

# Solar Wind Works

Renewable Energy Power Systems

P.O. Box 2511 • Truckee, CA 96160 • 1-877-682-4503 • Fax: 530-582-4603

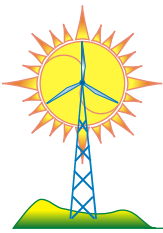
## PHOTOVOLTAIC SYSTEM SIZING WORKSHEET — PAGE 2

Battery Sizing								
AC Average Daily Load	÷	Inverter Efficiency	+	DC Average Daily Load	÷	DC System Voltage	=	Average Amp-hours/Day
	÷		+		÷		=	
Average Amp-hours/Day	x	Days of Autonomy	÷	Discharge Limit	÷	Battery Amp-hour Capacity	=	Batteries in Parallel
	x		÷		÷		=	
DC System Voltage	÷	Battery Voltage	=	Batteries in Series	x	Batteries in Parallel	=	TOTAL Batteries
	÷		=		x		=	
<b>Battery</b>	<b>Make</b>			<b>Model</b>			<b>Quantity</b>	

Array Sizing								
Average Amp-hours/Day	÷	Battery Efficiency	÷	Peak Sun Hours/Day		=	Array Peak Amps	
	÷		÷			=		
Array Peak Amps	÷	Peak Amps/Module	=	Modules in Parallel			Module Short Circuit Current	
	÷		=					
DC System Voltage	÷	Nominal Module Voltage	=	Modules in Series	x	Modules in Parallel	=	TOTAL Modules
	÷		=		x		=	
<b>Module</b>	<b>Make</b>			<b>Model</b>			<b>Quantity</b>	

Controller Specification								
Module Short Circuit Current	x	Modules in Parallel	x	1.25	=	Array Short Circuit Amps	Controller Array Amps	Listed Desired Features
	x		x	1.25	=			
DC Total Connected Watts	÷	DC System Voltage	=	Maximum DC Load Amps		Controller Load Amps		
	÷		=					
<b>Controller</b>	<b>Make</b>			<b>Model</b>			<b>Quantity</b>	

Inverter Specification						
AC Total Connected Watts	÷	DC System Voltage	=	Maximum DC Amps Continuous	Estimated Surge Watts	Listed Desired Features
	÷		=			
<b>Inverter</b>	<b>Make</b>			<b>Model</b>		
					<b>Quantity</b>	



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## PHOTOVOLTAIC SYSTEM SIZING WORKSHEET — PAGE 3

System Wire Sizing							
Wire Run	Volts	Amps		Wire Length (one way)	Volt Loss (%)	AWG #	Type
Array to Battery		Array Peak Amps x 1.562					
Battery to DC Load Center		Max DC Load Amps x 1.25					
DC Branch Circuits	A	Max DC Circuit Amps x 1.25					
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						
	J						
	K						
Battery to Inverter							
Inverter to AC Load Center							
AC Branch Circuits	A						
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						
	J						
	K						
Equipment Ground							
Electrical Ground							
<b>Array Interconnect Cables</b>		<b>Quantity</b>		<b>AWG #</b>		<b>Type</b>	
<b>Battery Interconnect Cables</b>		<b>Quantity</b>		<b>AWG #</b>		<b>Type</b>	