SINETECH SOLAR SYSTEMS
Standard non-grid solar systems with backup

Date : 28/03/2010 **Ver : 04**

Dear Customer

In today's world, as everyone knows, energy is becoming a very expensive commodity; whether its fossil fuel, atomic power or hydro power, resources are depleting rapidly and energy prices, for what ever reason, are rising exponentially.

Fortunately the sun offers energy for free but the conversion to energy is very costly

The solar system examples shown here are meant to be a guideline at certain power levels. Prices must be confirmed by a Sinetech technical sales consultant. Each customer has different requirements, so there is no 'standard' or 'kit' system suitable for everybody. Most non-technical people will have to have someone with solar experience do an audit to establish their exact requirements. This specialist time is usually charged for. However you can do a basic audit yourself if you follow the guidelines shown here.

In order to do any calculation or design, you first have to establish how many KW/hr you actually use per day. Without this figures it is impossible to do any calculations or design.

This can easily be done in two ways : look at your electricity bills over the last 6 months (or even better over the last year, to include the difference in energy used between winter and summer), add all the monthly invoiced KW/hr figures together and divide by the number of months you have available. This will give you an average monthly KW/hr figure for that period of 6 months (or 12 months, etc.).

The second way is to ask our sales personnel for the solar KW/hr calculator which has to be filled in accurately and achieves more or less the same results to provide a KW/hr figure per day. (Your electricity bill method would be more accurate)

The solar system examples are pre-calculated and provide costing for all major components that are required. The major components can be purchased directly from Sinetech. The cable and installation are usually provided by the installers and are included here as an installation / miscellaneous figures. (This would exclude any rewiring in your house or dwelling)

How to read the SOLAR OPTIONS COSTING SHEET Ver 04

Under 'Energy Saved in Kilowatt' (Green field) there are three figures in each section. The first one gives you the KW/hr per day, the second on the KW/hr per month and the third one, the KW/hr per year. This is the free power which could be provided by the solar system. These figures are

calculated and based on maximum perfect conditions i.e. full sunshine, new batteries, no losses, etc.

The 'Watts' figures in red are recommended maximum hourly usable energy for 8 hours per day. This does not mean that you have to use these figures exactly, they are average figures of the power that the solar system can provide over 8 hours e.g. in the first example, the KW/hr per day is 0,88 (or 880 Watts). This figure does not include any losses which will occur in the connection cables, connections, inverter conversions losses and battery losses. If you divide 0,88 by 8 hours, you will have 0,11KW = (110 Watts). The red figure for this example is 80 Watts. The difference between the 110 Watts and the 80 Watts is 30 Watts and is assumed to be the losses in the system as described above.

So now you have 80 Watts per hour, for each hour up to 8 hours that you can use; (or you could theoretically use 880 Watts in one hour but this is not possible in this case, as it is limited by the size of the inverter used in this system). If you were to use a more powerful inverter, you could draw higher energy levels in shorter periods of time.

On the right hand side of the red column are the load calculation examples. The first column “Item Qty” describes the quantity of items you are using for that specific item. The 2nd column “Description” describes the type of equipment; the 3rd column gives you watts per item; the 4th column displays the total wattage per that specific item. The 5th column displays how many hours per day you are running that specific item and the 6th column gives you the total watt/hour used per day for that specific item.

Item Qty	Item Description	Watts per Item	Total Watts used	Hours used per day		Total W/hr per day
2	Energy saver lights	14	28	4		112

Below the listed items, the green line shows the total watts/hours used per day and the line below that gives you the conversion of total KW/hrs per day for that example.

				Total watts used per Day		712
				or KW/hrs		0.712

These solar systems have been calculated and sized with the correct solar components which are available from Sinetech.

As solar systems are generally very costly, you may want to consider starting with an electronic back-up system (which is a fraction of the solar system cost) to provide you with many hours of power during power failures, and at a later stage, if finance allows, you would be able to add solar panels to these solar prepared systems. Please ask your technical sales consultants for further assistance.

As a cost guideline, depending on system size, a cost factor of R80 - R100 should be considered for every solar watt installed.