

Comparison of module tilt and azimuth angle using PV Watts							
1 kW array located in Blue Ash, Ohio		39.4 N, 84.6 W					
Standard derate factor of 77% of DC label rating							
Azimuth fixed at 180 degrees (true south)				Tilt Angle fixed at 30 degrees			
Roof Pitch	Tilt Angle	Estimated Annual Production		Azimuth	Estimated Annual Production		
rise/run	degrees	Kwh	% of max	degrees	Kwh	% of max	
Flat	0	1088	88%	90	1010	81%	
"2/12"	10	1170	94%	120	1129	91%	
"4/12"	20	1221	98%	150	1211	98%	
"6/12"	25	1235	100%	180	1240	100%	
"7/12"	30	1240	100%	210	1205	97%	
"8/12"	35	1238	100%	240	1133	91%	
"10/12"	40	1229	99%	270	998	80%	
	50	1185	96%				
	60	1111	90%				
	70	1007	81%				
	80	877	71%				
Vertical	90	725	58%				
Solar Irradiation Per Time of day							
39 degrees N latitude		% of total days sun hours					
		June	December				
11:00 AM	1:00 PM	28	32				
10:00 AM	2:00 PM	52	60				
9:00 AM	3:00 PM	74	82				
8:00 AM	4:00 PM	88	96				
7:00 AM	5:00 PM	96	100				