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We've been tracking 14 of our customers PV systems in Western Mass since 2003, a representative sample of roof and ground mounts with varying tilt angles and orientations.

Their average changes each year and as you can see is significantly lower than the predicted output of a PV system based on 20 year meteorological data for Albany and Boston and for a true south oriented 1 kW PV system tilted at 42 degrees.

Our sincere thanks to all our customers who report their solar kWh readings. The data has been used by many students of solar and helps us accurately estimate benefits.

AC Production range 1 kW PV Capacity

| Month | kWh | | |
|---------------------|--------------------|-------------|-------------------------|
| | based on 20 yr avg | | based on past 7 yr avg* |
| | Boston | Albany | BPVS Sample |
| Jan | 71 | 68 | 75 |
| Feb | 81 | 79 | 89 |
| Mar | 111 | 107 | 104 |
| Apr | 122 | 123 | 109 |
| May | 140 | 135 | 107 |
| Jun | 146 | 139 | 111 |
| Jul | 150 | 149 | 120 |
| Aug | 137 | 143 | 115 |
| Sep | 136 | 127 | 99 |
| Oct | 119 | 109 | 78 |
| Nov | 75 | 67 | 74 |
| Dec | 66 | 56 | 70 |
| Total annual | 1354 | 1302 | 1151 |

Courtesy of detailed data collected by BPVS -W. Mass systems from 2003-2010. © BPVS 2011

Environmental Benefits per 1 kW of Capacity

Based on Western Mass Generation Mix Year 2010

| | | Daily | Yearly | System Life 30 Years |
|-----------------------|------|--------|----------|----------------------|
| kWh | high | 3.710 | 1354.000 | 40624.50 |
| | low | 3.153 | 1151.000 | 34525.35 |
| CO2 (lbs) | high | 4.338 | 1583.462 | 47503.859 |
| | low | 3.686 | 1345.729 | 40371.878 |
| SO2 (lbs) | high | 0.0183 | 6.7133 | 201.401 |
| | low | 0.0156 | 5.705 | 171.164 |
| NO _x (lbs) | high | 0.0092 | 3.366 | 100.995 |
| | low | 0.0078 | 2.861 | 85.832 |
| Hg (g) | high | 0.0043 | 1.599 | 47.999 |
| | low | 0.0037 | 1.359 | 40.793 |

Emissions were calculated using data from ISO- New England, EPA and EIA and McClatchy.

BPVS summer interns have refined this table over the years- Ben Carlson from the University of Vermont did the most recent research for 2010.

This table was first created by Abby Krich in 2004 when she was at Cornell University.

Rebecca Knights of our office did the research when she interned in 2008 from MCLA and now guides new summer interns on keeping it updated.

High= (Boston Weather Data-20 yr. avg.) Low= (BPVS Sample--past 7 yr. avg.)

(CO₂- Carbon Dioxide, SO₂-Sulfur Dioxide, NO_x-Nitrogen oxide, Hg-Mercury)

Not shown are trace amounts of cadmium and arsenates, a host of toxins and radioactive elements which result from conventional electricity generation supplied to Berkshire, Franklin, Hampden and Hampshire counties of Massachusetts.