Ocean Planet Energy –System Load Calculation Worksheet

Calculate your boat's AC and DC ***daily*** loads and express them in Amp hours ***per 24 hour period***.

Step 1 – Calculate your AC loads that draw on your DC batteries through an inverter (If you have no AC loads, skip to Step 2). Most AC appliances have a rating in Watts.

AC Equipment	Watts	*Watts divided by 10 (*for 12v systems by 20 for 24v systems)*	(X's) Hours of Use/Day *0.1hr = 6 minutes*	(=)Amp Hours *used in 24 hrs*
	120		5	j
TOTAL Amp Hours from AC				

*this formula includes efficiency losses from inverter, and battery charging/discharging

Step 2-Calculate your DC loads. Most DC equipment has an Amp rating. If the operating load is given in Watts, divide by the system charging voltage (13v or 26v) to get the Amp rating.

DC Equipment	Amps Rating	(X's) Hours of Use/Day *0.1hr = 6 minutes*	(=) Amp Hours *used in 24 hrs*
TOTAL Amp Hours from DC			
(Multiply by 1.15 for charge/discharge losses for adjusted amp hours)			

TOTAL Amp Hours from AC (+)	
TOTAL Amp Hours from DC (=)	
TOTAL Amp Hours in a 24 hour period	

Output of Solar panels averages out to be roughly 1/3 of their rating in Watts. For example, a 100watt panel will provide roughly 30 amp hours. To calculate the optimal wattage for panels to meet the daily loads, multiply the total amp hours by 3. For example, 150 amp hours x 3 = 450 watts of solar.

Total Watts of Solar Desired(Amp hrs X 3)	