



## PV System Estimator

### 1. Calculate AC Load

AC Load	Watts	Hours Per Day	Days Per Week	= Watt Hours

AC Weekly Watt Hours

AC Inefficiency Factor = 1 +    
25% for mixed systems, 30% for AC only

Total AC Weekly Load   
Watt Hours

### 2. Calculate DC Load

DC Load	Watts	Hours Per Day	Days Per Week	= Watt Hours

DC Weekly Watt Hours

DC Inefficiency Factor = 1 +    
20% in most circumstances

Total DC Weekly Load   
Watt Hours

### 3. Calculate PV Contribution

Total DC Weekly Load   
From Section 2.

Total Weekly Load   
Watt Hours

Backup Contribution Percentage   
From Generator or Alternate Source

Adjusted Weekly Load   
Watt Hours

Daily PV Energy Budget   
Watt Hours

### 4. Convert to Amp Hours

System Volts

Total Daily Amp Hours

### 5. Calculate Battery Size

Days of autonomy   
Usually 3.5 Days

Normal storage capacity in Amp Hours

Maximum Drawdown   
Typically 50%

Required Battery Capacity in Amp Hours

Derating Factor for Cold Weather

Total Rated Battery Capacity in Amp Hours

Single Battery Capacity in Amp Hours

Number of Batteries in Parallel

### 5a. Calculate Battery Size (Continued)

System Volts   
From Section 4.

Rated Battery Voltage

Number of Batteries in Series

Number of Batteries in Parallel   
From Section 5.

Total Number of Batteries  x 6V golf-cart batteries

### 6. Calculate PV Array Size

Total Daily Amp Hours   
From Section 4.

Bright Sunshine Hours   
From Table

Array Current in Amps

Module Current in Amps  175W, 24V module

Number of Modules in Parallel

System Volts   
From Section 4.

Module Voltage

Number of Modules in Series

Number of Modules in Parallel

Total Number of PV Modules  x 175W modules

# How much power do I use?

This following table is intended as a guideline, to give you a rough idea of how much power certain appliances will use. Actual electricity use will vary from appliance to appliance. All appliances will have a tag which indicates it's power use - this number does not accurately tell you the actual power consumption of the appliance.

Appliance	Daily Usage (hours)	Power (Watts)	Daily Electricity (Wh)
Shallow pump	0.5	100	50
Lighting (CFL)	4	15	60
Computer - laptop	2	40	80
Satellite Dish	2	40	80
VCR/DVD	2	40	80
SQFlex deep pump	0.5	300	150
Toaster	0.15	1000	150
TV - 20"	2	100	200
Computer - desktop	2	120	240
Kettle	0.16	1500	240
Lighting (regular)	4	60	240
Microwave	0.25	1000	250
Vacuum	0.5	500	250
Ceiling Fan	8	45	360
Sundancer freezer			450
Deep well pump	0.5	1000	500
Coffee Maker	0.5	1200	600
Electric Frying Pan	0.5	1200	600
Hair Dyer	0.5	1200	600
Hot Plate	0.5	1200	600
TV - 34"	2	300	600
Fridge - Bar	10	70	700
Slow Cooker	4	200	800
Fridge - fullsize	10	100	1000
Washing Machine	2	500	1000
Dishwasher	1	1200	1200
Jacuzzi/Spa jet pump	1	1300	1300
Humidifier	8	175	1400
Water bed heater	8	450	3600
Clothes Dryer	2	2790	5580
Electric Heater	4	1500	6000
Air Conditioner (1 ton)	5	1900	9500
Electric Range	1	12200	12200
Water Heater	6	2475	14850