

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

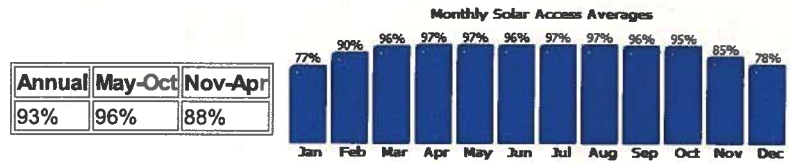
Estimate of Annual Output = 4,921kWh/year

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



TSRF averages of 4 skylines in this session: 93%

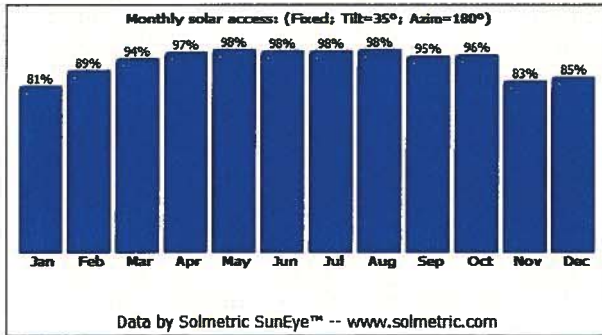
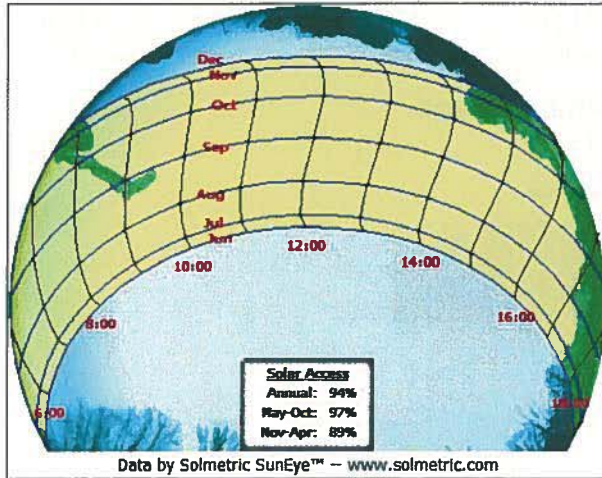
SAMPLE SOLMETRIC AND PVWATTS

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%



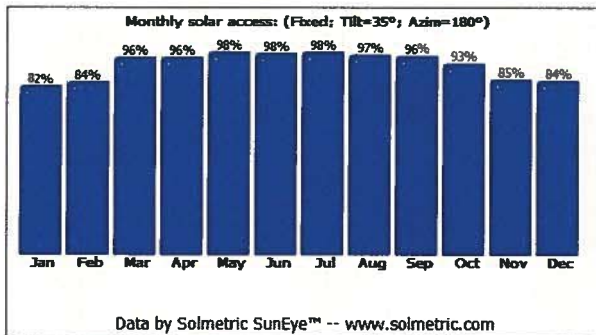
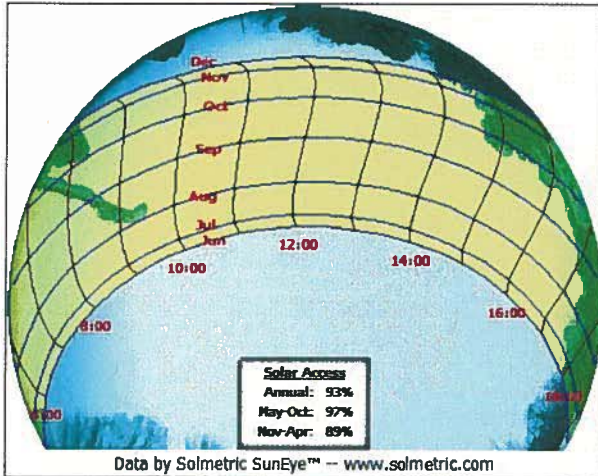
SAMPLE SOLMETRIC AND PVWATTS

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%



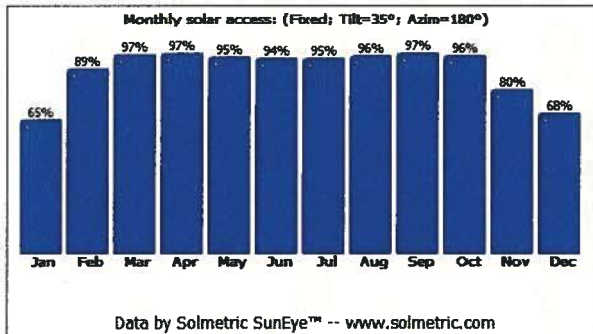
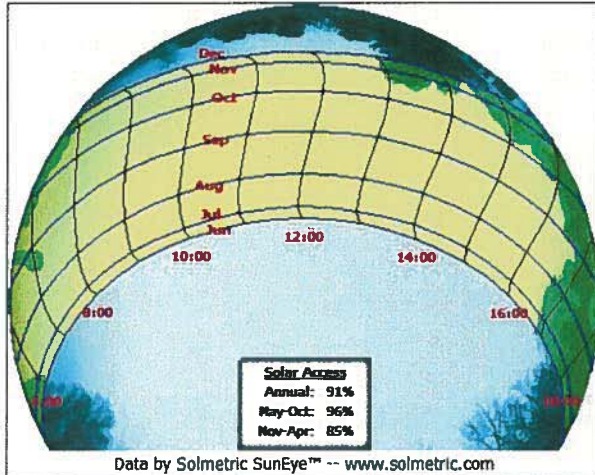
SAMPLE SOLMETRIC AND PVWATTS

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%



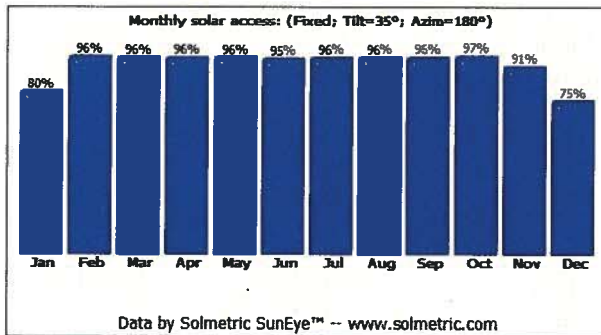
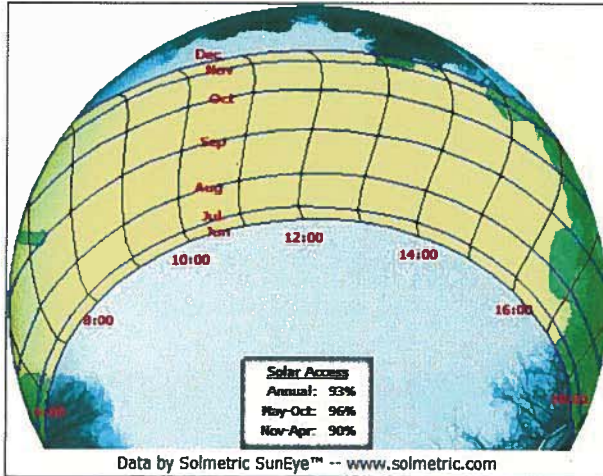
SAMPLE SOLMETRIC AND PVWATTS

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%



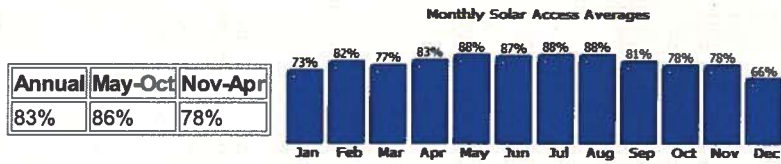
SAMPLE SOLMETRIC AND PVWATTS

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



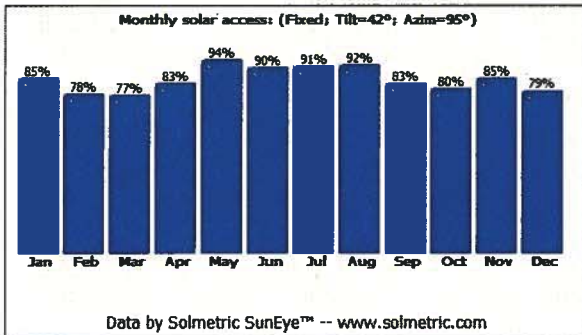
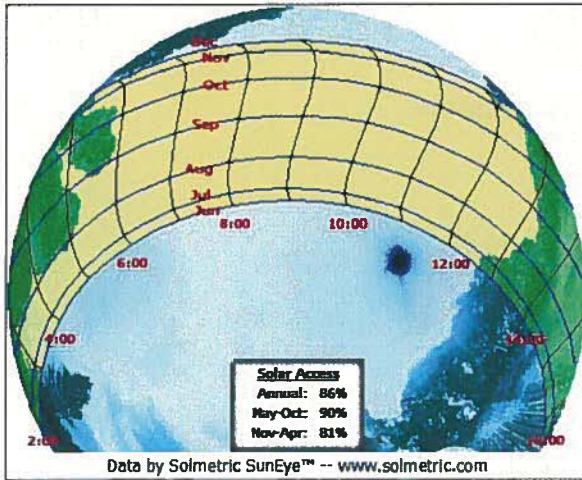
TSRF averages of 4 skylines in this session: 65%

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%



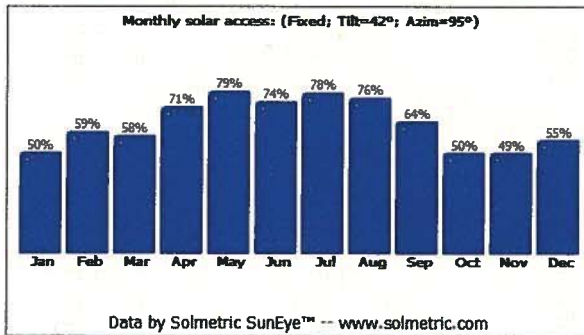
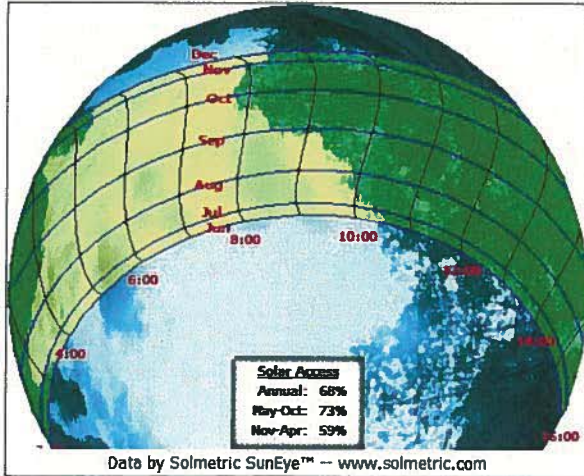
SAMPLE SOLMETRIC AND PVWATTS

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%

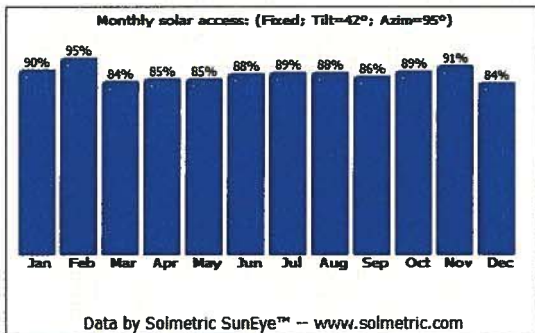
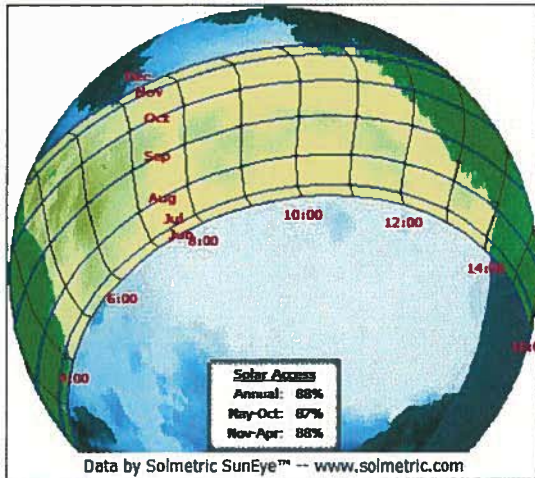


SAMPLE SOLMETRIC AND PVWATTS

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%**



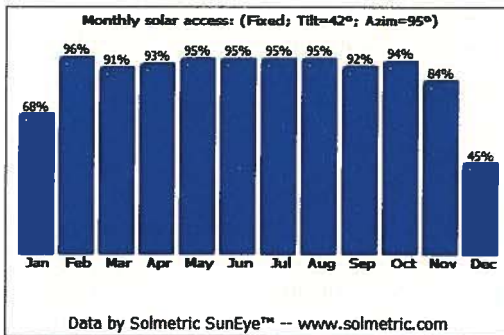
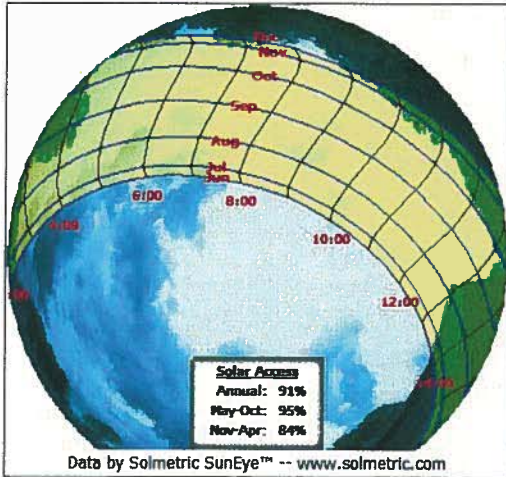
SAMPLE SOLMETRIC AND PVWATTS

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



RESULTS

3,083 kWh per Year *

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.

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Month	Solar Radiation (kWh / m ² / 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



RESULTS

1,838 kWh per Year *

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Month	Solar Radiation (kWh / m ² / 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.