

PV System Performance Factors

5kW PV array in Seattle, S. facing, 26° tilt

Results per NREL SAM model and weather data

Shading Effect

<u>Shading Type</u>	<u>Annual Energy (kWh)</u>	<u>% loss</u>
None	5312	0
Morning, until 10A	4843	8.8
Afternoon, after 2P	4523	14.9
Winter: all Dec	5249	1.2
Winter: all Nov, Dec & Jan	5083	4.3
Unshaded 9A to 3P	4610	13.2
Unshaded 8A to 4P	5038	5.2

Climate & Location Effect

* Note: Seattle weather data is "TM2" type. Other locations are "TMY3" type

<u>Location</u>	<u>Annual Energy (kWh)</u>	<u>% +/-</u>
Seattle	5312*	0
SeaTac	5463	+2.8
Renton	5498	+3.5
Snohomish	5450	+2.6
Hoquiam	5475	+3.1
Olympia	5078	- 4.4
Bellingham	5392	+1.5
Oak Harbor (NAS Whidbey)	5804	+9.3
Spokane	6355	+19.6
Yakima	6579	+23.9

Collector Orientation Effect

<u>Deviation from South</u>	<u>East Facing (% loss)</u>	<u>West Facing (% loss)</u>
None	0	0
30°	3.5	1.1
45°	6.7	3.4
60°	10.6	6.6
75°	15.2	10.8
90°	20.1	15.5