

## WHAT ARE MY ENERGY NEEDS?



### Daily DC Requirements

Appliance	Watts x	hrs =	Watt-hrs
Lights	40	3	120
TV	35	3	105
Fan	20	4	80
Avg. daily DC energy use			305



Add 30% of the total to allow for system losses: 92 \*

**Daily average DC energy 397**

(of course, if you have four lights or two fans, you must multiply the "hrs" figure accordingly)

### Daily AC Requirements

Appliance	Watts x	hrs =	Watt-hrs
Power tool	240	0.25	60
Computer	40	3.5	140
Stereo	35	2.0	70
Avg. daily AC energy use			270



Add 40% of the total to allow for system losses: 108 \*

**Daily average AC energy 378**

Total your average daily DC and AC Energy Requirements: 775

Back-up Generator Adjustment: Subtract the daily energy produced by any back-up generator. Our figure is zero.

**Total Solar Energy Requirement 775**



### How Many Modules Will I Need?

Input your solar module's power rating (we will use a figure of 50 Watts). Then multiply that figure by the number of sunlight hours (or "Area Factor," see map).

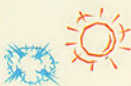
Area Factor	4
4 x 50 =	200 Watt-hrs per module

**Modules needed to meet 775 Watt-hrs: 4**

### ...And How Large a Battery Bank?

Total Battery Storage Requirement is arrived at by multiplying Daily Power Requirement by the number of cloudy days that batteries must operate loads without solar charge. A good average guess is 5.

Daily Power Requirement	775
x Cloudy days	5
= Preliminary Battery System Size	3,875
+ 30% Safety Factor (Capacity so batteries are not damaged from too deep a discharge)	1,163



**Required battery bank capacity in Watt-hrs: 5,038**

(To convert to Amp-hrs, divide by the voltage)