

FREQUENTLY ASKED QUESTIONS

How many solar panels are there?

There are 12 solar panels.

What happens to the electricity?

The electricity is used by the library. When the library is closed or is not using power, the unused power is exported from the library into the power lines in the street.

It is called a 'grid interactive' power system because any excess power can flow out into the mains grid. (Systems which are not connected with the mains grid are called 'stand alone' or 'independent' power systems. These usually have batteries which can store the excess power.)

What does the screen in the library foyer tell us?

The top figure on the screen shows how much electricity is being produced at the moment. The second figure tells how many kilograms of greenhouse gas has been saved since the system was switched on. The buttons when pressed show other information, e.g. how much power was produced over the last week.

Why is there a solar power system on the roof of Emerald Library?

We hope it will encourage others to install solar power systems. Australians produce more greenhouse gases per person, than people in any other country in the world. 90% of Victoria's electricity is produced by burning brown coal. This is what produces more than 50% of Victoria's greenhouse gas emissions.

OTHER QUESTIONS

1. What happens when there is no sun light?

The less sun light the less power can be produced. With no sunlight there is no power produced.

2. What happens when there is a blackout?

When a blackout occurs, the library will have no power. The switchboard automatically stops the solar power from going through so that power line workers cannot be electrocuted.

3. Do you have to do any maintenance on the system?

As there are no moving parts, the only maintenance is that some people wash the solar panels once a year. However, usually the rain keeps them clean.

4. How long will it work for?

The solar panels have a 25 year warranty and should keep working for many more years.

5. Will the solar power system save the library money?

Yes, because the library has to buy less electricity

6. How much did it cost?

The system cost about \$21,000. About \$17,000 was provided by the Federal Government Rebate and a grant from Sustainability Victoria. The balance was paid by Cardinia Shire.

7. Where were the solar panels made?

The panels were made in China by Conergy. The Sunnyboy inverter was made in Germany.

8. How much electricity can each solar panel produce?

Each panel can produce 165 Watts of electricity (at a time) under ideal conditions, i.e. full sun, no cloud, shade or even smoke haze.

9. How much power will the system produce in an average day?

A single 165 watt panel can produce that amount of power when optimum conditions apply. The average number of hours of sunshine in Melbourne in one day, (over an average year), is 4.6 hours. So one 165 W panel x 4.6 hours means that one panel can produce 759 Watt hours per day, over a year. It varies from Summer to Winter and in relation to cloud cover and climate conditions. Also, a small proportion of power is lost during transfer along wires and through the inverter.

12 panels can produce 9,108 Watt hours per day, but more likely would produce about 7,000.

This is 7 kilowatt hours of electricity in one day, averaged over a year.

10. How much electricity does the average house use?

The average house uses about 18 kilowatt hours of electricity per day. Your electricity bill tells you how much you have used per day over the billing period.

11. How long does it take to save the amount of energy that was needed to produce the solar panels?

The website for Sustainability Victoria and also for the Department of Environment, Water, Heritage and the Arts, say it takes "about 2 years" for a panel to recover its embodied energy.

12. How is it different to solar hot water systems?

Solar hot water systems use a different kind of solar panel. The modern solar hot water panels have a small amount of water or fluid in them which is heated by the sun. This heat is transferred to the stored water.