

EE 446/646 (Take-home Portion of Test # 1)

Consider a PV array that is made up of a string of 10 panels. The data sheet of each panel is described in the link below.

<http://www.siliconsolar.com/documents/datasheet-solarworld-270w-mono-solar-panel.pdf>

- 1) Use TMY3 data of Las Vegas, NV, to calculate the daily maximum solar energy that can be produced by the above array on your birth month when it faces south ($\Phi_c = 0$) with a tilt $\Sigma = L = 36^\circ$. Ignore the reflected portion of sunlight.
- 2) Repeat the above if the array is mounted on a single-axis tracker (polar mount type).
- 3) Repeat the above if the array is mounted on a two-axis tracker.

Plot your results on the same graph for comparison purposes.

Hint: use the panel thermal characteristics to determine its maximum power production under different weather and solar conditions.