

Darrell Ross'  
Engineering 305 AT Project Proposal:  
**A Small Scale Off-grid PV System**

**What:** An off-grid photovoltaic system to run six compact florescent bulbs and provide a radio and an AC outlet for light duty use. My dad, Will Ross, is the commissioner of the project. It is his birthday gift to his partner Peggy Miniclier (it is her barn) as well as a chance for me to have a fun project. It is also a precursor to a system he would like to install to run his computers.

**Where:** The system will be installed in a barn in the northern end of the Anderson Valley in Mendocino County. It is quite a drive – approximately four hours – but it is also where my Dad lives so I will not have to go there very often. My Dad will be able to answer questions I have as they arise. The barn is used for storage as well as the feeding area for a horse (Poppy) and a pony (Scooby Doo).

**Who:** I will be the sole Engineering 305 student on this project. I will be getting advice from Douglas Livingston of Livingston Consulting based in Willits. Doug has a lot of experience with PV in Mendocino County. He can provide me with the figures I will need for winter noon-hours, etc.

<b>Timeline:</b>	<b><u>Week(s)</u></b>	<b><u>Work</u></b>
	1 – 3	Brainstorming & initial calculations of available power. Estimates of system size & desired output.
	4 – 7	Thorough research of design & materials constraints. Meetings with my Dad and Doug to work out a schematic of the system. This will include at least one visit to the barn to decide on exact location of all wiring and system parts and a complete parts list.
	8	Using the list and the schematic, use P-Spice or something similar to emulate the system and look for design flaws.
	9 – 12	Purchase of parts & installation. I am sure to run into plenty of obstacles on the installation so I intend at least two trips to finish it. The first will be most of the work and the second will be to troubleshoot and add finishing touches.
	13 +	Write-up: although I will be taking careful notes the whole time, I will use the last few weeks to compile them into a comprehensive report including photos of the installation. I also intend to build a small website describing the process.