NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

8,409 kWh/Year*

System output may range from 8,077 to 8,733 kWh per year near this location.

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Value ($)
January	4.00	631	81
February	4.78	665	86
March	4.92	753	97
April	5.53	783	101
May	5.28	753	97
June	5.54	750	97
July	5.73	785	101
August	5.52	759	98
September	5.42	721	93
October	4.59	673	87
November	4.12	598	77
December	3.42	538	69
Annual	4.90	8,409	$ 1,084

Location and Station Identification

Requested Location	philadilphia,Pa
Weather Data Source	Lat, Lon: 39.97, -75.18 1.5 mi
Latitude	39.97° N
Longitude	75.18° W

PV System Specifications *(Residential)*

DC System Size	6.3 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	39.81°
Array Azimuth	190°
System Losses	15.49%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.129 $/kWh

Performance Metrics

Capacity Factor	15.2%