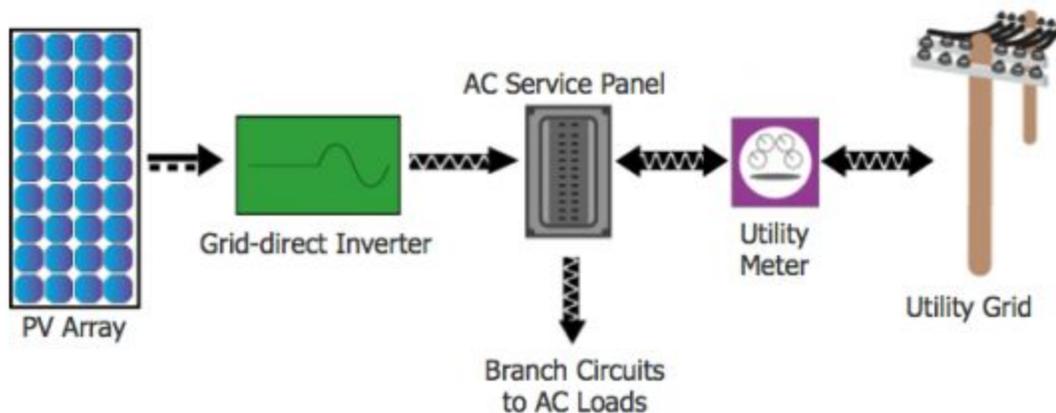


Norstar Heating & Cooling, Inc.

PV Solar System

There are two basic Solar systems on the market; Thermal and Photo-Voltaic (PV), we will discuss the advantages of the PV systems in the market place.

PV systems convert Ultra Violet radiation (sun light) in to DC electricity, which in turn can be stored in batteries or directly back onto the grid after being converted into AC power using inverters.



There is a misconception that you need a lot of sunshine to generate power, however this is not the case. Cloudy days will still produce electricity, because it is UV radiation that is needed and clouds will not prevent radiation to reach the earth. Outdoor temperature also plays a role in the efficiency of the panels, 64 degrees F is the temperature where the panels are producing the most electricity, this means that in our area we will be hitting this ideal temperature more often than in areas with a lot of sun hours like Arizona etc.

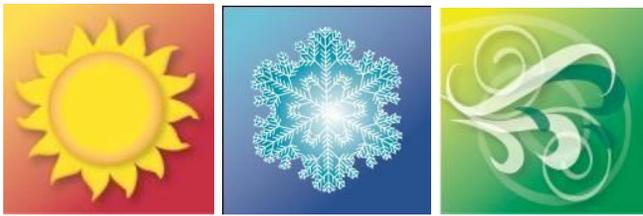
Washington is blessed with cool long summer days which results in more efficient solar production. The cooler temperatures we experience allow solar panels to perform at higher efficiencies than they do under hot desert sun. With Washington State's adoption of a [net](#)

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[metering program](#) in 1998, solar system owners are able to bank their summer production and pull upon the credits during the winter months.

The rain for which Washington is so famous also plays a role in keeping solar systems free of dust throughout the year.

In addition to the ability to net meter your annual solar production, Washington State's incentive program for locally built products is one of the most robust in the nation. With current state incentives, system owners can make \$0.54 for every Kilowatt hour they produce with solar. It is this ability to make money on your energy rather than continuously spending money that allows system owners within Washington State to pay off their solar systems [in as little as 5 years!](#)

Current Incentives:

30 % Federal Tax Credit

WA State Sales Tax Exemption (no sales tax)

\$0.54 WA State incentive on every kW produced.

With Current Washington State and federal incentives solar presents one of the most stable investments available. By installing Washington built Itek panels and inverters system owners have the potential to have a complete return on investment (ROI) within the first 5 years of operation. Beyond this point of ROI every kWh produced by solar is essentially free energy for the remaining lifespan of the system.

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Below is an example of a typical cost analysis for a Washington Built solar system:

4 kW WA-Manufactured Solar System

Installed Cost: \$19,985.00

30% Federal Tax credit: -\$5,995.50

Total out of pocket cost: = \$13,989.50 (no sales tax added)

Estimated WA State Power Produced Incentive in First 5 Years

5,000 kW x \$0.54/kWh= \$13,500.00 (NREL Calculation)

+

Estimated Energy Savings in First 5 Years

5,000 kW x \$0.08/kWh= \$2,000.00

Total Return on Investment after 5 Years = \$14,500.00

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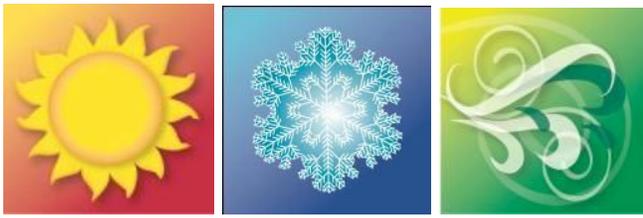
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With current Washington State and Federal incentives as well as energy savings the potential ROI in the first 5 years allows for a complete recuperation of the initial cost making everything else from then on profit.

Estimated Energy Savings for remaining 20 years
 $5,000 \text{ kW} \times \$0.08/\text{kWh} = \$19,930.00$ (annual utility increase of 2%)

Yearly WA State until 2020
 $5,000 \text{ kW} \times \$0.54/\text{kWh} = \$2,700.00$ per year

With the intrinsic increase in power prices from utilities and the unchanging nature of the sun the time has never been better to go solar!

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