

Off Grid Load Assessment Form Instructions



- 1) Only enter data in the white spaces
- 2) Enter your name, address, telephone and email address
- 3) Enter the array location: ground or roof mounted with distance to switchboard
- 4) The roof orientation to north should be given in degrees if possible 0 degrees = north; 45 degrees = north east; 315 degrees = north west etc.
- 5) Array tilt angle: Enter the slope of the roof or ground mounted array (in degrees) where the panels will be mounted
- 6) A generator can reduce the size of the battery bank required (and thus the cost of the system)
- 7) Days autonomy: Enter the number of days desired (between 0.5 and 5 days) before which the generator would start. This is the number of cloudy days in a row in winter for which the battery should last.

- 8) Enter a value between -4 and 40 degrees Celsius for the room where the batteries will be situated
- 9) Now enter all the appliances that will draw power. Think of your appliance usage in terms of essential loads that are connected all the time and discretionary loads that you do not necessarily operate very often

- 10) Fill out the white cells for Quantity and Hrs/Day for the Appliance categories.
- 11) Fill in the wattage for each appliance. You may need to look on the bottom, back or elsewhere of your appliances to find the watts information. If your appliance has a different wattage than what is suggested, please fill in your actual appliance wattage. If your appliance does not have a wattage rating check for the amp rating and multiply it by 230 watts. The formula looks like this : Volts (230) x Amps = Watts. It is important to use your own appliance watts ratings to get the most accurate system design

- 12) Enter the expected number of hours per day in winter that you would use the appliance
Note: to estimate the number of hours that a refrigerator actually operates at its maximum wattage, divide the total time the refrigerator is plugged in by three. Refrigerators, although turned "on" all the time, actually cycle on and off as needed to maintain interior temperatures

Return this form by email to info@mcnae.co.nz

Or send by post to:

McNae Energy and Solar

PO Box 9086

Palmerston North 4441

Phone 06 3570405

OFF GRID LOAD ASSESSMENT FORM

Customer Name:	
Address of proposed installation:	
Telephones:	
Email:	
Array location (roof or ground):	
Roof cladding type:	
Array orientation to north (degrees):	
Array Tilt Angle:	
Days autonomy desired:	
Existing system voltage:	
Existing generator specifications:	
Battery room winter temperature:	

Essential AC Loads							
Electrical appliance	Suggested Watts	Quantity	Actual Watts	Total Watts	Winter hours	Wh per Day	
Lighting, Entertainment and Technology							
Fluoro lights single T5 1.2m tube	28			-		-	
Large LED lights in living areas	15			-		-	
Large LED lights in bedroom areas	13			-		-	
Small LED lights	5			-		-	
LED floodlight (sensor)	10			-		-	
4 star LED Television 32 inch	70			-		-	
4.5 star LED Television 40 inch	80			-		-	
5 star LED Television 50 inch	100			-		-	
5.5 star LED Television 65 inch	135			-		-	
DVD/Blu-ray player	25			-		-	
Hi-fi/music centre	30			-		-	
Radio	10			-		-	
Desktop computer & monitor	120			-		-	
Laptop computer	30			-		-	
Mobile phone charger	10			-	2.00	-	
Set top box	15			-	24.00	-	
Cordless phone	2			-	24.00	-	
Wi-Fi Router	6			-	24.00	-	
Alarm Clock Radio	2			-	24.00	-	
Security Alarm system	5			-	24.00	-	
Garage door opener	400			-		-	
Kitchen							
3.5 star Fridge/Freezer small 300l	105			-	8.00	-	
3.5 star Fridge/Freezer medium 400l	120			-	8.00	-	
3.5 star Fridge/Freezer large 500l	155			-	8.00	-	
3.5 star Chest Freezer small 200l	100			-	8.00	-	
3.5 star Chest Freezer medium 300l	125			-	8.00	-	
3.5 star Chest Freezer large 400l	140			-	8.00	-	
Toaster	900			-		-	
Microwave oven	1000			-		-	
Range hood	150			-		-	
Waste disposal unit	650			-		-	
Coffee machine	1800			-		-	
				-		-	
Other							
Baby Monitor	5			-		-	
Water pump (mains pressure)	750			-	1.00	-	
Septic wastewater treatment system	1000			-	1.00	-	
Ventilation DVS	10			-	24.00	-	
				-		-	
TOTAL - Essential AC Loads				-	Watts	-	Wh
				-	kW	-	kWh

Discretionary AC loads						
Electrical appliance	Suggested Watts	Quantity	Actual Watts	Total Watts	Winter hours	Wh per Day
Vacuum cleaner	2000			-	0.27	-
Washing mach front loader Cold wash	300			-		-
Iron	900			-		-
Sewing Machine	85			-		-
Food Processor	400			-		-
Power tool	1400			-		-
Bathroom extract Fan	150			-		-
Hairdryer	1500			-		-
Electric blanket (Queen)	120			-		-
Electric blanket (Single)	60			-		-
Breadmaker	550			-	0.50	-
				-		-
				-		-
				-		-
Other (not recommended to be run on off grid solar!)						
Dishwasher 4 Energy Star rating	2000			-	0.27	-
Dryer	2000			-	1.00	-
Crock Pot slow cooker	230			-	8.00	-
Electric Fry pan	500			-	0.50	-
Electric panel heaters	400			-	24.00	-
Dehumidifier	350			-	2.00	-
Pool pump & filter	800			-	12.00	-
Spa pool	2000			-	4.00	-
Oven	2200			-	1.00	-
Heat pump 6kW	2000			-	2.00	-
EV charger for vehicle	2200			-	10.00	-
Heated towel rail	80			-	8.00	-
Electric kettle	1800			-	0.50	-
				-		-
				-		-
				-		-
TOTAL - Discretionary AC Loads				-	Watts	- Wh
				-	kW	- kWh

DC loads						
Electrical appliance	Suggested Watts	Quantity	Actual Watts	Total Watts	Winter hours	Wh per Day
DC pump	60			-		-
DC lighting LED 2W	2			-		-
DC lighting fluorescent 10W	10			-		-
				-		-
				-		-
TOTAL - DC Loads						- Wh
						- kWh

TOTAL DAILY ENERGY CONSUMPTION PER DAY - kWh



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