

Making a Difference

Alternative Fuels and Energy provides a range of products and services which reduce our reliance on the fossil fuels that create most of the world's greenhouse gas emissions.

The Sun Lizard provides free heating and cooling, but our homes are often poorly designed in the first place and therefore need more energy than necessary to be comfortable. Simple steps such as orientation to collect the sun in winter and eaves to protect from the summer sun can reduce energy needs dramatically.

We can help with your new home design or renovations to your existing home.

The other major contributor to greenhouse gas emissions is transport fuel. Diesel trucks and buses emit large amounts of noxious black smoke containing carcinogenic substances.

We use and promote Biodiesel and offer consulting on setting up manufacturing for commercial or personal use.

Sun Lizard is an Australian invention, Australian owned and Australian made. We employ local people using locally sourced raw materials wherever possible.

Please support local innovation and not imported exploitation.

Printed on recycled Australian paper



Sun Lizard—part of the solar solution



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Fuels and Energy for a Sustainable Future



**Solar Air Heater
and Cooler**



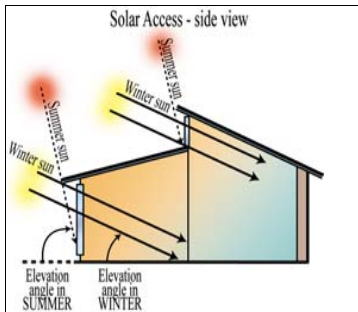
**A Global Warming
&
Cooling Solution**

Free Heating and Cooling!

The Problem

For centuries we have built homes that took advantage of our natural environment and used the sun to help heat and cool. With the advent of relatively cheap power and fuel, western countries have opted for homes that look good, offer wonderful views or are a low cost to build. The trade off: these homes and buildings use more energy to heat and cool and generate huge amounts of greenhouse gases, contributing to global warming and environmental problems.

So how do we fix this?



We need to build good homes, orientated to catch the winter sun, with eaves to block the summer sun, lots of insulation in the temperate and alpine areas and lots of thermal mass so the building temperature remains stable rather than changing rapidly depending on the external temperature. Houses like this heat and

cool themselves and require little additional help to remain comfortable.

What about the existing 7 million homes already in Australia?

There are some simple things we can do.

Make sure the building is insulated and drafts which remove heat in winter and introduce hot air in summer are sealed. If you have timber floors, insulating under them can reduce heat loss up to 15%. Add pergolas on the north side of the house to prevent summer sun hitting the house and heating it up, but still allowing winter sun to warm the house through the northern windows. Plant trees or shrubs on the western side to reduce the impact of the hot afternoon summer sun.

If you are renovating, make sure windows and doors are situated to optimise winter sunlight and reduce summer heat gain. Introduce a foyer to create a grand entrance, and also to act as a buffer from winter or summer winds entering the house.

There are numerous ways to make your existing home more energy efficient and comfortable, many at little or no cost. AFE can provide you with help on getting the most from your home within your budget.

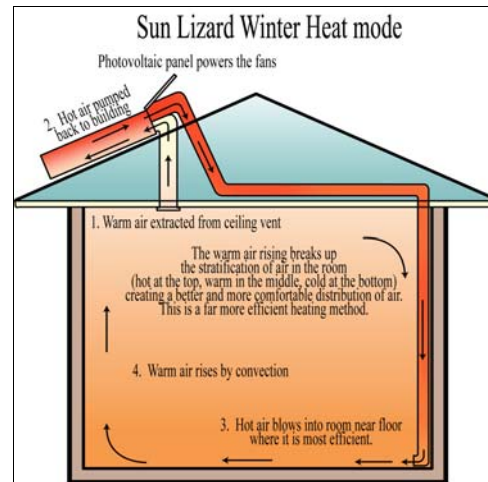
But what if that still isn't enough? What if your energy bills are still too high? What if you want to reduce your impact on the planet and leave something for future generations?

Enter the Sun Lizard.

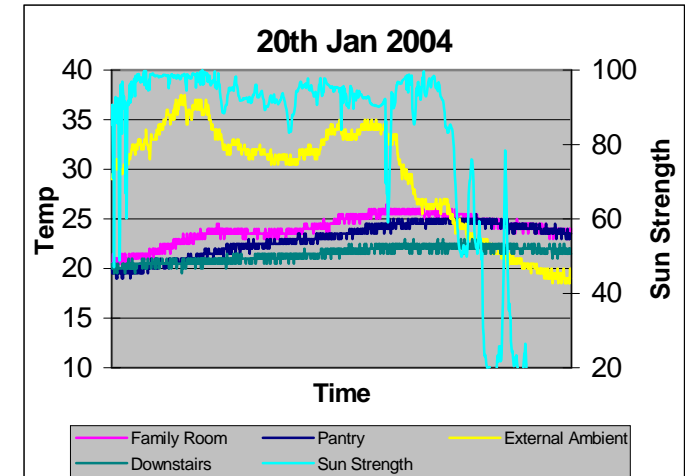
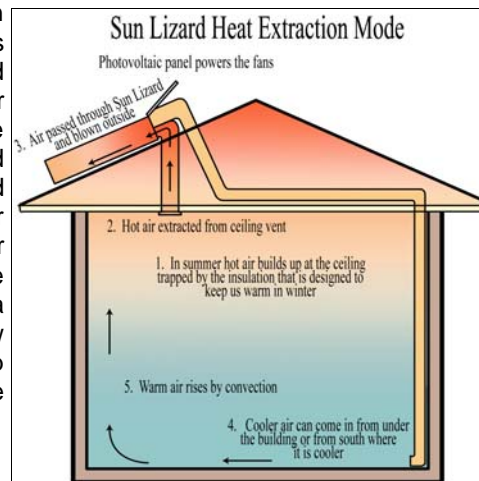
The Sun Lizard is a radical new way of heating and cooling your home. It can reduce your energy bills for heating and cooling by as much as 60% while at the same time producing no greenhouse gas emissions. It will last in excess of 20 years with little or no maintenance and no running costs. It is installed on your roof and in most cases won't be seen from the ground. It will then quietly go about heating and cooling your house, every day of the year.

How does it work?

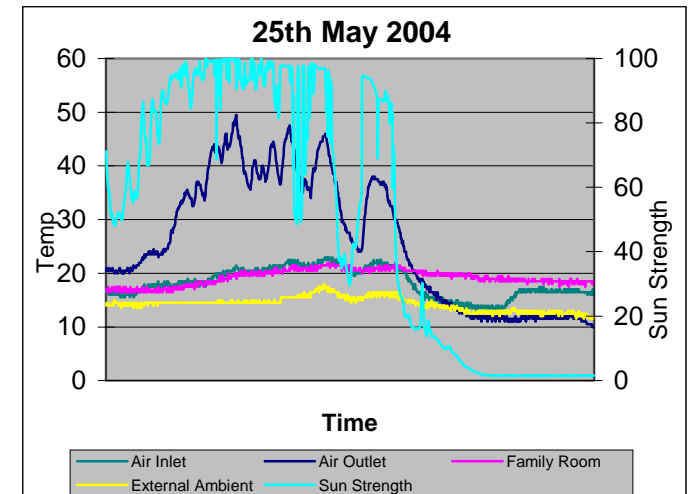
In Winter it operates by taking air from inside the building under the ceiling where it is warm but not heating you. This air is pumped through the Sun Lizard, heated to around 50 degrees Celsius and then pushed back into the house near the floor. This goes on all day, keeping you and your house warm for free.



In Summer, air is drawn out through the same ceiling vent, then blown outside. This reduces the build up of hot air inside the building and reduces the need for expensive air conditioning. Air from under the house, a southern window or a fernery help cool the house further.



The chart above demonstrates the cooling effect of the Sun Lizard. Despite mid 30 degree temperatures most of the day, the family room upstairs remained less than 26 degrees all day as cool air from downstairs replaced hot air removed from upstairs.



The chart above demonstrates the heating effect of the Sun Lizard. The same family room temperature rose from 16 degrees to 22 degrees with an outside temperature less than 16 degrees. This was also despite clouds and slightly overcast conditions all day characterised by the dips in the sun strength. Note the temperature coming from the Sun Lizard (Air Outlet) sits between 40 and 50 during the middle of the day.

Note that Sun Strength shown in light blue is measured as a % and indicates available solar energy