



**Solar Hot Water  
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## Overview

- Acceptance of Solar Hot Water Australia V's Europe
- Comparison Solar V's Traditional Electric & Gas
- Actual cost of generation
- Solar Hot Water Design Essentials



Encouraging to see so many people engaging with the solutions to reduce our dependence on fossil fuels and to CO2 emissions. I don't think even the most ardent skeptic could deny that our current consumption is unsustainable.

I am going to briefly discuss:

The reasons why the uptake of solar hot water is greater in Europe than it is in Queensland.

Examine the comparative cost of generation using a Solar Hot Water System

Finish by outlining the key design fundamentals you must consider before installing a Solar Hot Water System.

## Uptake of Solar Hot Water in Australia

- Why is it so low, approximately 5%
- Is it the available energy from the sun?



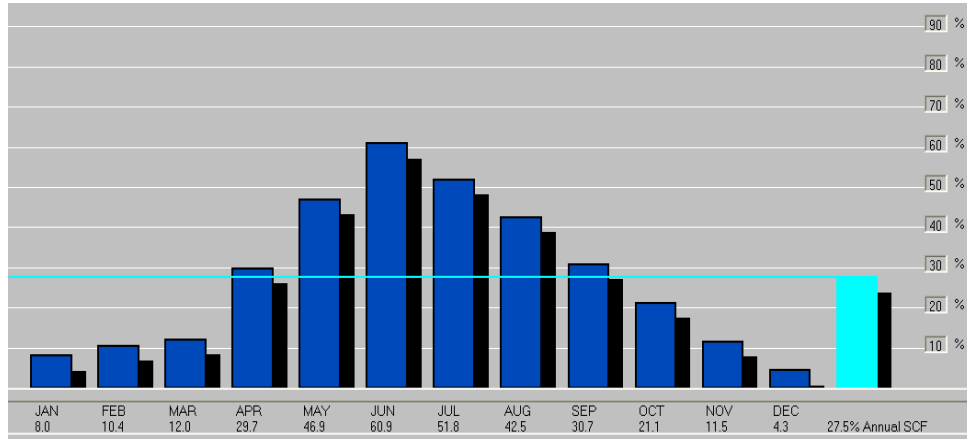
Everyone who visits us from Europe ask the question, Why does hardly anyone use Solar in Queensland?

This intrigued me so much that I decided to complete some research into it.

The first issue I examined was the available energy from the sun and how much hot water it would deliver. So I am going to take you through a short trip through Europe to find out how much hot water can be generated.

## Uptake of Solar Hot Water in Australia

- Denmark 27% Solar Contribution



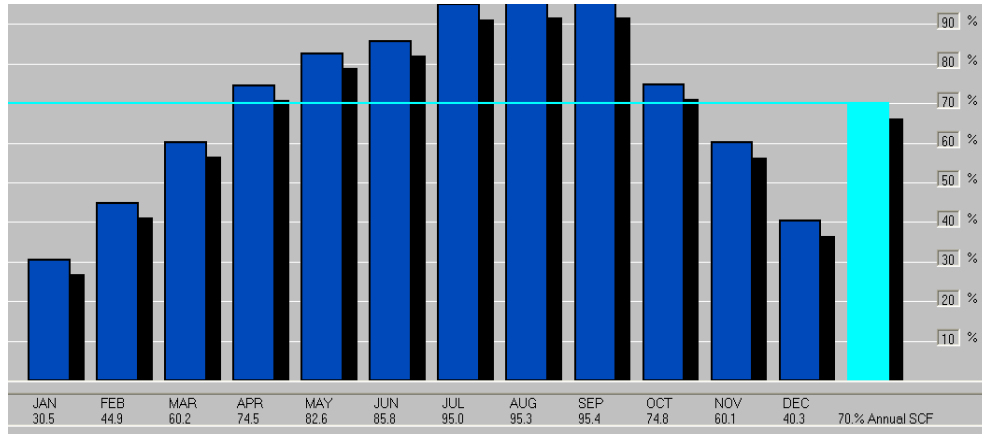
 **Solahart**  
hot water free from the sun

First stop is Denmark, 55o North of the Equator

For the comparison I have used a daily hot water use of 200l and the optimum orientation and inclination for the location.

## Uptake of Solar Hot Water in Australia

- Cyprus 70% Solar Contribution

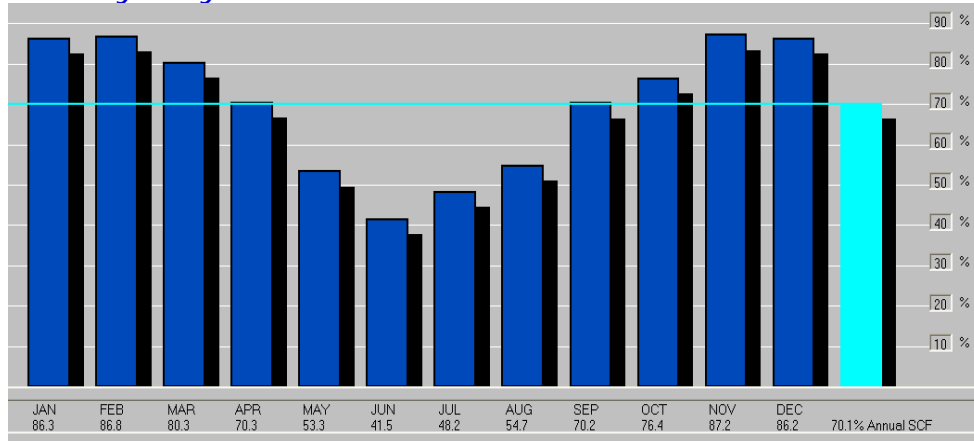


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Heading further south Cyprus delivers 70% of the hot water energy requirements from the sun.

## Uptake of Solar Hot Water in Australia

- Sydney 70% Solar Contribution



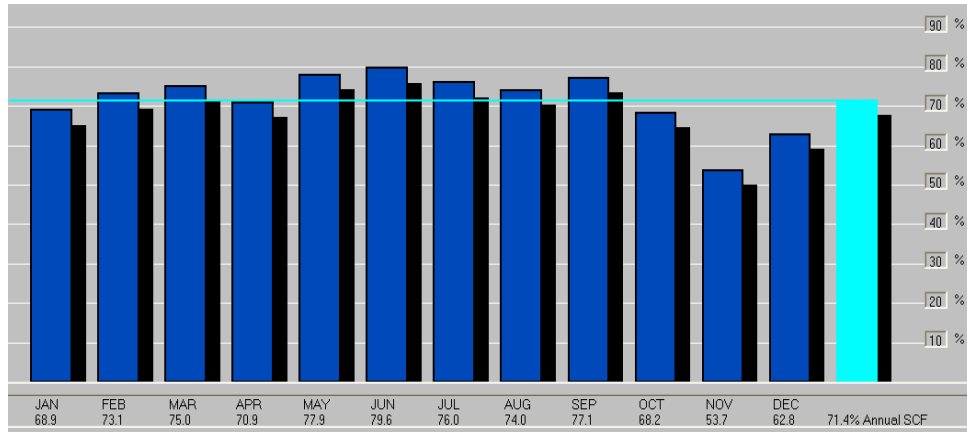
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Sydney, 35o South

Bringing it back to Australia, that is the equivalent of the energy available in Sydney.

## Uptake of Solar Hot Water in Australia

- Nairobi 71% Solar Contribution

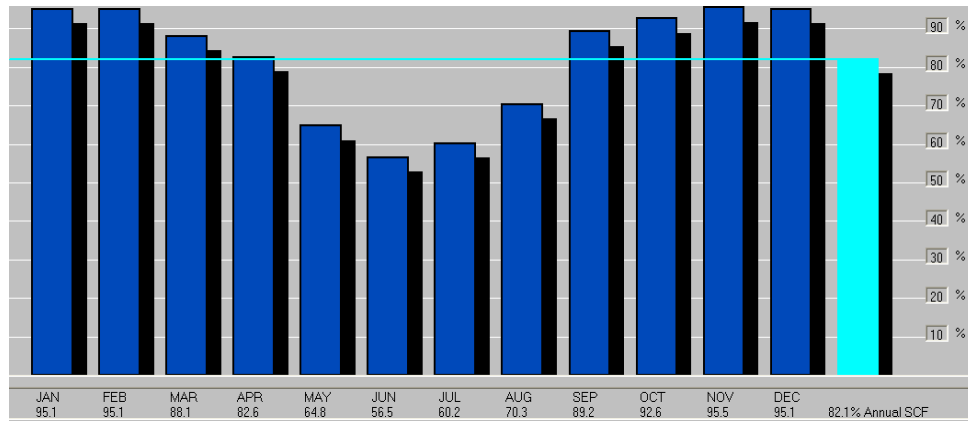


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To achieve even better results we have to go to Africa and Nairobi delivers 71.4% from the sun

## Uptake of Solar Hot Water in Australia

- Brisbane 82% Solar Contribution



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But I have kept the best for last Brisbane on average delivers a massive 82% of Hot Water Free from the sun. This is delivering 200l a day at 60oC. If you use less you will save more. I have used only 200kWh (\$30 Tariff 11) in the last 12 months to supply all of my hot water needs at 60oC.

So we can definitely rule out lack of available energy.



## Uptake of Solar Hot Water in Australia

- Is it Aesthetics?



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Is it Aesthetics. The system on the right is taken in a country that has over 80% of its hot water units as solar. The classic slim line design is a Solahart designed and manufacture in Perth, WA.

## Uptake of Solar Hot Water in Australia

- Contributing Factors
  - Energy Costs
    - Denmark 39c/kWh
    - Netherlands 29c/kWh
    - Germany 28c/kWh
    - Australia 6c/kWh
  - Lack of Generating Capacity – Israel
  - Government Regulation



The main factors I could identify were the high energy costs, lack of generation capacity and increasing government regulation. As mentioned earlier the federal government have recently announced a very generous \$1000 Solar Hot Water Rebate and I would advise you to take this up as soon as you can as I believe the future will be in legislation.

## Comparison Solar V's Electric & Gas

Solar	Electric	Gas
Hot Water Heater	Hot Water Heater	Hot Water Heater
Extremely Low CO <sub>2</sub> Emissions	High CO <sub>2</sub> Emissions	Low CO <sub>2</sub> Emissions
Ability to generate the equivalent of 3000kWh of hot water per year	Waste of valuable Fossil Fuels	Waste of Valuable Fossil fuels
Protection against rising fuel costs		
Increase in capital value of property		
Self sufficiency for the generation of hot water		




In order to bridge the gap the challenge I have is to fully explain the value of the Solar Hot Water System. Often when people have to replace a hot water system the overriding need is to get hot water as soon as possible and all these technologies will deliver that but that is where the similarities end.

Considering CO<sub>2</sub> emissions electricians are a major polluter, with gas second and solar by far the best option.

The unique feature of the Solahart is its ability to generate up to the equivalent of 3000kWh per year in hot water. The other two technologies WASTE valuable fossil fuels. I think it is extremely myopic to promote gas as a fuel for generating hot water when it is such a valuable fuel that should be kept for high value activities that cannot be easily replaced.

Additional benefits include protection against rising fuel costs, an increase in the capital value of your property and the self sufficiency for the generation of hot water.

<b>Actual Cost of Generation (2 Panel System)</b>	
Solahart	\$3600
Standard Installation	\$1300
<b>Total</b>	<b>\$4900</b>
<b>Incentives</b>	
Renewable Energy Certificates	-\$750
Federal Solar Rebate	-\$1000
<b>Total</b>	<b>-\$1750</b>
<b><u>Net</u></b>	<b><u>\$3150</u></b>
Cost of replacing electric heater	-\$1600
<b><i>Additional Cost of Solar</i></b>	<b><i>\$1550</i></b>



The big question is how much will it cost. Round figures the additional investment is \$1550

## Actual Cost of Generation (2 Panel System)

### Potential Generation of 3000kWh per year

5 Years – 15,000kWh = 10.3c/kWh

10 Years – 30,000kWh = 5.2c/kWh

15 Years – 45,000kWh = 3.4c/kWh

20 Years – 60,000kWh = 2.6c/kWh



Depending on how long you are going to stay in your home that is the equivalent of fixing your energy costs at between, 10.3 and 2.6c kWh.

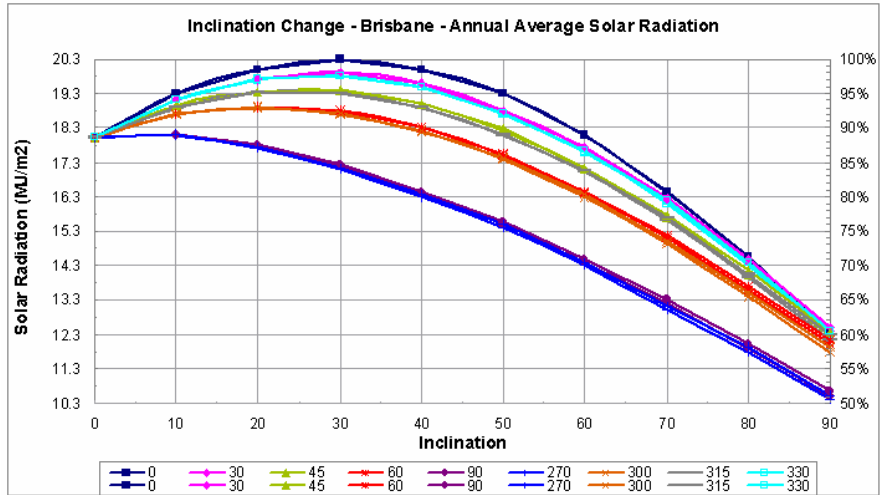
## Design Criteria

- To ensure you get the best system for your situation you must get a design consultation from a trained operator
  - Determination of hot water consumption
  - Does it need frost protection?
  - What is the water quality like?
  - Fuel for boost options
  - Roof height and pitch for OH&S requirements

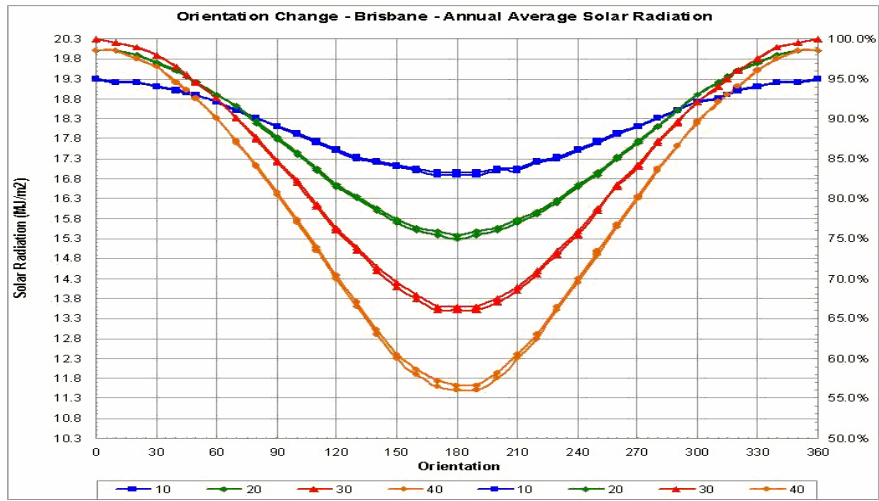


It is so important to get your system designed correctly that Solahart offer the Solahart Smart check to ensure that you get the very best out of your investment. Don't risk purchasing a system over the phone take the LOW RISK option by demanding a Smart Check.

# Inclination



# Orientation



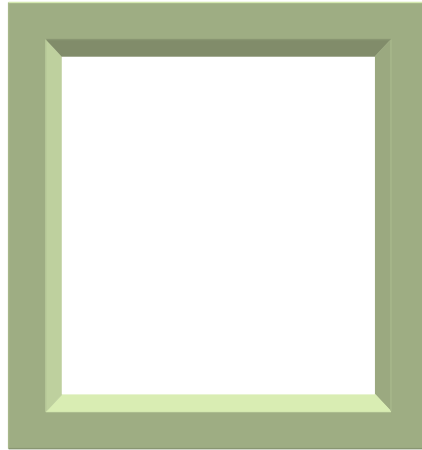


## Options



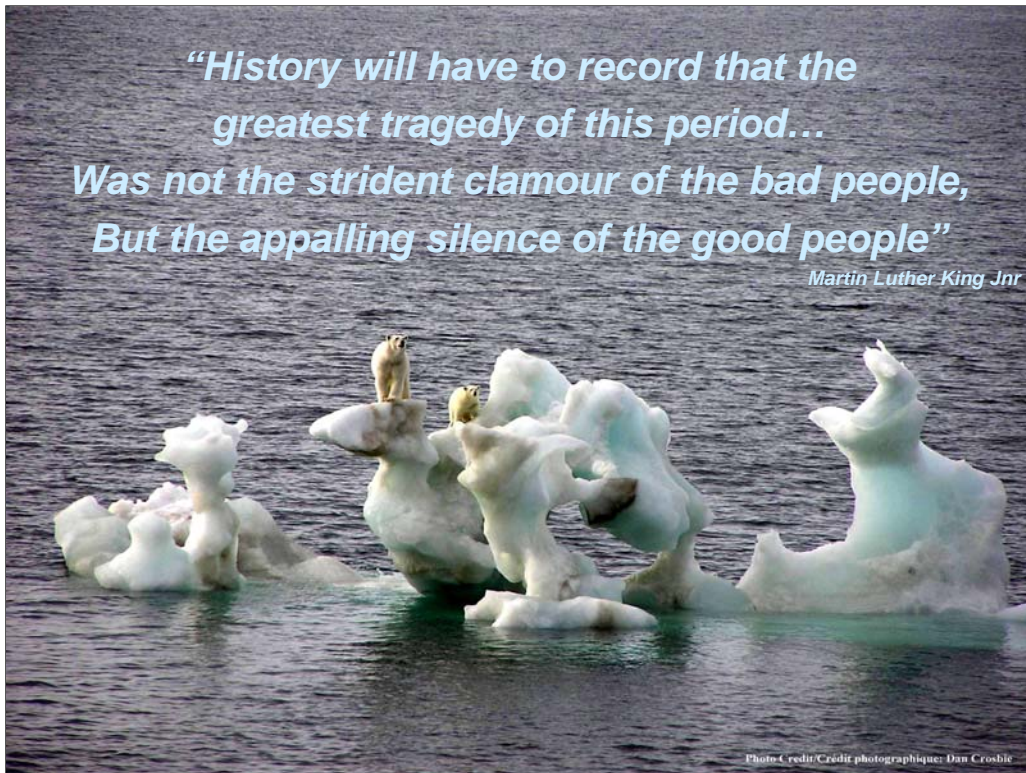
Depending on your unique situation one of these systems will be the optimum solution for you.

## Who are the change agents



Change comes from individuals. Federal Governments try to please too many stakeholders and consequently are historically slow in acting. This is evident in the recent asbestos and smoking related actions.

To thank you all for participating and to help you all in the journey towards sustainability Solahart are offering a \$200 discount as a reward for attending tonight. You can register by leaving your name and address with Lee as you leave or by taking one of my business cards and mentioning this evening when you make an appointment for a Solahart Smart Check.



Finish by letting your reflect on this quote by Martin Luther King as I think it accurately describes our current predicament.