

1096-P1-1137 **Victor J. Donnay*** (vdonnay@brynmawr.edu), Department of Mathematics, Bryn Mawr College, Bryn Mawr, PA 19010. *Using Solar Panels to Teach Integration*. Preliminary report.

Bryn Mawr College has a small solar array, the data from which is displayed in real time on the college's sustainability webpage. The system records the power generated by the solar panels (in watts) at 5 minute intervals and then makes a graph of power vs. time. We use this data to give a real world example of integration. Starting from the basic relation that energy = power x time, we find that the total energy produced by the solar panels is the area under the power curve. Since the power curve is given by discrete data points rather than an analytic function, determining the area involves Riemann sums or other geometric methods rather than taking an anti-derivative. This calculus lesson can be adapted for use in a variety of courses including pre-calculus, quantitative reasoning, and mathematical modeling. The example responds to the student lament: "Why did the professor confuse us with all that stuff about Riemann sums when we could have just taken the anti-derivative". (Received September 13, 2013)