- Introduction to Solarize
- Photovoltaic technology
- Incentives & financing
- Next steps
- Q&A session



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Does solar work in Seattle?

Yes!

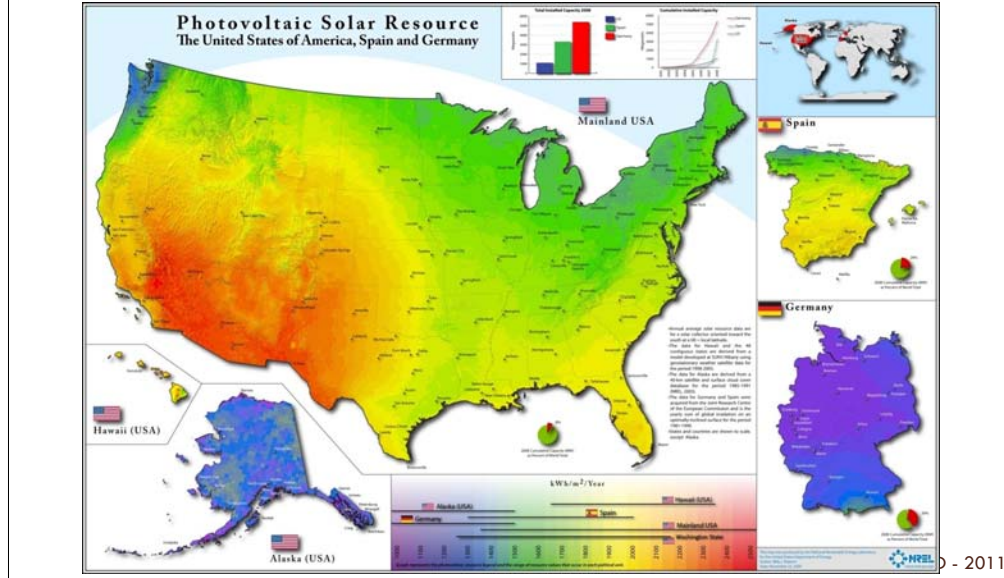


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Do we get enough sun here in Seattle for solar to work? In contrast to California or the Southwest, Seattle may look like it has insufficient resource.

The darkest red areas seen in CA/NV get 6 times the resource that the darkest blue (Alaska) gets; Seattle's just about in the middle. So does that mean we get enough sun to make solar work here?

Seattle: 15% sunnier than Germany



In fact, Seattle gets plenty of sun for us to use solar energy to power our lives. Here's a fun factoid- Seattle actually gets 15% more sun than Germany, and Germany is the world's leader in solar electric installations!

What limits use of solar in Seattle is not our solar resource, but economic, logistical and awareness barriers.

About Solarize

- Solarize is a simple process designed to:
 - ✓ Reduce upfront cost
 - ✓ Streamline installation
 - ✓ Invoke action!
- Community-led effort
- Technical support from the experts
- The best deal possible

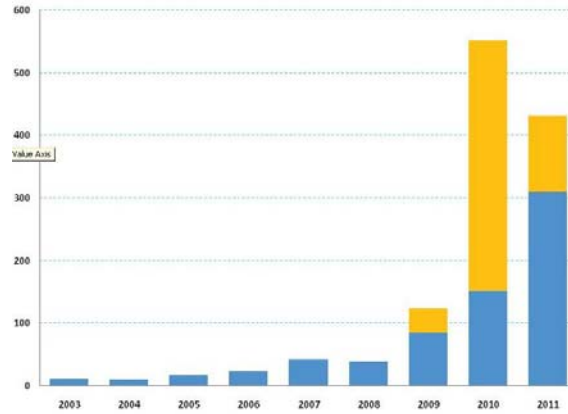
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Reduce upfront cost by packaging existing state and federal incentives with a Solarize discount offered by the contractor.

Streamline installation by providing free workshops and site assessments from a pre-selected contractor vetted by your neighbors.

Invoke action by combining the above with a limited time registration period that will run through April 23, 2012.

Proven Solarize success in Portland

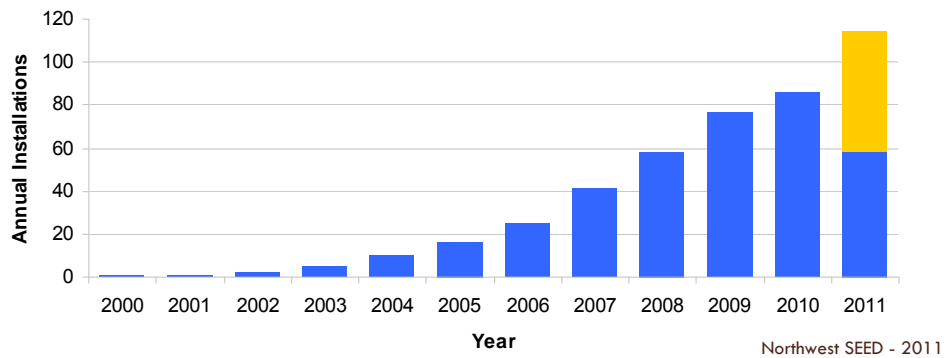


- Over 400% increase in solar installations
- Installed cost dropped 36%

Blue = independent installations (not associated with a Solarize campaign)
Yellow = Solarize installations

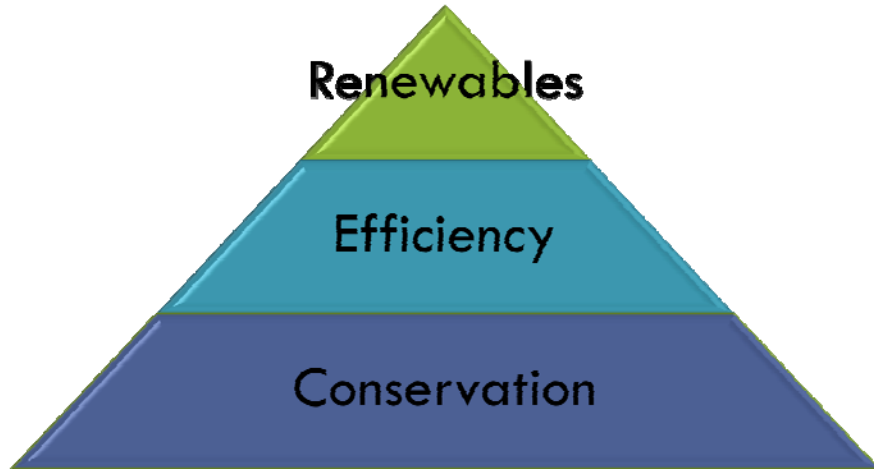
Solarize success in Seattle!

- Seattle
 - Queen Anne campaign: 30 installs
 - Magnolia campaign: 26 installs
 - Northeast campaign: ???



Blue = independent installations (not associated with a Solarize campaign)
Yellow = Solarize installations

Solar is *part* of your energy solution



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Solar technologies

- Solar electricity
 - ▣ Photovoltaics, or PV

- Concentrating solar power
 - ▣ Thermal solar, using mirrors

- Solar hot water
 - ▣ Does not produce electricity!



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We'll be focusing on solar PV in Solarize Seattle: Northeast

Solar PV's unique values

- No noise or pollution
- Low maintenance and long life
- Efficient transmission
- Integrates with the urban environment
- **Free fuel!**



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Do you have the right site?

Lots of shade = Not Good



Future shade = Not Good



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Do you have the right site?

Roof in good condition = Good!



Facing South, East, or West = Good!



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Sizing

- A kilowatt (kW) is an instantaneous measure of power
 - ▣ Like your speedometer
- A kilowatt-hour (kWh) is an AMOUNT of energy
 - ▣ Like your odometer
- Average Seattle home uses about 9,000 kWh/yr
- 1 kW of PV produces about 1,000 kWh/yr in Seattle

Average size of Solarize Seattle installations thus far is 4 kW, which will provide about ½ the electricity for an average home

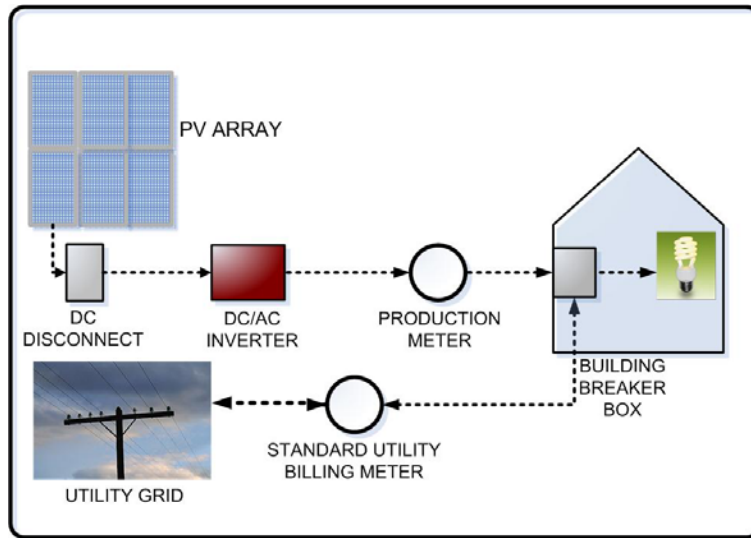
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Interconnection & net metering

- Interconnection is the technical tie-in of the system to the Seattle City Light's power grid
- Net metering is a billing arrangement
 - ▣ "Bank" excess energy with City Light
 - ▣ Meter spins backward; customer receives retail value for each kWh produced
 - ▣ Excess generation is credited toward the next month's bill

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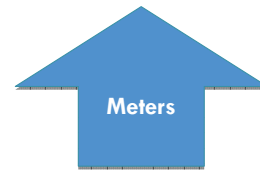
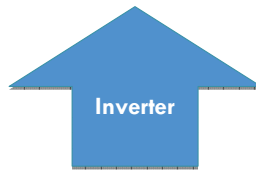
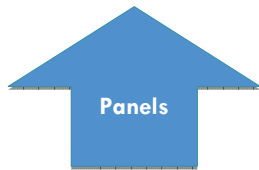
Solar system diagram



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When the sun shines on the array, it produces DC power that flows to the DC/AC inverter. The AC power flows from the inverter to the production meter, which measures every kilowatt hour produced by your system. Then the electricity flows to your breaker box (where the breakers are tripped) and is used by the “loads” in your house. If you aren’t home and nothing is “on”, the electricity can flow to the grid, through the standard utility billing meter, which is a two way meter. It basically “runs backwards” when you send energy to the grid, and so it is like you are banking your excess energy on the grid. When you get home and use the energy, it flows back into your home, but you have to consume as much as you sent to the grid before your meter reaches the same reading again. If, in a billing period, you produce MORE energy than you use, the excess credit is applied to the following bill period. In the summer, you will likely make more than you use. In the winter, you will use more than you make.

On your home...



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Standard installations

- System choices: Itek Energy, SolarWorld, Grape Solar, Silicon Energy
- Composite or metal standing seam roof
- 1 or 2 story roof access
- Roof slope \leq 8:12

The A&R Solar/NW Wind & Solar installation team will help you select the best system for your needs during your site assessment



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So, how much does it cost?

Final cost will depend on:

- What size system you install
- What type of panels you use



= AMAZING \$ per watt

Financing & incentives

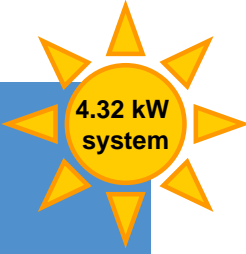
- No sales tax on systems <10kW
- Solar Federal Tax Credit = 30% of project cost
- Washington Solar Production Incentive
 - ▣ \$0.15/kWh for out of state components
 - ▣ \$0.54/kWh for Washington panels/inverters
- Net Metering - city credits your account for energy produced

Solarize = additional discount through economies of scale and group purchasing

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How the price breaks down

System manufactured in Washington



\$31,712	Retail sticker price
<u>(\$6,240)</u>	Solarize group discount
\$25,472	Upfront cost to you
(\$7,641)	Federal tax credit
<u>(\$2,746)</u>	Average Annual Benefit (production incentive + energy savings until 2020)
\$15,085	Net cost to you after year one
8 years	Cash positive investment

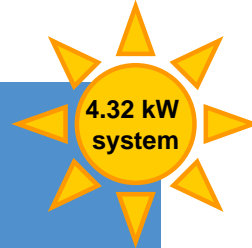
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Sample based on price breakdown of a 4.32 Itek Energy system (made in WA, \$0.54/kWh incentive).

How the price breaks down

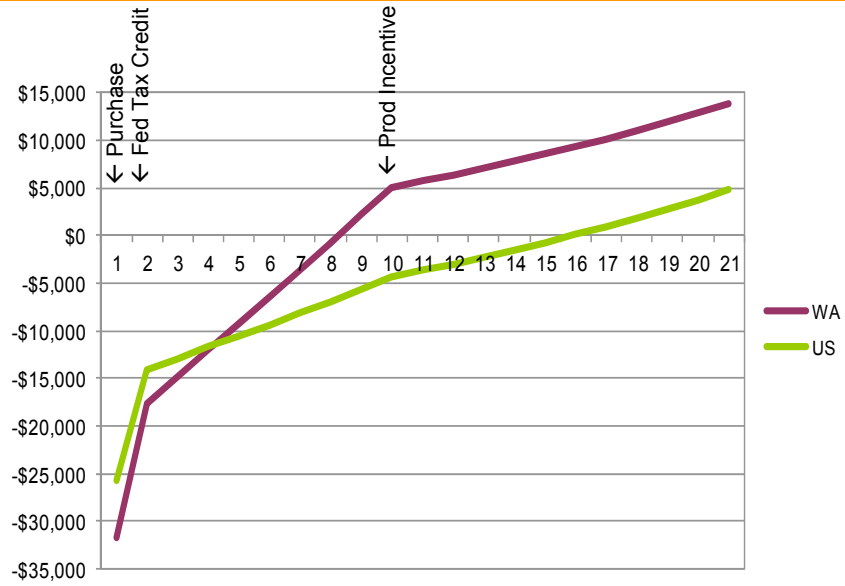
System manufactured out-of-state

\$25,623	Retail sticker price
<u>(\$5,319)</u>	Solarize group discount
\$20,304	Upfront cost to you
(\$6,091)	Federal tax credit
<u>(\$1,110)</u>	Average Annual Benefit (production incentive + energy savings until 2020)
\$13,103	Net cost to you after year one
15 years	Cash positive investment

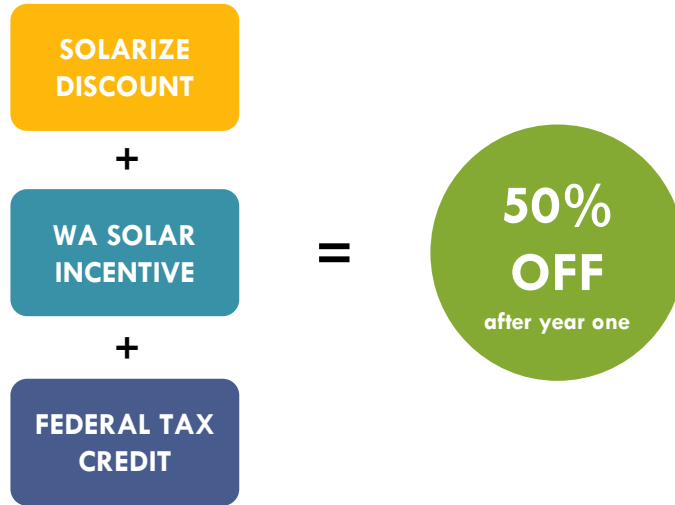


Sample based on price breakdown of a 4.32 SolarWorld system (made in OR, \$0.15/kWh incentive).

Solar PV payback over time



The bottom line



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Financing options

- Partnership with Umpqua Bank
- GreenStreet Lending
 - ▣ Home Equity Line of Credit
 - ▣ Home Equity Loan
 - ▣ Unsecured Consumer Loan
- No prepayment costs, loan origination costs or fees
- Details at www.greenstreetloan.com



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We're here to offer Umpqua as one great option, but feel free to contact your own bank to see what financing option works best for you.

Next steps to go solar!



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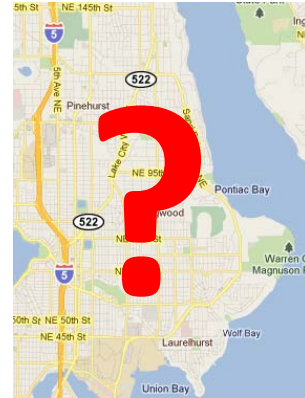
Queen Anne



Magnolia



Northeast



Queen Anne: 160 registered, 30 installs

Magnolia: 171 registered, 26 installs

Northeast Seattle: ???

For more information:

Web: www.solarizewa.org

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