U.S. DOE Model Tools for Photovoltaic Solar Design

OSU Green Home Workshop
May 4, 2016

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National Renewable Energy Laboratory Solar Model Tools for Solar Design

PV Watts Calculator
http://pvwatts.nrel.gov

NREL System Advisory Model
https://sam.nrel.gov

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Calculating System Size

1	Identify annual usage (kWh) from your utility bill	7,159 kWh
2	Subtract kWh you will eliminate with conservation and energy efficiency (kWh)	7,159 − 0 = 7,159 kWh
3	Divide by 1,100 kWh/yr. This represents a system providing 100% of your electricity (kW)	7,159 / 1,100 = 6.5 kW
4	Multiply by the percent of your electricity you would like to provide using solar energy (kW).	6.5 x 80% = 5.2 kW
5	Multiply by 1.2 for system inefficiency (W).	5.2 x 1.2 = **6.24 kW**

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PV Watts System Production (kWh) Estimate

Month	Actual	PV Watts Estimate	Difference
January	848	413	435
February	520	402	118
March	570	699	-129
April	582	869	-287
May	410	736	-326
June	636	826	-190
July	526	847	-321
August	516	793	-277
September	550	619	-69
October	616	614	2
November	618	301	317
December	767	320	447

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Thank You!

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