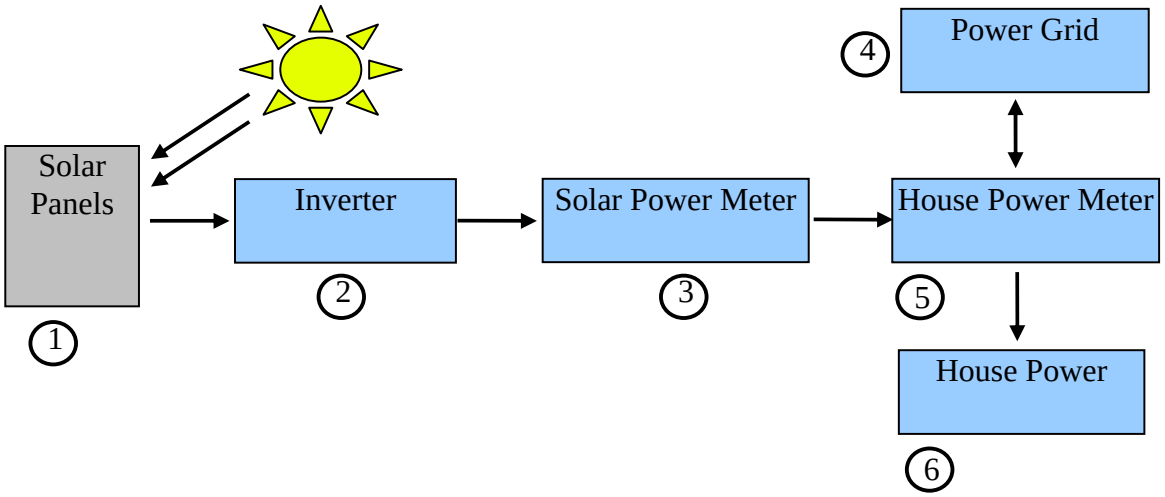
Grid Connected Solar – Info Sheet

What is a Grid Connected (or Grid Interactive – GI) solar system?

This is a solar system with solar panels and an inverter, which is connected to the main power supply grid. There are no batteries or other components found in a stand alone solar power system. The diagram below explains the basic working concept:-



How it Works:

1. Sunlight shines on solar panels producing DC electricity.
2. The DC is converted to 240 volt AC by the Inverter.
3. Solar Power Meter measures all electricity produced.
4. Grid Power supplies power to the house or receives power from the system, depending on house power usage and power production from the system.
5. The house power meter measures power used in the house in the usual way.
6. The 240 volt AC is used in the house.

Why would someone install a Grid Connected (GI) Power System?

There are several good reason:-

- To reduce your power bills, and even make money.
- To help solve the issues of global warming and pollution.
- To reduce the carbon footprints of products which you make. (Especially wine exporters).

Can you explain in more detail what you mean?

Reducing your Power Bill/Making Money

The smallest practical GI system is 1500W or 1.5kW. In full sunlight such a system will produce close to 1500 watts. For every hour that the system is producing this, it generates what is called 1.5 kilo watt hours.(kWh). The costs to buy this much power varies greatly depending on when and from whom you buy it. The average cost is about 20 cents per KWh. Peak power and excessive usage is more expensive still.
A 1.5kW system will produce on average around 8~9 kW hours per day. This doesn't sound like much, however there are other things to consider.

- The cost of electricity is expected to double in the next two(4) years due to higher costs of production and due to the introduction of a carbon trading system.
- The state government has introduced a **Gross Tariff Metering System**. This greatly improves the payback from your system. Under this system, all of the power you make is metered and you are paid for this at a **minimum rate of 60cents per KWh.**

Can you do the sums for me?

Money earned by a 1.5KWh GI System

- Average daily output will be approx 8 KWh.
- You are paid for all of this, so 8 X 60 cents = $4.80 per day
- This is $1752 per year.

** The average return on your investment is about 24%, so the system will pay for itself in **4 years.**

Is 1.5 KW a large enough system?

The answer for this one for most people is simple, **NO!**
And here is the why.

- In my experience, most people are currently consuming up to 30 KWh per day. In many cases far in excess of this; especially if you are on a farm or running a business?
- Because we are currently being paid 3 X the price we buy power for, you can install a 1.5 KW system and you will go close to breaking even and getting no or very low power bills.
- In the future power prices will likely rise. If prices to buy, become the same as the price you are selling your power for , what then? Simple, you will be paying for around 2/3 of your power usage, as your Solar System is only producing 1/3 of what you need. You will get bills, likely large bills.

What is the answer?

Where it is within you means, the answer is to install a system which produces the power you consume daily. Taking the 30Kwh figure, this means you need a GI Solar System of about 5KW. Obviously this is more expensive than a 1.5KW system, however it will produce more power and still pay for itself in around 4 years. Because you are making around the same power that you consume, you should never have a power bill, or at worst a very small one. (Depending on seasonal usage and weather).

Money earned by a 5 KWh GI System

- Average daily output will be approx 28 KWh.
- You are paid for all of this, so 28 X 60 cents = $16.80 per day
- This is $6132 per year.

Want to know more?

Contact me at SolarSat and I am happy to explain further.

Help Reduce The Global Warming and Pollution Problem

There are many factors which are causing pollution and global warming. One major contributor is reported to be the pollution produced by power generation. The amount of carbon emission produced to generate the power you personally use is shown on your power bill.

By installing a Grid Connected power system and working to lower your households power consumption it is possible to have a net power consumption of Zero(0) or less.

With a net power consumption of zero(0) this means that you have generated, with your solar system, as much power as you have used.

It is possible to generate more power than you have used. This is not only good for the Environment, but also the hip pocket.

Reduce Your Carbon Footprint

This is very important if you are an exporter of products such a wine etc. The European community are starting to look seriously at the carbon footprint of exported goods. **Australian wine exporters** are at a disadvantage as almost all of the electricity used is from coal fired generation. Currently a bottle of Australian wine has a **Carbon Footprint** which is around **400% higher** than a similar bottle from Europe. It is expected that this will be a serious problem for exporters of wine and other goods from Australia.

A GI power system can solve this problem as the system can be sized such that you could show that all of your power for production comes from your RE (renewable energy) source.

***Remember that power generated by a GI system is* GREEN POWER.**

How long can such a system last for?

Current solar panels have a warranty of 25 years, with a design life reported to be more than 100 years. Inverters can have warranties up to 10 years. Quality inverters will generally perform well beyond the warranty period with no problems.

Are there any Government grants for these kinds of systems?

Here there is good and bad news,
No – There is no longer a grant scheme.
YES – There is a renewable Energy Credit scheme.
Under the Energy Credit scheme (REC) you are paid credits for the panels you have installed. A

1.5KW system returns around $6000, while a 5KW system returns around $8500.

This reduces the cost to install a quality system.

Solar Sat
Solar Power & Satellite Services
0404 021 866
www.solarsat.com.au