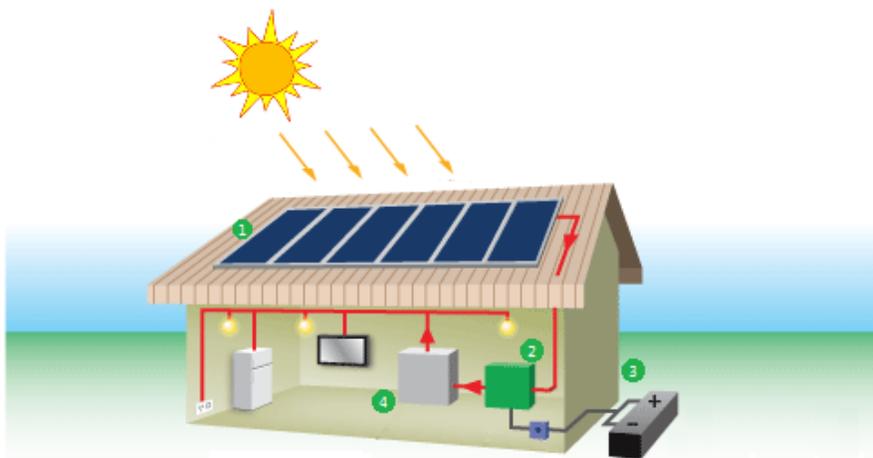


# GUIDE ON HOW TO GET YOUR STANDALONE SOLAR SYSTEM INSTALLED

## What is Standalone Solar Electricity?



A basic Standalone Solar System is made up of the following components:

- 1 Solar Panels** - change sunlight into direct current (DC) electricity  
**Mounting Structures** - attach solar panels to roof
- 2 Inverter** - change DC into AC electricity for suitable home use
- 3 Batteries** - DC electricity is fed into the batteries to charge them when the sun shines (day) so the power that is stored inside can be used to power the building when the sun doesn't shine (at night/wet weather)
- 4 Switchboard** - provides data of energy (kWh) generated or used. Contains electrical protection components.

Figure 1: Standalone solar system components

**Things to note:** Your property will be powered by solar power, which will happen during the day when the sun shines. Any excess produced energy will be sent straight to the batteries and be stored. The energy in the batteries will be used to charge all the electricity appliances when there's not enough energy produced from the sun. The system is designed in such a way that there should always be enough energy in the battery to always meet your electricity requirements, which can be determined from past use. However, it is possible to drain the battery by using more electricity than the system is designed to meet and so you should be careful to avoid this. Ways you can avoid doing this include regular maintenance and inspection of the battery, using energy wisely and efficiently and if you get any

more appliances or want to increase your energy use, consulting whether you need to increase the system size.

## List of Components and wiring diagram

The components of a solar system are solar panels, the inverter, charge regulator, batteries, wiring, switches, fuses and mounting. These are all outlined below and shown in Figure 2.

### **Solar Panels**

The main and foremost function of solar panels is to convert sunlight into DC electricity and power up electrical appliances within the building.

### **Inverter**

The inverter converts DC to AC power for general electrical appliances use. It can also record and display the amount of power it generates per day and the total amount of power that it has generated since it's installed.

### **Regulator/Controller**

The regulator controls the amount of charge energy goes into the battery bank to prevent it from being overcharged or undercharged. If the battery bank is overcharged or undercharged then problems will occur (such as leaking acid and corrosion), which will reduce the lifetime of the batteries and require them to be replaced.

### **Batteries**

Batteries allow electricity generated to be stored for later use when the panels stop generating or when it does not have enough energy to power the whole building. These are deep cycle batteries and it is not the same as car batteries. They cost much more and require regular maintenance.

### **Wiring, Switches & Fuses**

Wires connect all the components together and provide electricity flow. Switches and fuses are a safety feature that prevents the system from catching on fire if a fault occurs.

### **Mounting**

The mounting is to secure the panels on a surface to endure wind. Mountings do not usually go wrong and has a much longer life time than all other components in the system.

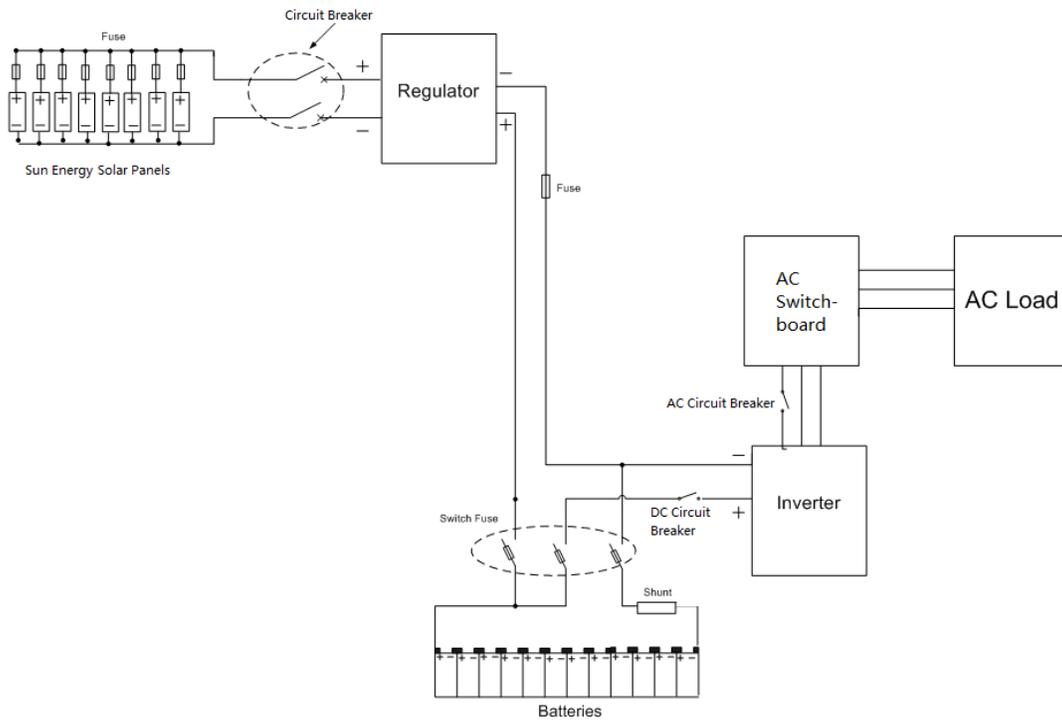
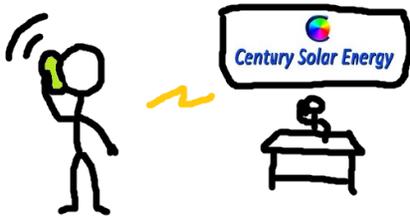


Figure 2: Standalone solar system circuit diagram

# 1



Check if you're eligible for rebates.

You are eligible if you are:

- at least 1 kilometre from the nearest main-grid line **or**
- less than 1 kilometre from a main-grid line and a written evidence from the Network service provider showing that connecting to the main-grid would cost more than \$30,000.

Call us and provide us the following:

- **Name and contact number**
- **Full address** so that we can see the available space on roof and calculate installation fees
- **Double/Single Storey**
- **Daily load or energy demand**

And we will be able to give you a preliminary quote within the day. ***Still interested? Go to step 2.***

Got the following? *If so, go to step 3.*

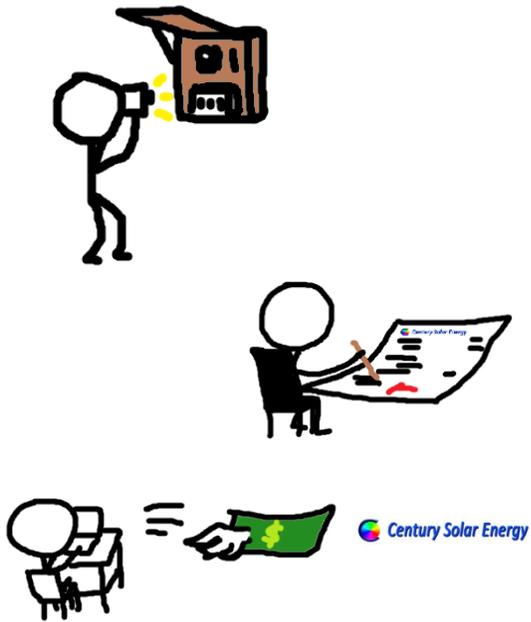
- An email address
- A camera and know how to attach pictures to email or know how to send them through phones or be able to print them.
- A scanner; or fax machine; or envelopes and stamps
- Printer

If you **do not have any** of the above or wanting to do things the traditional way, let us know and we can book you in for a **site consultation! Booked? Go to step 4.**

2



3



Provide us your email address and we will send you the following:

- A preview of the panels layout on your roof
- A preliminary quote with product info and price
- Company & product specifications (On request)

**Happy with the above?** Please send back the following to us:

- A photo of your meter box's insides (we need to check for spacing and compatibility issues)
- Signed quote (scan into the PC, fax it back to us, or mail it to our office with the meter photo)
- A deposit specified on the quote. (Internet bank transfer or mail us a cheque)

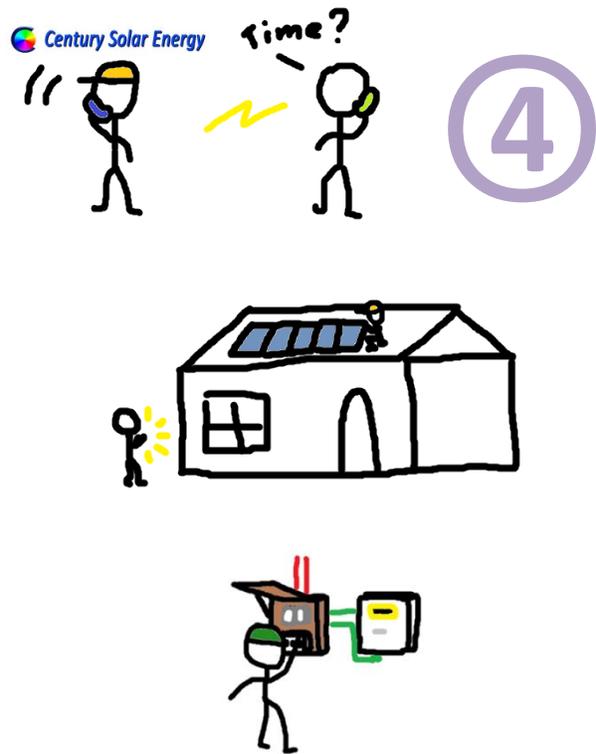
Looks like you are done and ready to install! **Now go to Step 4.**

After we get all the required information from you, we start filing your application for approval.

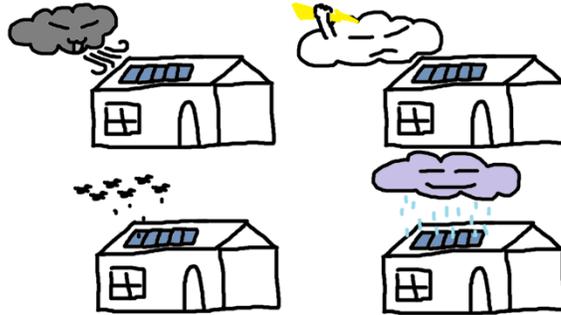
At the same time, our installers will contact you and book a time to install the system.

Within 10 working days (clear and sunny days) we can guarantee your system will be fully installed.

**All done? Everything connected and working? Congratulations! Your electricity savings starts now!**



# FAQ



**Q: What maintenance is required?**

A: All solar systems generally require very little to no maintenance at all, which is much better than other generators in the market. Regular checks on the batteries charge state, general dust-wipe off inverters and batteries and making sure it is working properly (check on the output power on the inverter) is all you need.

For more information on maintenance, you can visit <http://www.latrobe.edu.au/ee/solar/information/Electricity%20from%20the%20Sun%20Part%20B.pdf>

**Q: What if there's dust or bird drops on the panels, how can I clean it?**

A: Don't worry, as long as there's rain, dust will be washed away.

**Q: If it's cloudy, does my system still work?**

A: Any shading on your panels such as clouds will reduce the system output. However, grid electricity will supply your electricity needs if the solar system doesn't.

**Q: Monocrystalline panels or Polycrystalline panels?**

Throughout the lifetime of the solar panels, there is not much significant difference to the two types of panels. Polycrystalline panels tend to have more heat resistance therefore work better in summer but the efficiency is lower than monocrystalline panels. Overall, monocrystalline panels suit Australia's climate and has better generation ability throughout the year. Polycrystalline panels are known to be larger in size and usually have a higher wattage range per panel. They are also known to be cheaper than monocrystalline panels.

***Got more questions? Call us on 1300 886 903 or email us on [info@csesolar.com.au](mailto:info@csesolar.com.au).***