SAMPLE SOLMETRIC AND PVWATTS

Sample Shading Report and Estimate of Annual Output using Solmetric Suneye and PVWatts

For this example, assume there are 10 250-Watt modules on a south-facing house roof and 8 modules on an east-facing garage roof.

The contactor must run a shading report and a PVWatts report for each of the two arrays.

The overall TSRF (total solar resource fraction) for the site is calculated as follows, taking a weighted average of the TSRF of each roof:

Array 1 (House): 10 modules divided by 18 modules X 93%TSRF = 51.7%

Array 2 (Garage): 8 modules divided by 18 modules X 65%TSRF = 28.9%

Array 1 Plus Array 2 = 51.7% + 28.9% = 80.6%, round to nearest whole number, TSRF = 81%.

Estimate of Annual Output = Array 1 Plus Array 2

Estimate of Annual Output = 3,083kWh + 1,838kWh

Estimate of Annual Output = 4,921kWh/year

SAMPLE SOLMETRIC AND PVWATTS

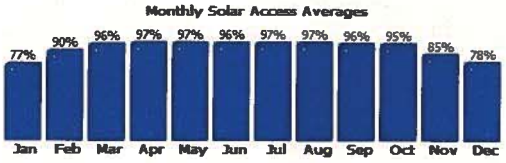
Session Properties

Name	
Creation Date	12/15/2014 8:41
Note	(none)
Location	42.4°N, 76.5°W Mag Dec: 12.1°W Time Zone: GMT-05:00

Solar access averages of 4 skylines in this session

Skylines Averaged: Sky01, Sky02, Sky03, Sky04

Annual	May-Oct	Nov-Apr
93%	96%	88%

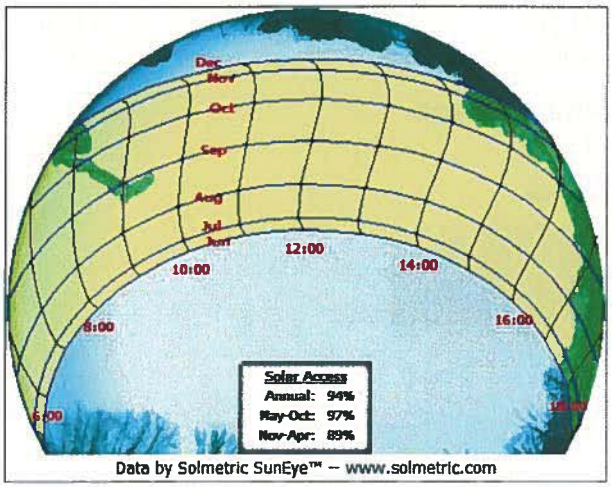


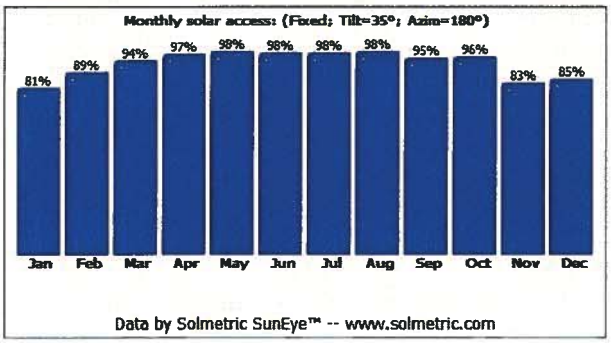
TSRF averages of 4 skylines in this session: 93%

SAMPLE SOLMETRIC AND PVWATTS

Sky01 – 12/15/2014 9:31 – (no skyline note)

Panel Orientation: Tilt=35° – Azimuth=180° – **Skyline Heading=180°**
Solar Access: Annual: 94% – Summer (May-Oct): 97% – Winter (Nov-Apr): 89%
TSRF: 94% – **TOF:** 100%

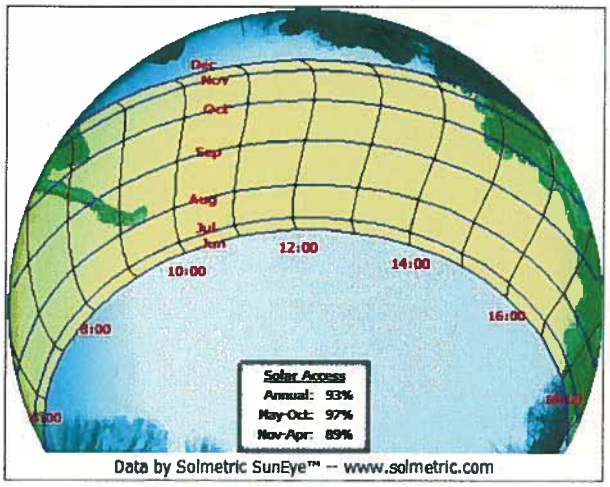


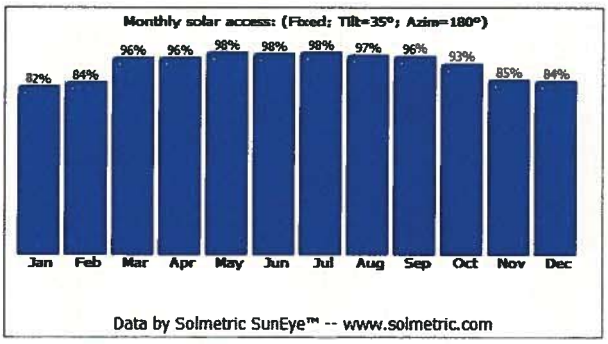


SAMPLE SOLMETRIC AND PVWATTS

Sky02 – 12/15/2014 9:31 – (no skyline note)

Panel Orientation: Tilt=35° – Azimuth=180° – **Skyline Heading=181°**
Solar Access: Annual: 93% – Summer (May-Oct): 97% – Winter (Nov-Apr): 89%
TSRF: 93% – **TOF:** 100%

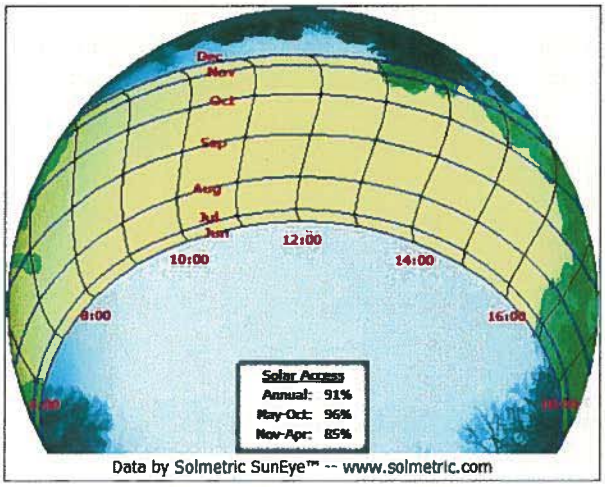


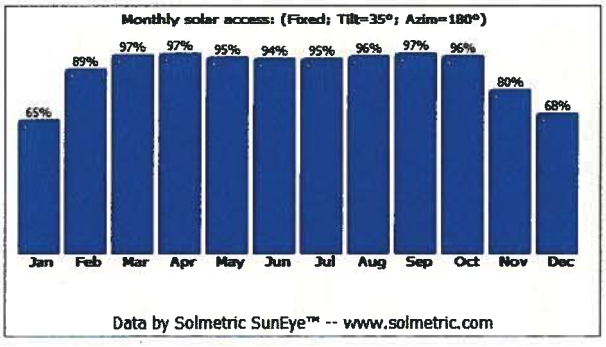


SAMPLE SOLMETRIC AND PVWATTS

Sky03 – 12/15/2014 9:33 – (no skyline note)

Panel Orientation: Tilt=35° – Azimuth=180° – **Skyline Heading=179°**
Solar Access: Annual: 91% – Summer (May-Oct): 96% – Winter (Nov-Apr): 85%
TSRF: 91% – **TOF:** 100%

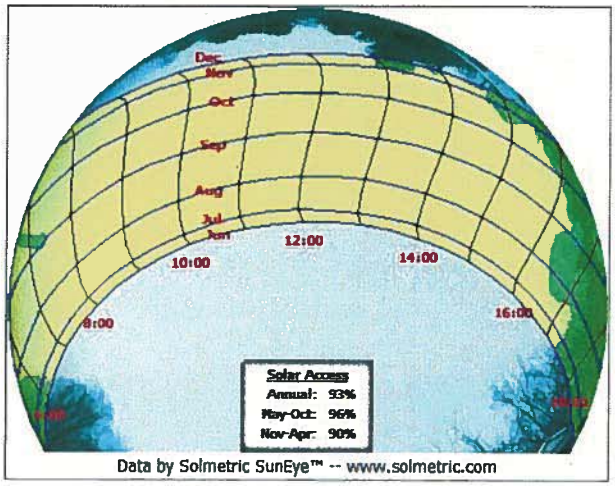


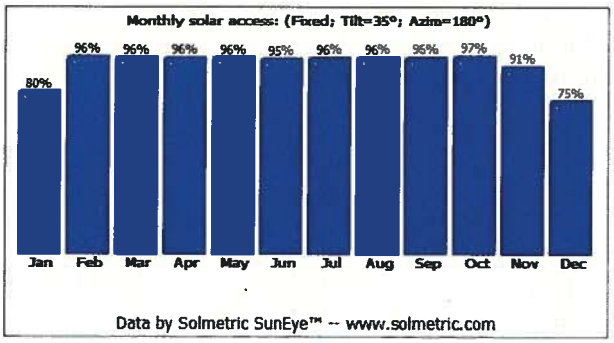


SAMPLE SOLMETRIC AND PVWATTS

Sky04 – 12/15/2014 9:34 – (no skyline note)

Panel Orientation: Tilt=35° – Azimuth=180° – **Skyline Heading=180°**
Solar Access: Annual: 93% – Summer (May-Oct): 96% – Winter (Nov-Apr): 90%
TSRF: 93% – **TOF:** 100%





SAMPLE SOLMETRIC AND PVWATTS

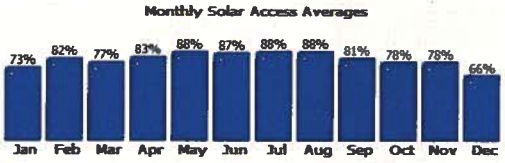
Session Properties

Name	
Creation Date	6/25/2015 17:14
Note	(none)
Location	42.4°N, 76.5°W Mag Dec: 12.1°W Time Zone: GMT-08:00

Solar access averages of 4 skylines in this session

Skylines Averaged: Sky01, Sky02, Sky03, Sky04

Annual	May-Oct	Nov-Apr
83%	86%	78%

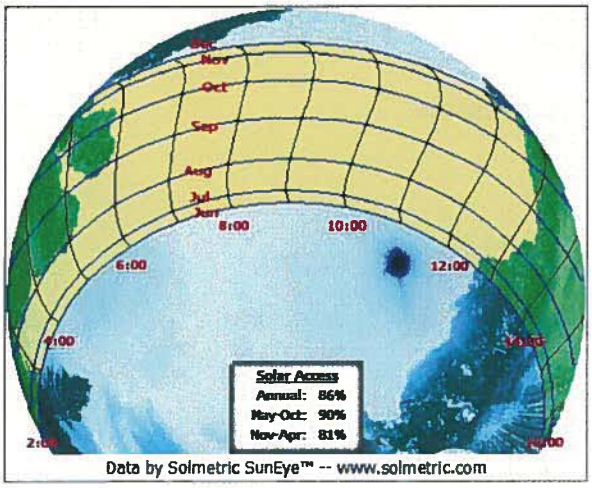


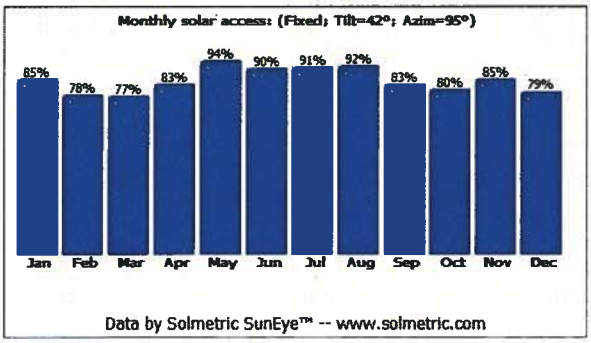
TSRF averages of 4 skylines in this session: 65%

SAMPLE SOLMETRIC AND PVWATTS

Sky01 – 6/25/2015 17:20 – (no skyline note)

Panel Orientation: Tilt=42° – Azimuth=95° – **Skyline Heading=178°**
Solar Access: Annual: 86% – Summer (May-Oct): 90% – Winter (Nov-Apr): 81%
TSRF: 67% – **TOF:** 78%

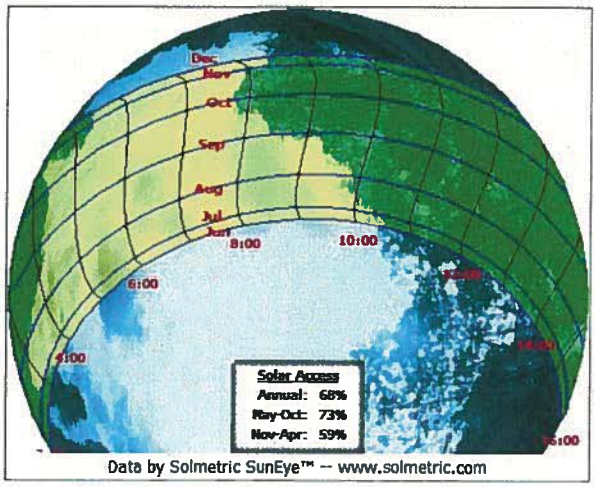


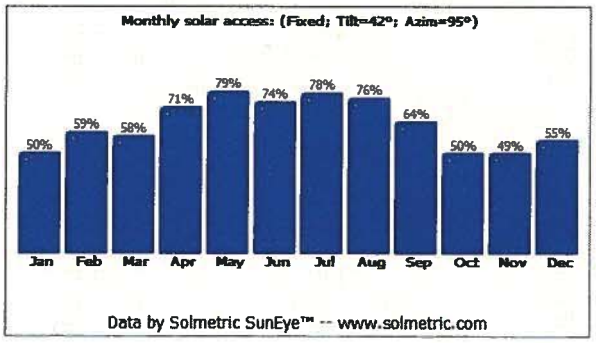


SAMPLE SOLMETRIC AND PVWATTS

Sky02 – 6/25/2015 18:27 – (no skyline note)

Panel Orientation: Tilt=42° – Azimuth=95° – **Skyline Heading=181°**
Solar Access: Annual: 68% – Summer (May-Oct): 73% – Winter (Nov-Apr): 59%
TSRF: 53% – **TOF:** 78%

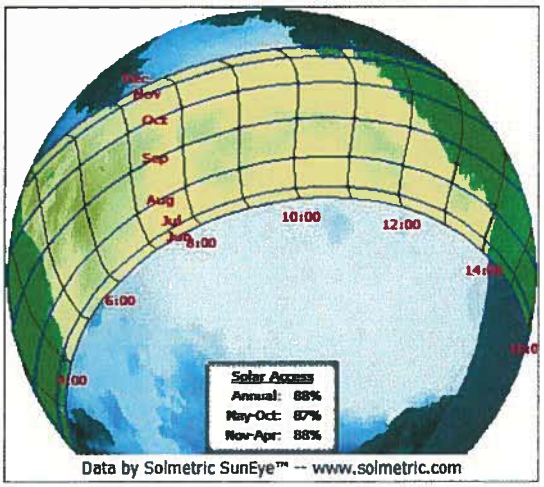


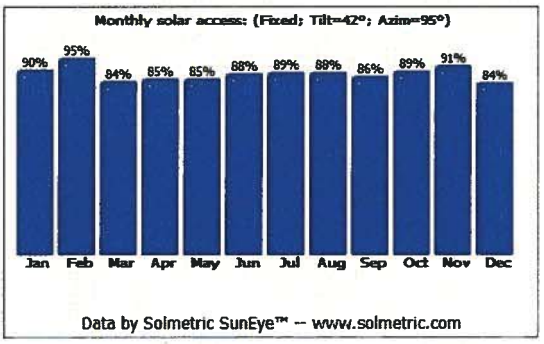


SAMPLE SOLMETRIC AND PVWATTS

Sky03 – 6/25/2015 18:37 – (no skyline note)

Panel Orientation: Tilt=42° – Azimuth=95° – **Skyline Heading=194°**
Solar Access: Annual: 88% – Summer (May-Oct): 87% – Winter (Nov-Apr): 88%
TSRF: 68% – **TOF:** 78%

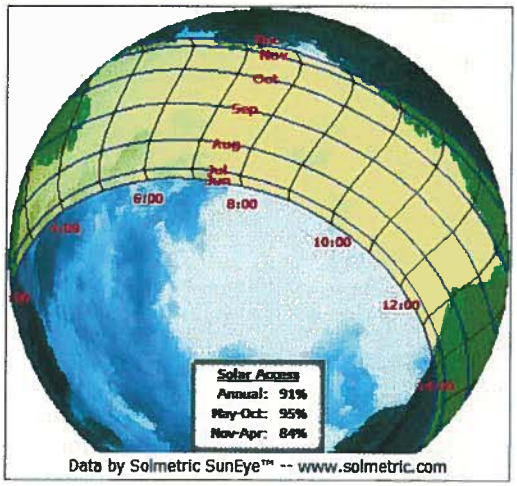


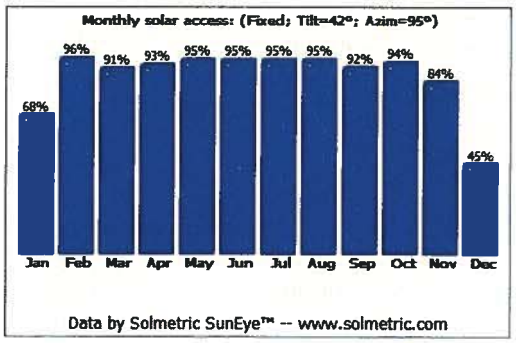


SAMPLE SOLMETRIC AND PVWATTS

Sky04 – 6/25/2015 18:44 – (no skyline note)

Panel Orientation: Tilt=42° – Azimuth=95° – **Skyline Heading=156°**
Solar Access: Annual: 91% – Summer (May-Oct): 95% – Winter (Nov-Apr): 84%
TSRF: 71% – **TOF:** 78%





SAMPLE SOLMETRIC AND PVWATTS

NREL

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 http://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

RESULTS

3,083 kWh per Year *

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	2.99	197	N/A
February	3.90	230	N/A
March	4.24	269	N/A
April	5.06	302	N/A
May	5.70	332	N/A
June	5.57	307	N/A
July	5.93	331	N/A
August	5.60	317	N/A
September	4.95	278	N/A
October	3.91	234	N/A
November	2.34	143	N/A
December	2.18	144	N/A
Annual	4.36	3,084	0

Location and Station Identification

Requested Location	12156
Weather Data Source	(TMY2) ALBANY, NY 19 mi
Latitude	42.75° N
Longitude	73.8° W

PV System Specifications *(Residential)*

DC System Size	2.5 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	35°
Array Azimuth	180°
System Losses	17.62%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	No utility data available
Initial Cost	3.30 $/Wdc
Cost of Electricity Generated by System	not determined

- For economic incentives to be calculated, Average Cost of Electricity Purchased be set on the SYSTEM INFO page.

SAMPLE SOLMETRIC AND PVWATTS

NREL

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 http://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

RESULTS

1,838 kWh per Year *

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	1.81	87	N/A
February	2.72	120	N/A
March	3.22	154	N/A
April	4.17	188	N/A
May	5.03	221	N/A
June	5.23	218	N/A
July	5.40	227	N/A
August	4.83	206	N/A
September	3.80	161	N/A
October	2.71	122	N/A
November	1.47	66	N/A
December	1.40	68	N/A
Annual	3.48	1,838	0

Location and Station Identification

Requested Location	12156
Weather Data Source	(TMY2) ALBANY, NY 19 mi
Latitude	42.75° N
Longitude	73.8° W

PV System Specifications *(Residential)*

DC System Size	2.0 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	42°
Array Azimuth	95°
System Losses	22.93%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	No utility data available
Initial Cost	3.30 $/Wdc
Cost of Electricity Generated by System	not determined

- For economic incentives to be calculated, Average Cost of Electricity Purchased be set on the SYSTEM INFO page.