


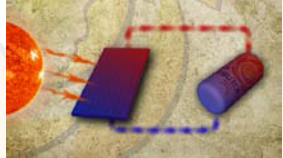



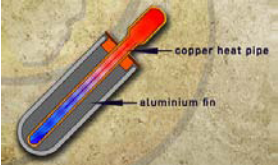


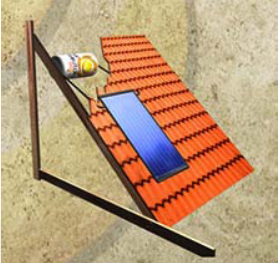


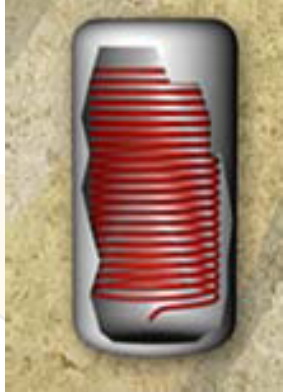
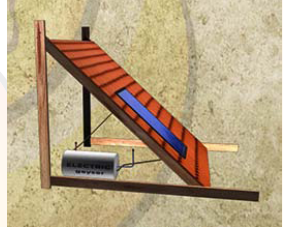
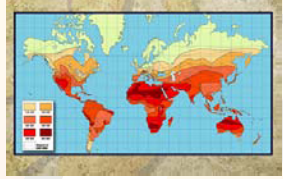




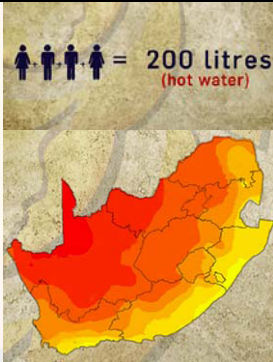








<p style="text-align: center;">TWENTY QUESTIONS</p>		
1	<p><i>What is Solar?</i></p>	
	<p>The sun provides us with renewable energy in the form of light radiation and heat on a daily basis. This is more than sufficient for our total energy needs.</p>	
2	<p><i>Why use Solar?</i></p>	
	<p>Burning fossil fuels provides most of our energy. Not only is this a dwindling reserve, it is also harmful to the environment. Every solar collector installed saves approximately 3 tons of CO² emissions, 8 000 litres of water and 5 tons of coal per annum. Solar is clean, safe and renewable, and the supply is endless.</p>	
	<p>There are two main streams of Solar to harness the energy from the sun:</p> <ul style="list-style-type: none"> • Photovoltaics or PV panels capture the energy and converts it into electricity. • Solar Water Heaters use the light radiation to heat water, which is then stored in a geyser for consumption. 	
3	<p><i>How do Solar Water Heaters work?</i></p>	
	<p>The radiation of the sun is captured by a solar thermal collector and transferred to water from the geyser circulating through the collector, thereby heating it. The water in the system will continue to circulate through the collector until the desired temperature is reached.</p>	
4	<p><i>What is the difference between Flat plate and Evacuated tube collectors?</i></p>	
	<p>A Flat plate collector absorbs the radiated energy onto flat sheets of metal covered by a specialised coating; this improves the absorption rate. Water, circulating in copper piping attached to these sheets, is heated by this energy. A refracted glass plate covers the collector to trap the radiation from the sun, as well as to insulate it to some extent from the elements.</p>	
	<p>An Evacuated Tube Collector consists of glass tubes and a manifold. The evacuated tube is a double walled glass cylinder of which the outer space has been evacuated for insulation to prevent heat loss. Thermal absorbent applied to the inner wall of the tube captures the radiated energy.</p>	

	<p>The 3 layers of coating applied fulfil the following functions:</p> <ul style="list-style-type: none"> • The outer layer is an anti-reflective layer. • The next layer is the thermal absorbent which maximizes the absorption of the radiation energy. • The last is a thin copper layer that transfers the energy to the aluminium fin, which it is in contact with. <p>The fin is wrapped around a copper heat pipe in the core of the tube. The heat rises to the bulb at the top end of the heat pipe, which slots into the manifold. Water circulating through the heated manifold is thus warmed.</p>	 
5	<p><i>What is Thermosiphoning?</i></p>	
	<p>In a Thermosiphon system the geyser MUST be positioned higher than the collector. Cold water has a higher density than hot water, and will descend while hot water will rise. The hot water in the collector rises into the geyser and the colder water in the geyser descends into the collector causing a natural circulation effect called thermosiphoning that will continue until a state of equilibrium is obtained. A Thermosiphon system is Passive solar technology.</p>	
	<p>A Close-coupled Thermosiphon system is one where the geyser and collector forms a single unit. The geyser will also be placed outside on top of the roof.</p>	
	<p>In a Split Thermosiphon system the geyser and collector are connected via conventional pipe work and can be separated, with the geyser often placed inside the roof while the collector sits on the outside.</p> <p>Thermosiphon systems can use either flat plates or evacuated tube collectors.</p>	
6	<p><i>What is an Active system?</i></p>	
	<p>An Active split system is used where the geyser is lower than the collector. The water is circulated from the geyser through the collector by using a pump, which is switched on/off with a controller. Probes placed in the collector and geyser measure the temperatures. When the collector is 8°C warmer than the geyser, the pump is activated, the water circulated through the collector and heated. This continues until a state of equilibrium is reached.</p>	

	<p>It is imperative that a controller is used as opposed to only a timer or PV panel to activate or deactivate the pump. This is to prevent the pump from circulating the water while the collector is colder than the geyser and so cooling the water in the system</p>	
7	<p><i>What is the difference between direct and indirect systems?</i></p>	
	<p>In a Direct system the water in the geyser circulates through the collector.</p> <p>With indirect systems the water in the collector circulates in a closed loop through a heat exchanger, which can be situated inside the geyser or outside. The heat exchanger heats the water in the geyser.</p> <p>Glycol may be used in the closed loop to improve heat transfer and to prevent freezing.</p> <p>Indirect systems are used in areas with poor water quality or with severe freezing problems.</p>	
8	<p><i>What about my current geyser?</i></p>	
	<p>It is possible to use your current electric geyser in a Retrofit installation, which may qualify for an Eskom rebate if all the requirements are adhered to.</p> <p>This is not as efficient as using a solar geyser.</p>	
9	<p><i>What happens when it's cold and wet?</i></p>	
	<p>In sunny South Africa we have on average 9 hours of sunlight per day, as opposed to 5 hours in London. However, there are times when the weather does not allow the sun to heat the solar water heater. Therefore most systems have a back-up 2kW element, to heat the water in such conditions.</p>	
10	<p><i>What happens in freezing conditions?</i></p>	
	<p>The back-up element ensures that you still have hot water.</p> <p>The water in the copper pipes of a flat plate collector can freeze-up in really cold conditions. The risk is that the expanding water (ice) may cause the system to burst. Electronic protection against this is provided by the controller, which pulses hot water through the system to prevent it from freezing. Mechanical backup in the form of a dump valve allows the water that's freezing to escape from the collector, avoiding damage.</p> <p>Ensure that you collector has a dump valve if you live in a freeze prone area.</p>	

	<p>Evacuated tube collectors are a lot less prone to freezing as there is no water in the tubes, and the manifold is well insulated. The controller also pulses warm water through the manifold should it be required.</p> <p>Solar water heater systems are tested for frost protection and indicated as such on the Eskom web site.</p>	
11	<p><i>Can the systems withstand hail?</i></p>	
	<p>The SABS performs stringent tests on all systems to check for this. Systems that pass the SABS tests should be able to withstand hail of up to the size of a golf ball.</p>	
12	<p><i>What does the actual installation entail?</i></p>	
	<p>An installation team will need to get inside and on top of the roof; therefore access to your house is needed. It will take a team of 2-3 people the better part of a day to perform the installation. The water supply to the house will probably be interrupted and no hot water will be available from the new geyser until the installation is complete; the sun or the back-up element will also need time to heat the water after installation.</p>	
13	<p><i>What size system do I require?</i></p>	
	<p>The number of people in your house and your lifestyle determines the size of the system required. As a rule of thumb, individuals in the middle to higher income brackets use 50 litres of water per day. 4 people will need a 200 litre geyser. It is a good idea to <i>size up</i> to allow for those days when it is impossible for the solar to work.</p> <p>Once the size of the geyser is determined, a suitable collector and size to match the solar conditions of the area where you live needs to be selected.</p>	
14	<p><i>How much will it cost and how much will I save?</i></p>	
	<p>Cost-wise there is a wide range of solar water heaters available on the market, ranging from around R5, 000 for a low-pressure unit to as much as R40, 000 at the upper end of the scale.</p> <p>Your savings will be determined by your lifestyle. On average 50% of residential electricity bills can be attributed to the geyser. A correctly sized and installed solar water heater should save 70% of that on an annual basis. Thus expect to save R350 on a R1, 000 electricity bill.</p>	

15	<p style="text-align: center;">Where should the system go?</p> <p>The collector should be installed facing as close to North as possible, with a Western slant preferred to East. Consideration should be given whether the roof structure is strong enough to carry the weight. The ideal angle of the collector is latitude plus 10°, but a pitched roof will usually suffice. A stand will be required on a flat roof.</p>	
16	<p style="text-align: center;">How long should a Solar Water Heater last?</p> <p>Properly manufactured systems operating under normal water conditions have been known to last as long as 20 years and more. All systems on the Eskom DSM program have to carry at least a 5-year warranty, while some manufacturers and importers have extended this to 10 years. The pumps and controllers generally only carry a 1 or 2 year warranty.</p>	
7	<p style="text-align: center;">How does the Eskom rebate work?</p> <p>In order to qualify for the rebate, the supplier, the solar water heater system, the distributor, and the installer will have to be registered with Eskom <i>prior</i> to installation. The home-owner has to claim for the rebate; this entails completing and submitting the claim form with supporting documents to Eskom within 6 months of installation. The claim should be paid out within 8 weeks. You may need to give access to Eskom quality controllers to come and inspect the installation.</p>	
18	<p style="text-align: center;">How much is the rebate?</p> <p>Each system on the Eskom DSM rebate program carries a different rebate. These range from around R2,0 and <i>generally</i> are relative to the cost of the system. It is Eskom's intention to reduce the rebate over time. For further information visit www.eskomdsm.co.za to view the full range of systems with rebates available to you.</p>	
19	<p style="text-align: center;">How do I select a system?</p> <p>With the wide range of systems available, there should be something to suit your pocket. Quality is not negotiable; a poorly installed solar water heater, or one of inferior quality is a safety hazard.</p>	

20	<p>Why choose a system distributed by Solar Distributors Africa?</p>	
	<ul style="list-style-type: none"> • Our extensive product offering allows our dealers to supply you with the system most suited to your needs, and not merely what may be available from a limited basket. • Our focused approach to the supply chain allows each party involved to be the best at what they do, assuring you of quality products and installations. • A streamlined supply chain moving high volumes, such as SDA, saves money. This reduces the cost of Solar Water Heaters for the man in the street. • Choosing a system distributed through Solar Distributors Africa gives you peace of mind of Quality at an Affordable price assured. 	 
	<p><i>Our vision is that every household in South Africa should benefit from the abundance of sun energy available by having access to a suitable and affordable solar water heater.</i></p>	
	<p>To learn more or locate an accredited SDA dealer in your area, visit www.sdafrica.co.za or e-mail us on info@sdafrica.co.za</p>	