Solar Geyser FAQ

What is solar water heating?

Solar water heating is a system for heating water using energy from the sun. Solar energy is collected by a panel/collector, which is then connected by pipes to a hot water storage device such as a hot water cylinder.

What are the benefits of solar water heating?

Solar water heaters can help save water heating costs by reducing the amount of gas and electricity needed to heat water. By using sunlight to heat water instead of combustible sources or fossil fuel-produced electricity, fewer pollutants are being introduced into the environment. Solar energy is not affected by the current shortage of electricity and does not stop providing hot water during load shedding.

How much of my total hot water requirements can a solar water heater provide?

A solar water heater can provide between 50% and 90% of your total hot water power requirements, depending on the climate and model of heater. When you don't use the element you will save 100% of your hot water power requirements.

By how much will replacing a conventional geyser with a solar powered system reduce electricity consumption?

The electrical geyser uses on average between 30 – 50% percent of your household's monthly electricity bill. Replacing your conventional geyser with a solar powered system will reduce that percentage of your electricity consumption by up to 70%.

How hot can the water get?

The ideal temperature of your geyser or tank is between 55 and 60ºC. Most solar systems heat the water to between 55 – 65ºC, but some can heat much higher than that. You need to be aware of over-performing systems so that you are not scalded by the hot water. Unless otherwise required the water temperature at the point of use should be at, at least 38ºC for domestic fixtures such as baths, basins and showers and at least 45ºC (in order to melt fats) for sinks. The temperature is not meant to exceed 55º C at any point of use.

What happens in winter or on rainy days, when there isn't enough sunlight to heat the water?

Solar water tanks are better insulated than electrical geysers and can keep water hot for a longer period of time. This ensures that there is always a tank full of hot water (and a backup of hot water) in the early evenings/mornings – provided the tank size is correct. An electrical backup system is allowed on the program provided it has a timer switch that ensures it does not operate during Eskom's peak demand periods. Customers need to ensure suppliers/installers appropriately insulate all the pipes exposed to the elements to prevent freezing and heat loss.

Do I need to install a new geyser, or can solar panels be added to the existing system?

Standard geysers are not designed to be utilized with solar collectors as they do not have sufficient inlets and their linings are often not designed to withstand the temperature experienced from solar energy. The supplier should evaluate the existing geyser and, based on your needs, the supplier can evaluate the possibilities of using the existing system.

What are the life-cycle expectation of the system and the total energy savings on it?

Each piece of equipment has a different savings profile which depends on various elements such as geographical area, water usage profile, number of users and the size of the system. However, on a 200 liter system, the SABS average is 5.67kWh per day at 16MJ input power. The expected life of the equipment can range from 5 to 15 years; most systems are guaranteed for 5 years.

How much can it save in your typical electricity bill?

A geyser uses between 30 – 50% of the electricity used in a home. Typically taking overcast weather and usage patterns into account, 70% of this energy can be displaced by a solar system.

Given our current electricity shortage, how much can solar water heaters help reduce demand?

If 100,000 geysers were to be installed this would offset 300 MW worth of connected load. However if we take diversity and usage into account this equates to a 63 MW load that is actually removed during our peaks. Read more to see how much electricity you'll be saving in one year by converting to solar.

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How do I know which system to choose for my climate?

Areas that experience frost (such as Gauteng) should only make use of freeze resistant systems. We do not have severe winters in South Africa, but we do have frost and temperatures below 4°C, which can cause systems to burst and fail. One of the tests that the SABS does is a freeze test to ascertain whether the systems can actually withstand low temperatures. Non-frost areas tend to be in a narrow band of the South African coast line. All inland areas are prone to frost so if you live inland, you should buy a system that is tested to withstand frost conditions. Furthermore, water in South Africa can be very corrosive, especially when the water is hot. If systems are not manufactured to withstand our water quality then the components do not last for the guarantee period. Critical parts that need to be suitable to our water quality are valves, copper pipes, and the lining of the storage vessel. Indirect systems can handle both frost and poor water quality. Finally, South Africa has very high levels of radiation and therefore system performance can decrease. Just because a system has an overseas test report does not imply it is designed to handle the high temperatures it will be exposed to here. Systems that get too hot are potentially very dangerous and should be configured for our radiation levels.

What is the life cycle of a solar water heating system?

A solar system has a lifespan of 5 to 20 years on solar flat panel geysers , evacuated solar tube conversions and high-pressure solar geysers, depending on the system and the maintenance on the system.

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