ENERGY MATTERS

SOLAR POWER

CONSUMER GUIDE

Helping you select the right solar power system and avoid potential pitfalls.

1800 EMATTERS (1800 362 883)

energymatters.com.au

CONTENTS

WHY GO SOLAR?

Solar power systems are collectively saving Australian households millions of dollars a day on their electricity bills.

Aside from giving you the opportunity to generate your own electricity, a rooftop solar PV (photovoltaic) array addresses issues relating to the expense and inefficiency of distributing power over long distances, and contributes to reining in wholesale electricity prices in Australia.

The electricity solar panels produce is also "clean" – an environmentally friendly way to generate power, unlike the use of coal or other fossil fuels.

Because they have no moving parts, solar modules are extremely reliable, with an expected life span of several decades.* They are also self-cleaning, easy to install and require very little in the way of maintenance.

The average vehicle in Australia travels 15,000km per annum, which is equivalent to 3.75 tonnes of carbon dioxide emissions annually.**

A 3.5kW grid connected solar power system will offset approximately 4.5 tonnes of coal-fired electricity emissions a year **– so it's the equivalent of taking a car off the road.**

WANT TO KNOW MORE?

Click here for more information on:

- **Solar power systems**
- **Solar savings Australians millions of dollars**

* Majority of manufacturers listed in the CEC panel approval list, offer the 25-year standard solar panel performance warranty, which means that power output should not be less than 80% of rated power after 25 years.

**Source: http://www.roymorgan.com/findings/australian-moterists-drive-average-15530km-201305090702

TYPES OF SOLAR POWER SYSTEMS

The two main types of solar power systems are grid connect and off grid (stand alone/remote power). Their output capacity is measured in kilowatts (kW).

A grid connect installation ensures you have the electricity you need, whenever you need it – automatically and regardless of weather conditions.

With a grid connect system, your property is still connected to the electricity grid for periods such as night-time when solar electricity production does not meet your needs.

An off grid solar power system is completely separated from mains power and is more expensive as it utilises a battery bank for storing electricity generated by solar panels.

Off grid installations are most common in rural and outback areas of Australia where the mains grid isn't available, or prohibitively expensive to connect to. However, developments in home energy storage may soon see many more Australians disconnecting from the grid – even in our cities.

GRID CONNECT SYSTEM

OFF GRID SYSTEM

WANT TO KNOW MORE?

Click here for more information on:

– **Solar power systems**

HOW A GRID CONNECT SYSTEM WORKS

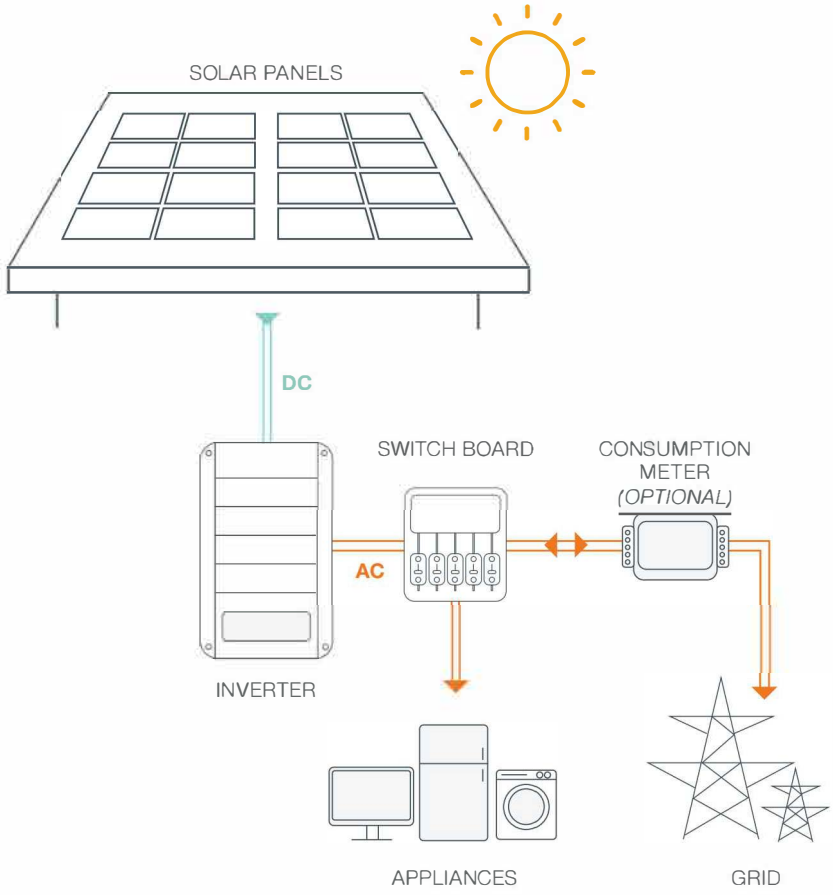
1800 362 883

Most people in residential areas going solar invest in grid connect systems.

Electricity from the solar panels is converted into supply suitable for domestic appliances via a separate component called an inverter. Whenever the system produces more power than is being used, the surplus is fed into the mains grid.

Depending on your electricity provider and location, you could be paid for every kilowatt hour of surplus electricity your solar system feeds into the grid.

When your solar system isn't producing energy – for example, at night – the electricity is supplied by the mains power grid, as usual.



HOW A SOLAR POWER SYSTEM WORKS

1. Solar panels directly convert sunlight into direct current (DC) electrical energy.
2. The inverter converts the solar DC power into 240V alternating current (AC) ready to be fed back into the grid or used in your home.
3. AC power from the inverter goes through the switchboard for use in your home.
4. The meter records the energy sent to the grid from your solar system as well as the energy consumed from the grid.
5. Any surplus electricity being generated simply flows through into the mains grid for use elsewhere.

WANT TO KNOW MORE?

Click here for more information on:

– **Grid connect systems**

HOW AN OFF-GRID SYSTEM WORKS

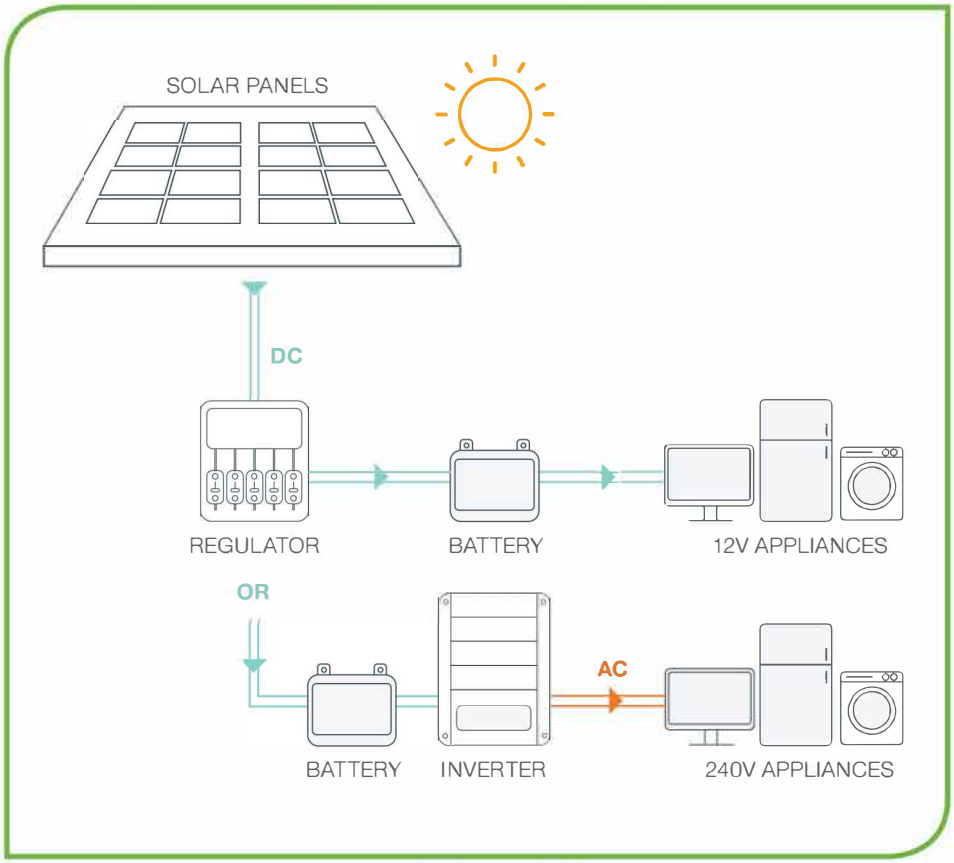
1800 362 883

Off-grid systems are mainly suited to people in remote areas, where a connection to the mains power grid is not available or too expensive, or for light industrial precincts where energy security is essential.

However, as mentioned, the energy storage revolution will see an increasing number of households in Australia's cities and suburbs ditching the mains grid. **Home energy storage** in this scenario is discussed later in this guide.

Off grid systems transmit solar generated electricity through an inverter to a charge controller, which regulates the charging of batteries for energy storage.

Appliances can then be run off the electricity stored in the batteries.



HOW AN OFF-GRID SYSTEM WORKS

1. The solar panels convert sunlight to DC (Direct Current) electricity.
2. DC electricity flows via the regulator that prevents the batteries overcharging.
3. The control board controls DC and AC power and houses the switching and circuit protection devices.
4. The inverter changes the battery DC power into 240V alternating current (AC) ready to be used in the home.
5. The battery bank allows you to collect energy during the day and store it until you need to use it. These can be installed either inside the house or in an external battery shed.
6. A generator may be used as a backup in cloudy conditions.

WANT TO KNOW MORE?

Click here for more information on:

– **Off-grid systems**

SOLAR POWER SYSTEM COMPONENTS

The core components of a grid connect solar power system are the panels, inverter and mounting system. External to the system is the meter, which must also be compatible with the system.

SOLAR PANELS

Solar panels come in different wattages and sizes. As a rough guide, each solar panel is approximately 1.7 metres long and 1 metre wide. A 3kW solar panel system requires around 24m^2 of roof space and a 5kW solar panel system requires around 40m^2.

There are 3 main types of solar cells used in solar modules.

Monocrystalline silicon offers high efficiency and good heat tolerance characteristics in a small footprint.

Polycrystalline (or multi-crystalline) silicon cell based solar panels are now the most popular choice in residential installs. Recent improvements in polycrystalline panel technology have resulted in the development of modules equal to or better than many monocrystalline brands in terms of size, efficiency and heat tolerance.

One leading producer of quality polycrystalline & monocrystalline panels is REC.

REC is a large, highly reputable manufacturer of solar panels with impressive conversion efficiencies, backed by solid warranties.

Amorphous (or thin-film) cells use the least amount of silicon, but are often less efficient than monocrystalline or polycrystalline.

Even within any of the above technologies, performance between brands will vary. For example, some will perform better than others on hot days. With heat being the enemy of a solar panel and Australia experiencing more than its share of hot conditions, being aware of the differences is important.

You can learn more about this topic in the Energy Matters produced video "Not all solar panels are equal".

WHAT INFLUENCES THE COST OF A SOLAR PANEL?

The cost of a solar panel varies greatly and is determined in part by its output capacity (in watts), the physical size, the brand, the durability/longevity (or warranty period) and any certifications. Choosing a solar panel on price alone is not wise, as it may not be suited your area, may not have the necessary certifications for **government incentives**, or provide the performance required for rapid payback.

WANT TO KNOW MORE?

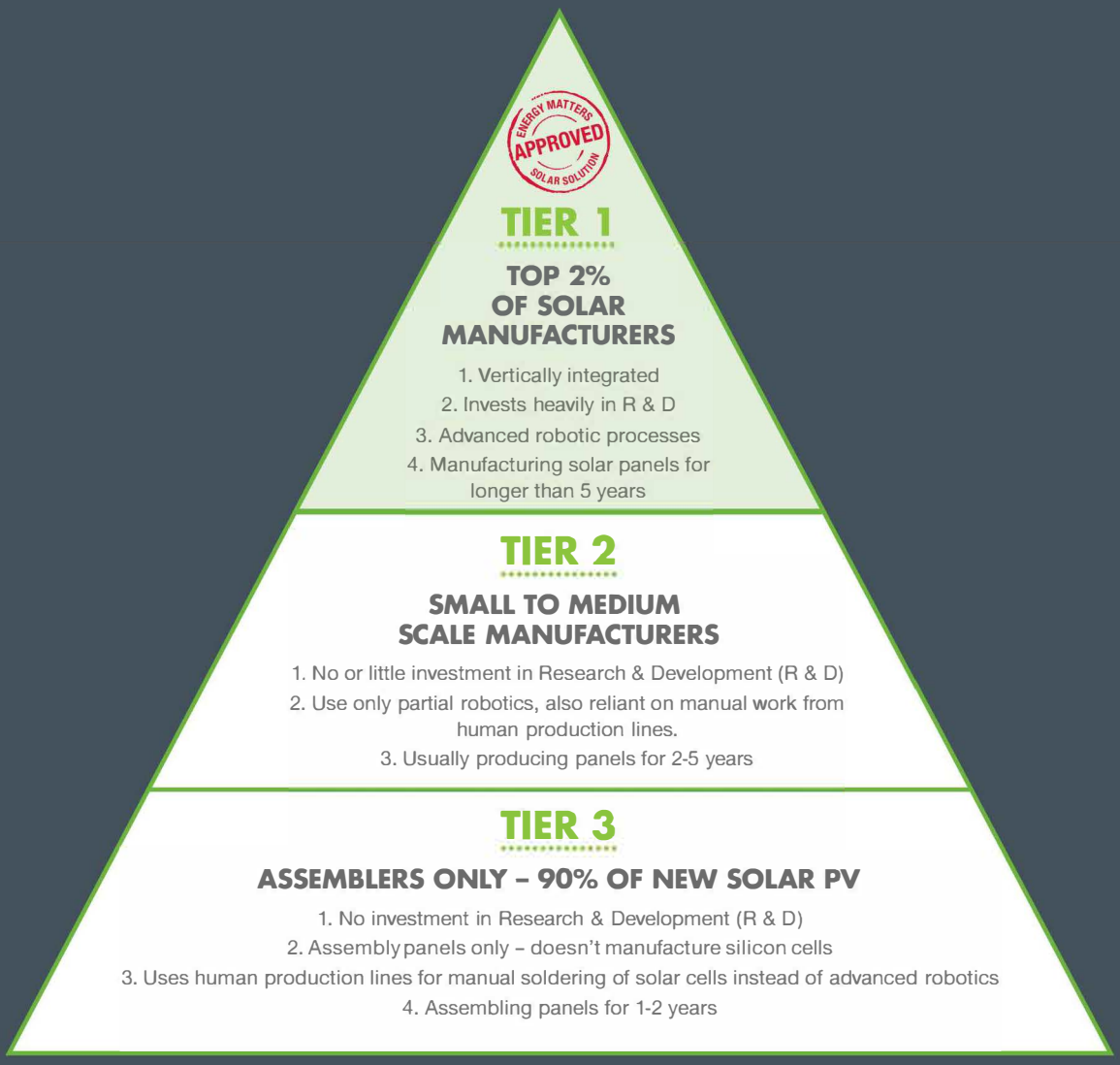
Click here for more information on:

– **Grid connect systems**

NOT ALL SOLAR PANELS ARE EQUAL

When choosing a solar panel it is important to consider both how it is manufactured and what materials are used.

There are three tiers of manufacturer quality and Energy Matters only supplies solar panels tier 1 manufacturers



Source: Global Energy Outlook, Solar Demand Dynamics, Costs Structures, Policy Factors and Competitive Differentiators for Suppliers, 12.04.2011

BRANDS WE BELIEVE IN:

REC

SOLAR POWER SYSTEM COMPONENTS

SOLAR INVERTERS

Solar panels produce low voltage DC electricity. The inverter converts this into the AC electricity needed to supply power for standard appliances.

The efficiency of an inverter is measured by how well it converts the DC electricity into AC electricity. This usually ranges from 95% to 97.5% for most models. Inverters are sized according to the power (watts) they can supply.

As is the case with solar panels, **not all solar inverters are equal** and inverter efficiency will have a direct impact on the amount of time it takes for a system to pay for itself.

Obviously, the more efficient the inverter the better – as less electricity will be wasted as heat during the conversion from DC to AC.

While the inverter efficiency claimed by a manufacturer may be high, in reality it may not be. The only way to be sure you're buying quality is if the inverter has real world examples of the performance of their equipment, validated by independent third party testing.

Industry leading solar inverters for grid connect systems in Australia are SolarEdge, Enphase, Fronius, SunGrow and SMA. Be cautious of generic type brands.

MOUNTING SYSTEMS

The mounting system is a crucial component of a solar array as it will be subjected to major environmental stresses, such as wind. Unfortunately, some suppliers skimp on this item. Ensure you ask about certification and warranty periods.

SunLock is an Australian made product designed by Australian solar professionals for installation in the harshest conditions.

CABLES AND CONNECTORS

The use of sub-standard **connectors and cables** can significantly impact on system performance and to fire and electrocution risk. Cabling should be certified to PV1-F and solar connectors to EN 50521 standards.

ELECTRICITY METERS

If you don't have a solar capable meter, known as a bi-directional meter, you will need to acquire one when you install a solar system.

If your meter hasn't been updated in a while, it is most likely that you have a traditional accumulation meter (with a spinning disk) and will need to acquire a new meter.

This is because a traditional accumulation meter does not measure how much electricity is consumed or surplus electricity is generated, whereas a solar capable meter provides half hourly readings.

If your meter has been upgraded recently, check that it is a smart meter and not just an interval bi-directional meter. Interval meters are very similar to smart meters, but the latter have a range of additional capabilities.

If you're unsure, it is best to check with a solar specialist whether you need to upgrade your meter.

It is important to ensure that your grid connect inverter complies with Australian Standards. This is required to be eligible for STCs and Solar Credits. Ask an accredited installer to provide proof that an inverter meets Australian standards.

SOME OF THE BRANDS WE BELIEVE IN

SUNGROW

Fronius

SMA

[e] enphase ENERGY

SUNLOCK

SOLAR PANEL INSTALLATION FACTORS

An accredited solar installer will make sure that solar panels are positioned on your roof for maximum efficiency, safety and correctly wired to the inverter.

In terms of panel installation, some considerations that need to be taken into account include orientation, tilting, shading and mounting.

ORIENTATION

As Australia is in the Southern Hemisphere, in some situations solar panels should be facing as close to true north as possible. However, northwest or west-northwest or even west can be optimal if most of your power is consumed in the afternoon and if you live in a state where the feed in tariff incentive rate is less than the market rate for electricity. Another option worth investigating is an East-West split array, which canbetter match consumption and reduce imports at start and end of the day.

TILTING

Depending on your location, the angle of the solar panels should be between 20° and 32° for best performance on average over a year. For example, 22° is optimal for Perth. While tilting angle is an important factor, it is generally not as important as the orientation of the panels.

SHADING

PV panels should ideally be in full sun from at least 9am to 3pm. They should not be placed in shaded areas and should be kept free from dust and dirt. Shading from objects such as trees, roof ventilators or antennas will have a significant impact on the output of a panel, as it changes the flow of electricity through the panel

MOUNTING

The mounting system should be engineer certified for the area you are in. For example, if you live in a cyclone prone area, the mounting system and mounting brackets should be cyclone rated. Quality systems are wind certified – after all, you do not want your system to take off during a wild storm. The mounting system is a vital component of a system and some suppliers skimp on this item. Make sure you ask about wind certification, warranty arrangements and get copies of all relevant documents.

WANT TO KNOW MORE?

Click here for more information on:

– Accredited solar installers

GRID CONNECT SOLAR POWER SYSTEM LIFESPAN

Solar modules have been tested in the field showing small reductions in power output after 20 years, mostly because the glass surface becomes a bit dull and does not absorb as much light.

Good solar panels usually carry an output warranty of 25 years. There are solar panels delivering power in Australia today that were installed more than 30 years ago. The electronic components such as **inverters**, being the most sensitive, should last at least 10 to 15 years before requiring refurbishing or replacement.*

You can learn more about the components used in grid connect systems here.

WANT TO KNOW MORE?

Click here for more information on:

– **Solar modules**

*Inverters that Energy Matters believe in, include a manufacturing warranty that ranges between 5 to 20 years. Energy Matters expects some inverters to last longer than some of the warranties.

WHAT SIZE SOLAR POWER SYSTEM WILL YOU NEED?

1800 362 883

The size of the solar power system you should install depends on:

- The physical unshaded area available
- The amount of electricity you wish to generate
- Your budget

Any size grid connect solar power system will reduce your mains grid power consumption assuming usage patterns don't change. The bigger the system, the larger the benefit.

The output of a solar system depends on its rated capacity, how and where it is installed. The most common household systems these days are around 4 kilowatts, although some people choose to install systems of up to 10 kilowatts.

According to the Australian Bureau of Statistics, a typical Australian household consumes around 18 kilowatt hours (kWh) of electricity per day so a 4kW system should reduce your energy consumption by an average of 50-80%.*

A 5kW system could generate 100% of the energy consumption of a medium energy use or an average household.

For a more accurate gauge of what size solar power system you'll need, try Energy Matters' online quoting system.

*ABS consumption data source: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4670.0main+features100052012

ENERGY EFFICIENCY

To make the most of solar power, the key is to implement simple **energy efficiency** strategies. It is easy to conserve energy by using appropriate lighting and efficient appliances, which can substantially reduce the size of the solar power system you'll need.

WANT TO KNOW MORE?

Click here for more information on:

– **Solar power systems**

HOME BATTERY SYSTEMS

While home energy storage has been possible for a number of years, the deep cycle batteries and other components required have been expensive, cumbersome and required a degree of knowledge to operate and maintain the equipment.

This has meant residential energy storage has been largely confined to off-grid applications (mentioned earlier in this guide) and storage enthusiasts. The rapid evolution of lithium-ion batteries and associated technology is changing this. The new generation of energy storage are more affordable, higher-performing, streamlined and more aesthetically pleasing.

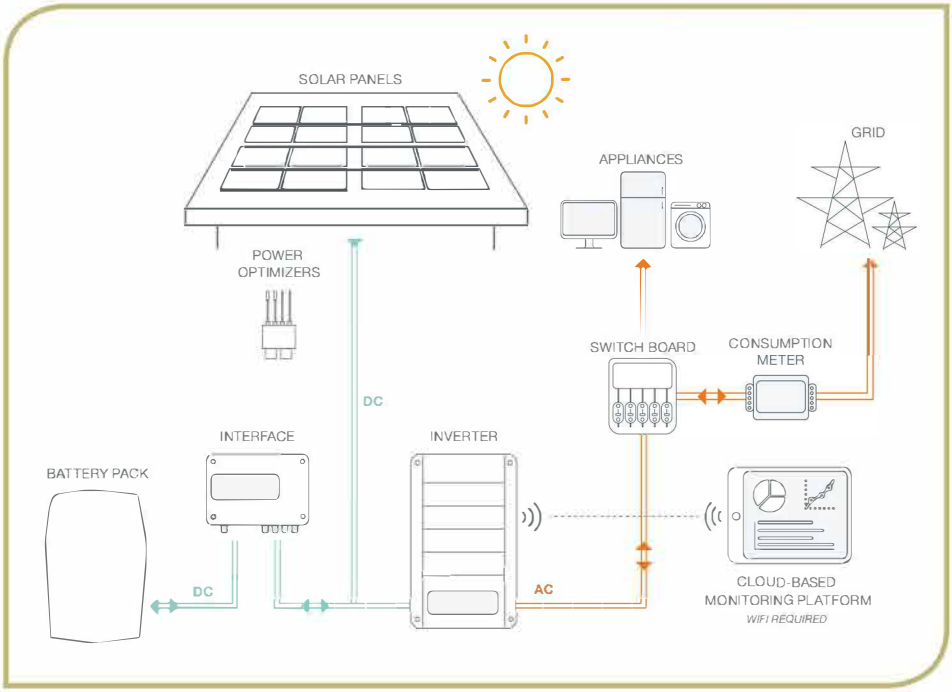
Set-and-forget battery storage for homes from companies including **Tesla**, Sonnen, and **Enphase Energy** will soon become an increasingly common sight in solar households.

Energy Matters' former parent company was granted official **Tesla Energy Authorised Reseller** status in late 2015; one of the first companies in the nation to achieve this standing.

Many of the new generation of battery systems, including Tesla Powerwall, are modular, meaning you can add more battery packs as required.

For most households however, large storage systems won't be necessary considering mains grid power will still be available to act as a backup to a solar panel system in an extended heavy cloud event. Blackouts of more than a few hours are also becoming increasingly rare.

Learn more about home battery systems.



HOW HOME BATTERY SYSTEMS WORK

New generation home energy storage is quite a simple concept; but involves some very high-tech equipment. Here's how residential battery storage system generally works.

- Solar panels convert sunlight to DC (Direct Current) electricity.
- The inverter converts the DC electricity to AC (Alternating Current) for use in the home or routes DC to charge the battery.
- When required, the battery provides power to the household.

WHAT IS A BATTERY-READY SOLAR POWER SYSTEM?

A question many Australian home solar owners will be asking themselves is whether their solar panel systems are battery compatible or upgradeable.

Yet-to-be solar purchasers may also be wondering whether to buy a battery ready system now or if they should they wait.

'Plug And Play', 'battery upgradeable', 'compatible' and 'ready' are a few terms being bandied about in relation to solar + storage; making the topic a little more confusing for all.

SOLAR INVERTERS AND BATTERY STORAGE

As previously discussed, the role of a solar inverter in a conventional solar power system is to convert direct current (DC) generated by the **solar panels** into alternating current (AC), suitable for use in the home or for exporting to the mains grid.

In a system featuring **battery storage**, the inverter also needs to be able to route DC into the battery for charging; either from the solar panels or via cheaper off-peak mains grid power.

This is a very important distinction – and most solar inverters installed in Australia are not able to perform this added function; nor can they be upgraded.

While some of the new generation of residential energy storage systems are being promoted as being "plug and play"; others will need the right equipment to plug into – and in many cases that means the right solar inverter.

Even in the "plug and play" scenario; there are some important issues to be aware of.

BATTERY 'UPGRADEABLE' SYSTEMS

A system described as being "upgradeable" is a term that can be a little vague at times.

Many systems can be "upgraded" – but as indicated above, it may mean you need to acquire another inverter or other additional equipment. However, you'll be able to continue using your panels, the solar panel mounting system, plus some wiring.

It's important to ask a solar company what they mean by "battery upgradeable".

BATTERY 'READY' SOLAR PANEL SYSTEMS

There is a significant difference between "upgradeable" and "compatible" or "ready" in terms of hardware. As well as having a compatible inverter, a truly battery ready solar power system will also have a power meter or equivalent hardware already installed.

A power meter is a is a bidirectional device that optimises self-consumption of solar generated electricity and records the household's energy production and usage patterns.

These devices also communicate data via a household's internet connection to a central secure server. The household can then access user-friendly reports via a web interface using a computer or hand held device such as a cell phone or a tablet.

The power meter is not only important as part of a battery system, but also in the lead-up to it being installed as it will indicate the amount of storage capacity required and help confirm if a battery system will be a wise investment.

COMPATIBILITY ISN'T JUST ABOUT COMPONENTS

In addition to needing the right inverter (depending on the battery solution chosen), where the inverter is located can play a role.

A system's hardware may qualify as being battery compatible or upgradeable; but if it's been installed incorrectly for energy storage, you may face significant costs in setting things right.

Having a knowledgeable installer is crucial – and comparatively few solar installers in Australia have had the opportunity to gain expertise in installing battery systems.

For a system to be truly battery ready, it must have the right components, installed correctly.

BUY SOLAR NOW – OR HOLD OFF?

It's true that solar has generally become cheaper over time, so the temptation may be to wait until battery systems are widely available.

However, even if a solar power system drops (for example) in purchase price by $500 over the next year, you may be missing out on $1,000 in electricity bill savings in the meantime - and crucial information you'll need to base an energy storage purchase decision on.

The other wild card relating to solar prices are currency exchange rates that influence the cost of components – prices can go the other way as they have done in the past.

Save today and store tomorrow – get a quick quote on a battery-ready system.

1800 362 883

If you'd like some advice on choosing the right system with energy storage in mind; our experts have been installing battery systems across Australia since 2006. Our team would be happy to advise you and can be contacted on 1800 EMATTERS

SOLAR INCENTIVES, REBATES AND FINANCING

1800 362 883

There are currently three major forms/types of financial assistance offered for solar power systems in Australia:

- Small-scale Technology Certificates (STCs), including the Solar Credits scheme
- Feed-in tariff incentives
- State Specific Rebates

STCS/SOLAR CREDITS

One STC (which stands for "Small Technology Certificate", previously known as **Renewable Energy Certificates**) represents to one megawatt hour of electricity generated by your solar PV power system. The value of STCs change according to market conditions and the number issued depends on system size and **your location**.

Redeeming the value of these certificates can be quite a headache. However, some solar suppliers, including Energy Matters, make it easy for customers to extract the value of their STCs by providing a point of sale discount equal to the value of the STCs that the solar system is entitled to generate.

Australia's **Solar Credits** program is based on STC's, is available to just about everyone and can reduce the cost of a solar power system by thousands of dollars.

FEED IN TARIFFS

A feed-in tariff is a rate paid or credited to a system owner for electricity fed back into the power grid from a designated renewable electricity generation source like a rooftop solar panel system or wind turbine.

There are two different types of tariffs – gross and net.

A gross feed in tariff pays a rate for all electricity produced by a system that is fed back into the electricity grid, regardless of how much electricity is consumed by the household.

A net feed in tariff only pays a rate for surplus energy created by the system that is fed back into the grid and takes into account the electricity consumed from the grid by the household.

Australia doesn't have a national program for feed in tariffs, only State run schemes. All state schemes currently operating offer net feed in tariffs.

Current feed in tariff rates and arrangements in each state can be viewed here.

STATE SPECIFIC REBATES

Occasionally your State Government may offer a Solar or Battery rebate. Sometimes, these are even coupled with Interest Free loans from the state. If you would like to know more about your state rebates, please call us on 1800 362 883.

In order to be eligible for solar subsidies and credits, an installer must be accredited by the Clean Energy Council.

WANT TO KNOW MORE?

Click here for more information on:

– **Financial assistance**

CLEAN ENERGY COUNCIL
ACCREDITED INSTALLER

SOLAR INCENTIVES, REBATES AND FINANCING

1800 362 883

ZERO DEPOSIT PAYMENT PLANS

You don't have to save a deposit or face high repayments to go solar and start slashing your power bills. Zero deposit arrangements are now available from some companies, with payments structured to be less than what you would pay each month for the equivalent mains-grid electricity in some cases. As with any agreement, read the terms and conditions carefully.

Learn more about zero deposit solar.

ZERO DEPOSIT SOLAR LEASING AND PPA'S

Under a solar PPA (Power Purchase Agreement) arrangement, a solar provider installs, owns, monitors and maintains the system, with the customer purchasing the electricity generated at an agreed upon rate per kilowatt-hour that is often significantly lower than mains-supplied power.

A grid connection is maintained to ensure reliable supply of electricity and systems are usually designed to match daytime load to maximise the customer's savings.

A solar lease is similar, but the payments are predetermined; regardless of how much electricity is consumed. Again, a good provider will size a system to best suit a customers' requirements.

Solar PPA's are more commonly associated with commercial-scale systems and leases with smaller systems. While residential leases are new in Australia, they have been hugely popular in the USA; accounting for the majority of home solar installs.

Both offer the benefits of solar without the burden of ownership and a good provider will offer a performance guarantee.

Learn more about solar leasing.

GREEN LOANS

Low interest loans are available through various financial institutions for the purchase of items related to green energy, such as solar power systems.

A listing of green loan products can be viewed here.

Another low interest alternative is to add the cost of a solar panel system to a home loan as your mortgage can often offer the lowest interest rate available.

We strongly recommend anyone considering adding the cost of a solar system to their mortgage to seek independent financial advice before doing so.

CHOOSING A SOLAR INSTALLER

1800 362 883

In order be eligible for government incentives, your system must be installed by a suitably qualified person.

The Clean Energy Council's accreditation scheme ensures designers and installers of solar PV power systems:

- Have undertaken the necessary training
- Follow industry best practice
- Adhere to Australian standards
- Regularly update their skills and product knowledge

An accredited designer/installer will provide you with a solar power system design and specification that includes consideration of your current electricity loads, the type of panels and inverter to be used and panel orientation.

All of Energy Matters' system designers and installers that we refer you to are accredited by the Clean Energy Council.

QUOTATIONS AND CONTRACTS

According to the Clean Energy Council's guidelines, a full system quotation should provide specifications, quantity, size, capacity and output for the major components, including:

- Solar panels
- Mounting system
- Inverter
- Any additional metering
- Data-logging devices if specified
- Travel and transport requirements
- Other equipment needed
- Any trench digging if required
- A system user manual.

The full quotation should also specify a total price, together with other relevant information. This final quotation document should form the basis of your contract with the designer/installer.

The final quotation and accompanying terms and conditions should also include:

- Average daily electricity output estimate in kilowatt hours
- An estimated annual production figure
- Estimated output during the most and least favourable months
- The responsibilities of the installer and customer, including payment obligations
- Warranty and guarantee details, including compulsory information required by Australian Consumer Law
- Who is responsible for connecting the solar panel system to the mains grid
- The party responsible for meter changeover
- The party responsible for submitting documentation for feed in tariff incentives
- How STCs will be handled

CLICK HERE FOR A QUOTE

Get an instant solar quote, which can go some way in giving you an idea of the type of system, costs and financial benefits.

WANT TO KNOW MORE?

Click here for more information on:

- Qualified installers

KNOW WHAT QUESTIONS TO ASK

1800 362 883

Solar is a substantial investment and it's important you arm yourself with all the facts. Guides assist in helping you make the right decision, but there are also some questions you should ask.

QUESTIONS FOR YOUR INSTALLER

1. Are they an accredited installer? Ask them for their accreditation number.

   You can also check this at www.solaraccreditation.com.au

2. Ask how many systems the company or person doing the installation has installed.
3. In addition to usual warranties, can they offer a **performance guarantee**?
4. Does the company have customers who can provide testimonials or feedback on the quality of their work?
5. Do the products they use meet Australian standards?

   You can confirm this on the Clean Energy Council website www.solaraccreditation.com.au

QUESTIONS FOR YOUR ELECTRICITY RETAILER

1. Will I be move to Time of Use metering, with peak, shoulder and off-peak tariffs?
2. What will my on and off peak electricity tariff be?
3. Are there any other costs involved in being a solar customer?
4. What feed in tariff do you offer?
5. How much is your retailer contribution over and above the State legislated minimum?
6. What do you offer to your solar customers over and above your offer to standard customers?

QUESTIONS FOR YOUR ELECTRICITY PROVIDER ABOUT THE METER CONNECTION

1. Which distribution company will be changing my meter?
2. What kind of meter will I be changed to if I go solar?
3. How much will it cost?
4. How long will it take to change my meter over?

ADDITIONAL TIPS WHEN SHOPPING FOR SOLAR POWER

RECOMMENDATIONS

Ask friends, family, neighbours or colleagues who have had solar systems installed. They'll be able to tell you about their experiences and perhaps alert you to any problems they experienced – ones that you'll be able to avoid.

REJECT GIMMICKS

Everyone loves a bonus, but when too much emphasis is placed on a bonus rather than the core product - the solar power system itself – it should be cause for concern. Bear in mind that most gadgets and bonuses included with solar power packages have cost the vendor far less than the retail value they put upon them. Unless the bonus is directly related to the solar power system or saving energy, you'll be better off forsaking the bonus and negotiating a cheaper price on the system.

HAVE REALISTIC PRICE EXPECTATIONS

If you are paying substantially less than many other similar size systems quoted, you may be provided with poor quality equipment and/or poor installation work.

Quality equipment and installation isn't cheap and, like all other purchases, you often get what you pay for. Compare components and warranty periods and carry out checks into the company providing the installation.

While large, well established companies such as those recommended Energy Matters can pass on substantial savings due to increased buying power, other companies often reduce costs by cutting corners – to the customer's detriment.

SOLAR PANEL CERTIFICATIONS

This applies to all solar panel purchases, but especially to the purchases that could attract a **government incentive.** The certification on solar panels indicates the type of testing that has been done on them. For instance, TUV IEC 61215 confirms that the solar panels have been tested by an independent laboratory and have met their advertised specifications. Other certification types are often self-assessed and so rely on the company being honest in what it claims.

MORE ON PANEL TYPES

It used to be the case that if you had limited roof space you would need highly efficient (and very expensive) mono-crystalline solar panels. This has rapidly changed with advances in polycrystalline panel technology and some thin film technologies.

Even if you have ample roof space you may still want to consider panel sizes vs. output as filling up your roof with inefficient panels will affect your ability to add more panels at a later date, and does not maximise the power output of the space.

It's also important to bear in mind that regardless of claims, no solar panel technology will produce a significant amount of power in full shade and even partial shade may have a substantial impact.

Learn more about other related issues in the video "Not all solar panels are equal".

ADDITIONAL TIPS WHEN SHOPPING FOR SOLAR POWER

COMPARE ALL COMPONENTS

Compare **solar panels, inverters** – everything. Package deals are a great way to save cash, but not all packages are created equal. For example, a company might use top quality solar panels, but skimp on inverter, cabling and mounting system quality in the hope that the panel brand name will dazzle you and you'll ignore the other components.

BEWARE OF HIDDEN COSTS

A low advertised price mightn't be just due to low quality components. While it's not unusual for prices to vary based on the type of structure upon which a solar power system is placed, any extra costs should be clear and not buried in fine print.

GET A FEW SOLAR QUOTES

It always wise to gather a few **solar quotes** when making a major purchase as you will find that prices vary widely between providers. Don't be swayed by price only as inferior components can be used to reduce the up-front cost of the system - but they may wind up costing you more in the long run in terms of reliability and efficiency.

AVOID HIGH PRESSURE SALES PEOPLE

High pressure sales tactics are unfortunately common in the solar industry. Try not to make decisions on the spot – ask the person to let you consider the offer. If it's as good as they claim it will still be a good deal tomorrow. Pressured decisions on the spot often turn out to be less advantageous in reflection.

Also ask the sales person whether they offer a cooling off period if you do sign there and then – this will give you time to carefully consider your purchase in a less high pressure environment. If you cancel your order within the cooling off period you should ensure that you get a full refund of your deposit.

INSTALLATION TIMELINES

Solar fever sweeps the nation in waves and during these times providers can become backlogged. While you can expect a wait of up to a few months for a solar installer to perform your installation in some circumstances, this is something you should be made aware of by the system provider.

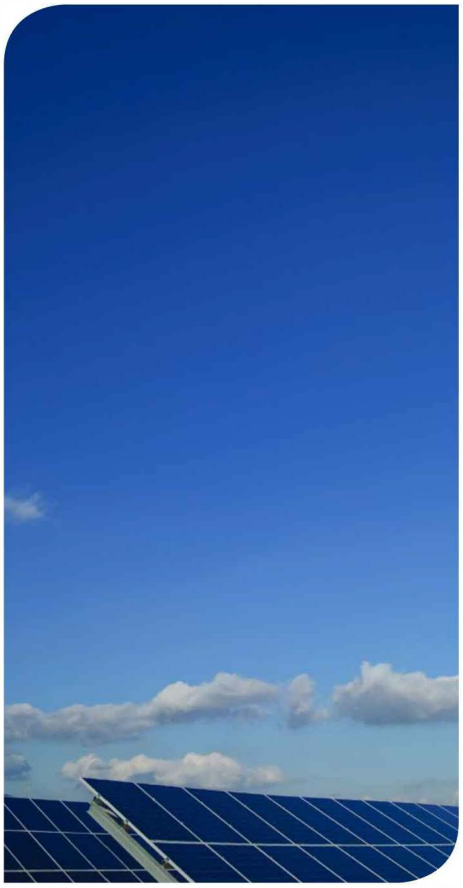
WARRANTIES AND GUARANTEES

The durability or longevity of a solar warranty is important for a number of reasons – for example, it can be an indicator of the manufacturer's confidence in its products and the provider's confidence in its installation work.

A performance guarantee is also a desirable form of warranty. Rather than just covering the components as individual elements; it also covers overall system performance.

However, an important point to remember about any warranty is that it will often only be honoured for as long as the company operates. It's another reason to select well established brands and providers.

Choose a solid company and one that is a service agent for solar component warranty work for the manufacturers and suppliers it is associated with. If you encounter a problem, the turnaround time to a resolution should be much faster.



ABOUT ENERGY MATTERS

1800 362 883

This guide was prepared by multi-award winner Energy Matters, one of Australia's leading online resources for solar power information.

Energy Matters is committed to helping all Australians slash their electricity bills and has assisted many thousands of households in doing so with solar power.

Energy Matters partners offers high quality systems at low prices and convenient zero-deposit payment plan options. The company takes great pride in making going solar simple.

We have a diverse network of accredited installers throughout urban and rural Australia.

Our suggested solar retailers and installers are trained to deliver to the most stringent Australian and international standards and have installed tens of thousands of grid connect solar power systems across the nation.

We believe in a wide range of quality brands such as:

- REC Solar Panels
- SMA, Solis, SunGrow, ABB, Enphase and Fronius grid connect inverters
- Tesla Powerwall, Sungrow batteries
- Sunlock Mounting Kits

We understand that purchasing a solar power system can be a confusing process and a substantial financial commitment. You can trust Energy Matters, which has a history of spanning more than a decade, will provide you with exactly what you need – nothing more or less.

WHAT OUR CLIENTS HAVE TO SAY

A company is judged not so much by what they have to say about their own operations, but by what their clients say.

Read some of our customer reviews and testimonials.

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For the right advice from people truly passionate about solar and helping you save on your electricity costs, call Energy Matters on 1800 362 883.

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