

Solar Energy Group (Pty) Ltd
ENERGY CONSUMPTION PROFILE (PRE PLANNING) GRID TIE SYSTEMS

Please fill/type in the form and return via email: solar@SolarEnergyGroup.co.za or fax it through to: 011 604 0426

General guidelines for filling in this calculator:

1. **Add all appliances and lights to the list:** Go through your whole house, office or business and fill in all the appliances, lights, etc that will be ran off the solar or renewable energy system.
2. **Lights & Appliances:** Renewable energy sources are only made to run low energy/wattage appliances for instance lights which are not more than 15 Watts per hour. Preferably do not run lights for more than 6 hours. Use Energy saving/LED lights.
3. **Appliances like Fridges & Freezers:** All renewables are only made for appliances that are designed to run off low energy (wattage), for instance the fridge freezers Solar Energy Group (Pty) Ltd sells. This principle applies to any and all appliances. Tip: You can give your appliances a second life by selling them online on sites like: olx.co.za, bidorbuy.co.za, junkmail.co.za, etc
4. **Chest/Box Freezers:** Normally chest/box freezers running on 12/24/36/48/60/etc Volt DC are not made for alternative power generation. If running these types of appliances on higher DC Voltages, it will normally influence the long term sustainability of the solar panels.
5. **Self contained security lighting:** Solar Energy Group (Pty) Ltd does not sell this type of lighting. These need separate panels and batteries to work off DC power.
6. **Maximum watt hours:** If the watts calculated below exceed 34000 watt hours, please adjust within the ranges of 10000/18000/26000/37000 watts hours to allow for the use of multiple systems. This is The Solar Groups on *The Science of Alternative Power*. Exact wattage per hour cannot be guaranteed.
7. **Heavy Duty appliances:** Washing machines, tumble driers, dish washers, etc can only be used when the sun shines to maximise the life and power capacity of the batteries. A usage schedule will need to be drawn up and kept to for optimal effect.
8. **Stoves:** When it comes to 220 Volt stoves the best advice is to rather go for gas or low wattage induction hobs.
9. **Borehole pumps:** 220 Volt borehole pumps must be replaced with special borehole pumps sold at Solar Energy Group (Pty) Ltd. Converting existing borehole pumps cost on average 4 times more than a comparable solar water pumping system.
10. **Geysers:** 220 Volt geysers should be replaced with special solar geyser(S) or solar heat collector panel(S) sold at Solar Energy Group (Pty) Ltd.
11. **Heat pumps:** It is suggested that you rather go with solar geyser(S) or solar heat collector panel(S) sold at Solar Energy Group (Pty) Ltd. Heat pumps use less energy than conventional geysers, but still use a considerable amount of energy. The return on investment on a solar geyser is also much more and the payoff period shorter.
12. **Solar & Renewable Energy Book:** All of the information above, and much more, have been taken from the Book "Solar All about". We highly recommend that you buy this book because it will give you a good understanding of what solar & renewable energy is about.
13. **Unknown wattages:** If you are unsure about the wattage of any appliances, please write down the current (in amp) and the voltage (usually 220/230 Volt) for us to calculate the wattage (Watt = Amp x Volt). Normally ratings are written in amp on the appliances.
14. **Usage schedule:** Bear in mind that you will have to draw up a usage schedule for the appliances and lights mentioned above and will have to ensure that your family, employees and staff keep to this schedule in order for your power system to operate optimally. Solar Energy Group (Pty) Ltd will provide a template to work from.
15. **T's & C's and copyright:** Read the Solar Group terms & conditions as well as copy right restrictions before purchasing or entering into agreement with SEG

Personal/Company Details (fill in where applicable):

Client Name/Contact:		Contact Number(s):	
Company Name:		Email Address:	
Vat Reg nr:		Website:	
Location/Area:			

Energy Consumption Profile/pre planning guide (fill in details of the lights & appliances you want to run off the solar &/or renewable energy):

Type of appliance/lights & voltage	Qty	Watt or W/h written on the appliance (if written in per year/per day please indicate as well)	Plug in (Nr of appliances x watt/hour)	Hours planned to be used if power trips / is off				Total Summer Watt hours p/d (quantity x watt/h x hours of use)	Total Winter Watt hours p/d (quantity x watt/h x max hours of use)
				Day		Night			
				Summer	Winter	Summer	Winter		
EXAMPLE: Lights <u>220 Volt</u> (energy savers)	5	15 Watt/hour	5 x 15 = 75 Watt/h	0	1	4	5	5 x 15 watt x 4(0+4) hours = 300 Watt hours	5 x 15 watt x 6(1+5) hours = 450 Watt hours
EXAMPLE: Television (LED) <u>220 Volt</u>	1	60 Watt/hour	1 x 60 = 60 Watt/h	1	1	5	3	1 x 60 watt x 6(1+5) hours = 360 Watt hours	1 x 60 watt x 4(1+3) hours = 240 Watt hours
Totals	5		135 Watt					660	690

Which of the appliances/lights listed above will be plugged in and drawing power at the same time? If wanting backup power with grid ti (“called hybrid”) please indicate wattage of each appliance and how long they will work if power fails please remember wattage storage depends on size of batteries and system voltage... max 37 000 watt can be generated as mentioned. Solar Energy Group (Pty) Ltd uses these information to determine i.e. the size of the inverter that will be supplied with the system. Please supply SEG information regarding the installer to be used.

Description & Notes

Please note Solar Energy Group (Pty) Ltd offers 2 types of inverters (in the case of a Hybrid Grid Tied system with battery backup): normal inverters without battery chargers and ones with battery chargers. Please indicate if AC source (Grid/Escom/Generator/AC or DC Altenator) charging will be part of the system to charge batteries, then from there SEG can establish which inverter/which size battery charger etc can be advised in the quotation.

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