**GRID-TIED PV SYSTEM SIZING**

1. Analyze your electric bill for the last 12 months to determine how many kW-hrs.

were used *each month* then add all the monthly amounts to determine total *annual* amount of kW-hrs.

2. Divide the total *annual* amount of kW-hrs. *(from #1)* by 365 to determine the

average *daily* load.

3. Determine *average hours of irradiance* at the location by using the following website & instructions:

[www.pvwatts.nrel.gov](http://www.pvwatts.nrel.gov)

1. Where it says “Get Started” type in your home city
2. Next page: on the map, select the weather station *closest* to your home
3. Click on big orange arrow “Go to system info”
4. In “DC System Size”, type in 2000
5. Click on big orange arrow “Go to PV Watts results”

f) In the “Solar Radiation” column, use the “Annual” number for your project

**4. Determine minimum amount of AC power needed:**

Avg. daily load *(from #2)* ÷ avg. hours of peak insolation per day (from #3)

= kW of AC needed

Apply derate factor (typically 0.82):

kW of AC needed ÷ 0.82 = minimum requirement of kW DC

(amount of watts needed from solar panels)

*[Derate factors adjusts for inefficiencies in system-design, components, and environment]*

**7. Determine how many solar panels are needed:**

Minimum requirement of kW ÷ 310W= total # of panels needed

*(from step #4)* *(solar panel)*