

Energy Calculations

Daily Energy	164 Wh/day			Full Sun Hours	2.05 hrs/day
	0.164 kWh/day			Panel Power	100 Watts
Panel number	2			Balance of System	0.8
Total energy	0.328 kWh/day				
System voltage	12 V				Inverter Size Pic
# Cell phones	1 phone		How to use spreadsheet: Input new numbers in pink cells and the grey cells will change to reflect the new data. This spreadsheet was designed for the solar charging station at CCAT, which will be a 200W, two panel, off-grid system for cellphone/laptop charging.		
Cell phone charging power	4 Watts				
Charge time	1 hour				
Energy use	0.004 kWh				
Our system could theoretically charge:	82 cell phones/day				
# Cuisinart Smart Stick Hand Blender	1 blender			# Electric drill batteries	1 drill battery
Hand blender run power	200 Watts			Drill power	200 Watts
Use time	0.1 hrs			Charge time	1 hrs
Energy use	0.02 kWh			Energy use	0.2 kWh
Our system could theoretically run:	16.4 hand blenders/day			Our system could charge:	1.64 12 V drill batteries/day
# Laptops	1 laptop			# Xmas light strings	1 string
Laptop charge power	44 Watts			Light power	25 Watts
Charge time	2 hrs			Use time	2 hrs
Energy use	0.088 kWh			Energy use	0.05 kWh
Our system could theoretically run:	3.73 laptops/day			Our system could run these lights for about	12 hours
				# Tablets/ipads	1 tablet
				Tablet/ipad power	5 Watts
				Charge time	1 hrs
				Energy use	0.005 kWh
				Our system could charge:	65.6 tablets/ipads per day
Note: Anything that could not be run through a USB port will require an inverter.					
Currently, this is not included in our design, but could be in the future.					