



*Solar energy*

# Saving Energy with Solar Water Heating

by Home Comfort





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## **Home Comfort** - *Since 1994 ...*

- ≈ Solar Heating*
- ≈ Heat Pumps*
- ≈ Ceiling Insulation*
- ≈ Underfloor Heating (Danfoss)*
- ≈ Water Underfloor Heating + Heat Pumps*





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## ***Our Solar Customers ...***

- ≈ William Kentridge (Artist)*
- ≈ Steve Booysen (CEO: ABSA)*
- ≈ Richard Moloko (Gold Reef City Casino)*
- ≈ Peter Mageza (COO: ABSA)*
- ≈ Peter Middleton (Editor: Mechanical Tech)*



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# Our Corporate Customers ...



WOOLWORTHS  
the difference



Sun International



ST JOHN'S COLLEGE

ST DAVID ROAD, HOUGHTON,  
JOHANNESBURG, SOUTH AFRICA



SERENGETI

GOLF AND WILDLIFE ESTATE



Ekurhuleni  
METROPOLITAN MUNICIPALITY



homecomfort

Love your home. Love your planet.



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≈ **Fact:** Eskom will increase its tariffs by  $\pm 35\%$  every year for the next 3 years

Total = 105%



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≈ **Fact:** Eskom power plants are some of the worst sources of air pollution in the world

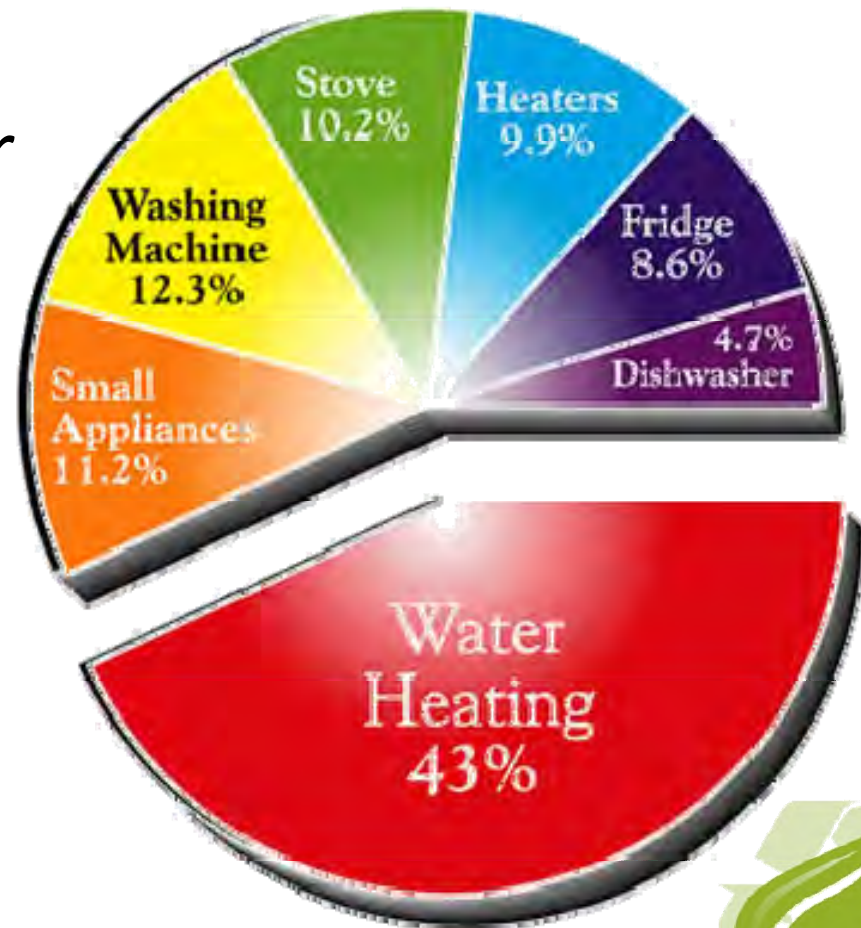


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≈ **Fact:** Water Heating contributes 43% to your electricity bill –



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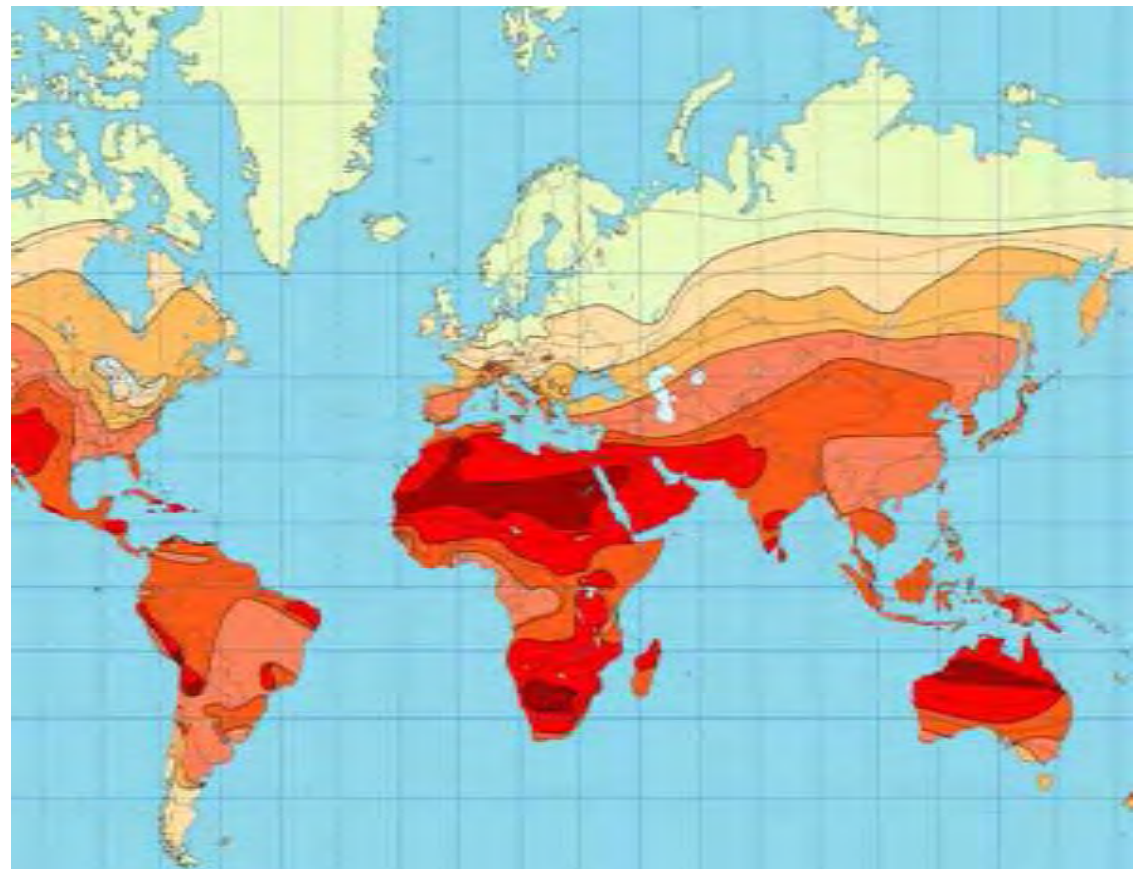
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≈ *Fact: South African Solar radiation levels are amongst **highest** in the world*

~220 W/m<sup>2</sup> for South Africa

~150 W/m<sup>2</sup> for USA

~100 W/m<sup>2</sup> for Europe







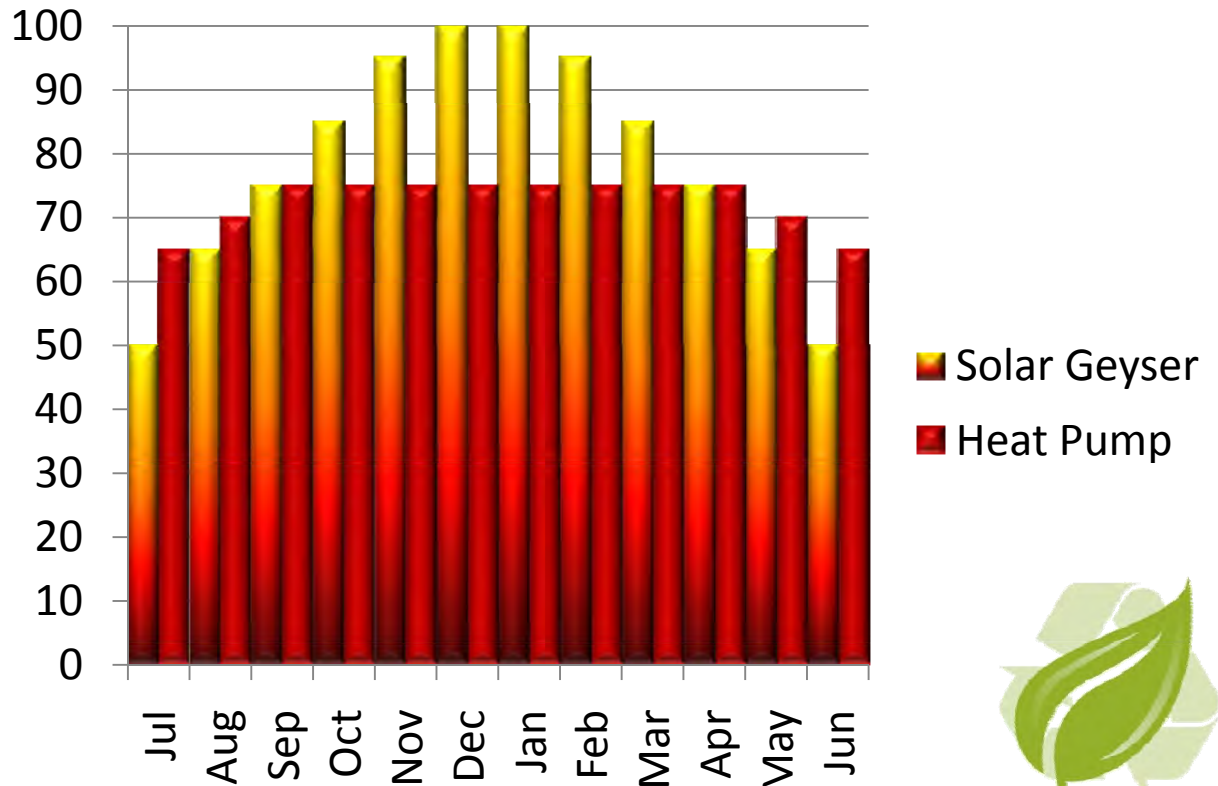
≈ **Fact: 33% Savings** on your electricity bill with a Solar Geyser or Heat Pump

Max Saving Possible:

≈ 75% Heat Pump

≈ 75% Solar (No Rain)

**SABS**



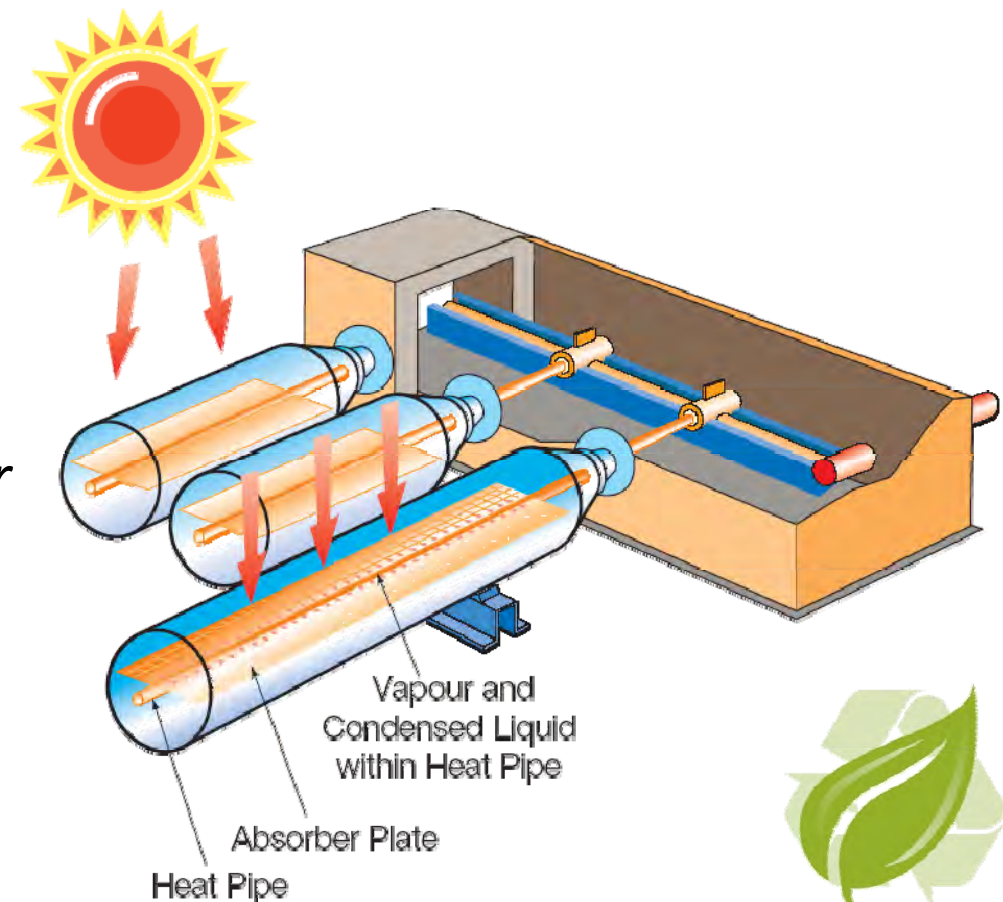
## *Benefits of a Solar Geyser:*

- ≈ Cost Saving : Cut your electricity bill by 33%*
- ≈ An Investment: Add to the value of your house*
- ≈ Environmentally Friendly: Clean & Green energy*
- ≈ Consistency of Supply :  
Independent of power supply*



## How does a Solar Geyser work?

- ≈ Vacuum tubes heat up from the radiation of the sun
- ≈ Water flow between the collector and the geyser
- ≈ Heat is stored in your geyser
- ≈ Electrical Back-Up on Timer



## *Timer Control*

- Timer Switch in the DB (On from: 3:00–6:00 and 15:30–18:00)
- Thermostat in the Geyser (Only on when the water temperature is below the set point of  $\pm 50\text{ }^{\circ}\text{C}$ )
- Electric element in the Geyser



# Installation Options:

1. How does the water circulate?

⌠ Thermo Siphon = Geyser higher than Solar Collector

⌠ Pumped = Geyser lower than Solar Collector

2. Where is the geyser?

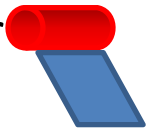
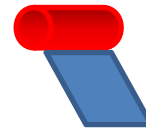
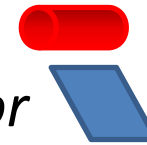
⌠ Closed Couple = Geyser on Roof

⌠ Split = Geyser inside the Roof

3. Where is the Solar Collector?

⌠ Flat Roof + Structure

⌠ Pitched Roof



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## *Installation Requirements:*

- ≈ North Facing Roof*
- ≈ Exposure to the Sun*
- ≈ No Shade*





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## *Fact: Hail & Storm Resistant*

*≈ SABS Hail test passed*

*≈ Freeze Resistant*



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## *Rebate available from Eskom*

*≈ SABS Mark of approval*

*≈ 10 Year Warranty*

*≈ Eskom Rebate of R 4,000 to R 9,500*





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## *Heat Pump*

A Heat Pump extracts the heat from the sun-warmed air and transfer it to water.

*Heat is not created – it is moved from air to liquid*

*Works like a fridge or Aircon  
(Compression Vapour Cycle)*



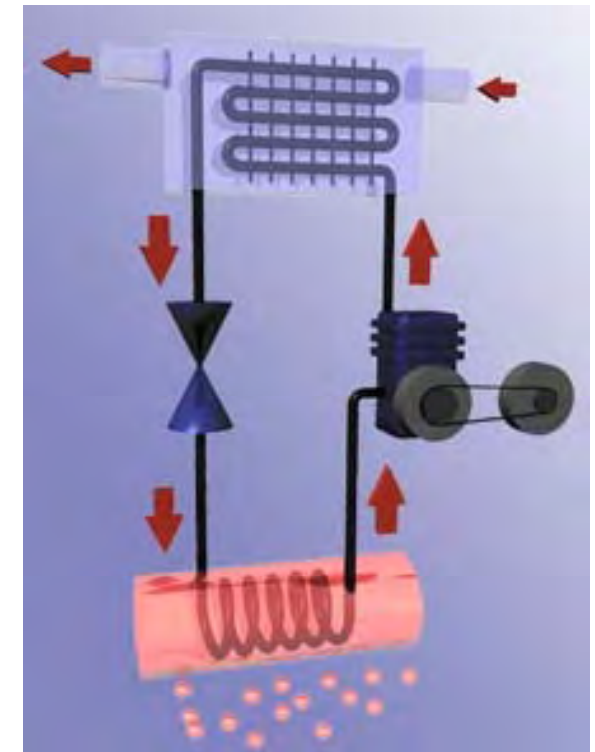
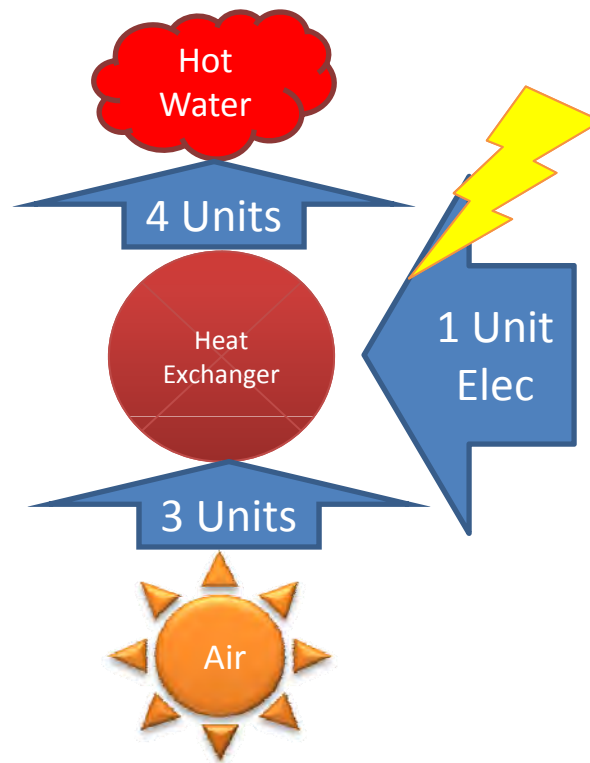
## *Benefits of a Heat Pump Geyser:*

- ≈ Cost Saving : Cut your electricity bill by 33%*
- ≈ An Investment: Add to the value of your house*
- ≈ Environmentally Friendly: Clean & Green energy*
- ≈ Easy to Install to your existing geyser*
- ≈ Not sensitive to cloudy and rainy weather*
- ≈ Discreet installation on a wall*



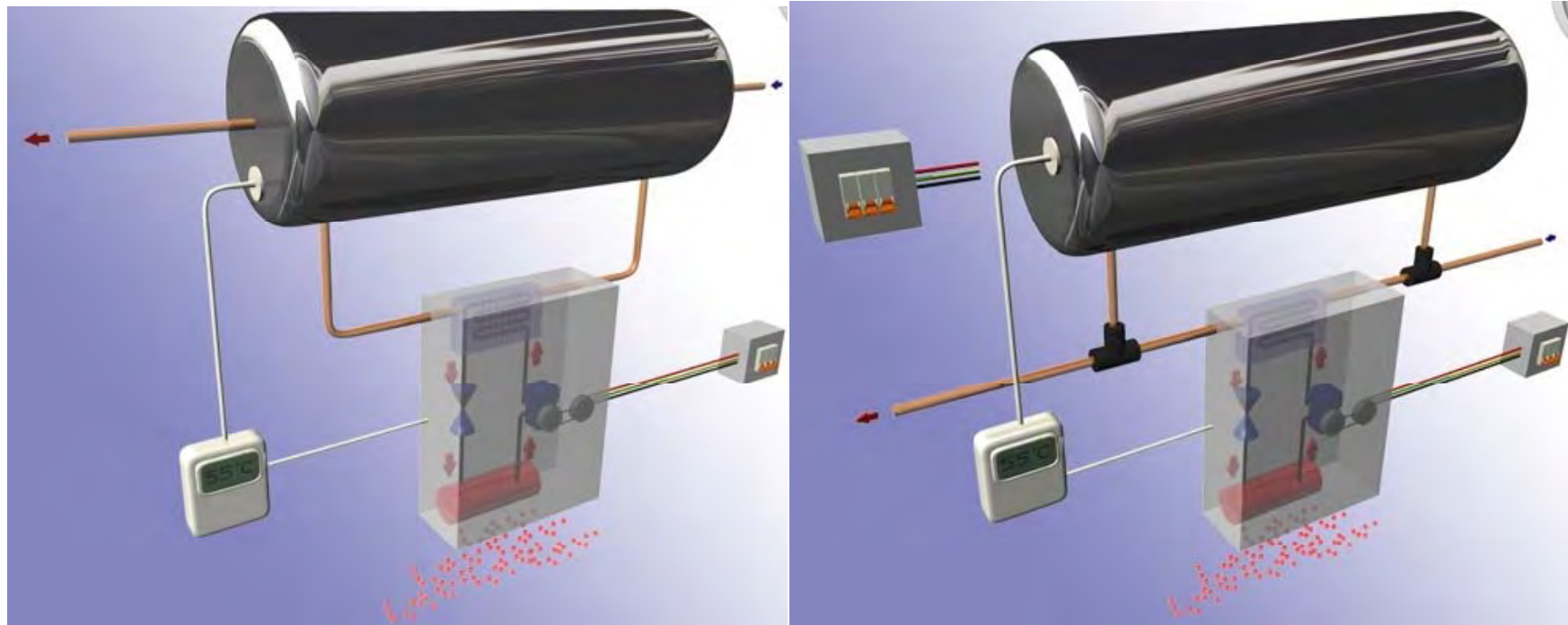
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## How does a Heat Pump Work?



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## Heat Pump fitment: New Geyser OR Retrofit



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## Comparing

## Running Cost:

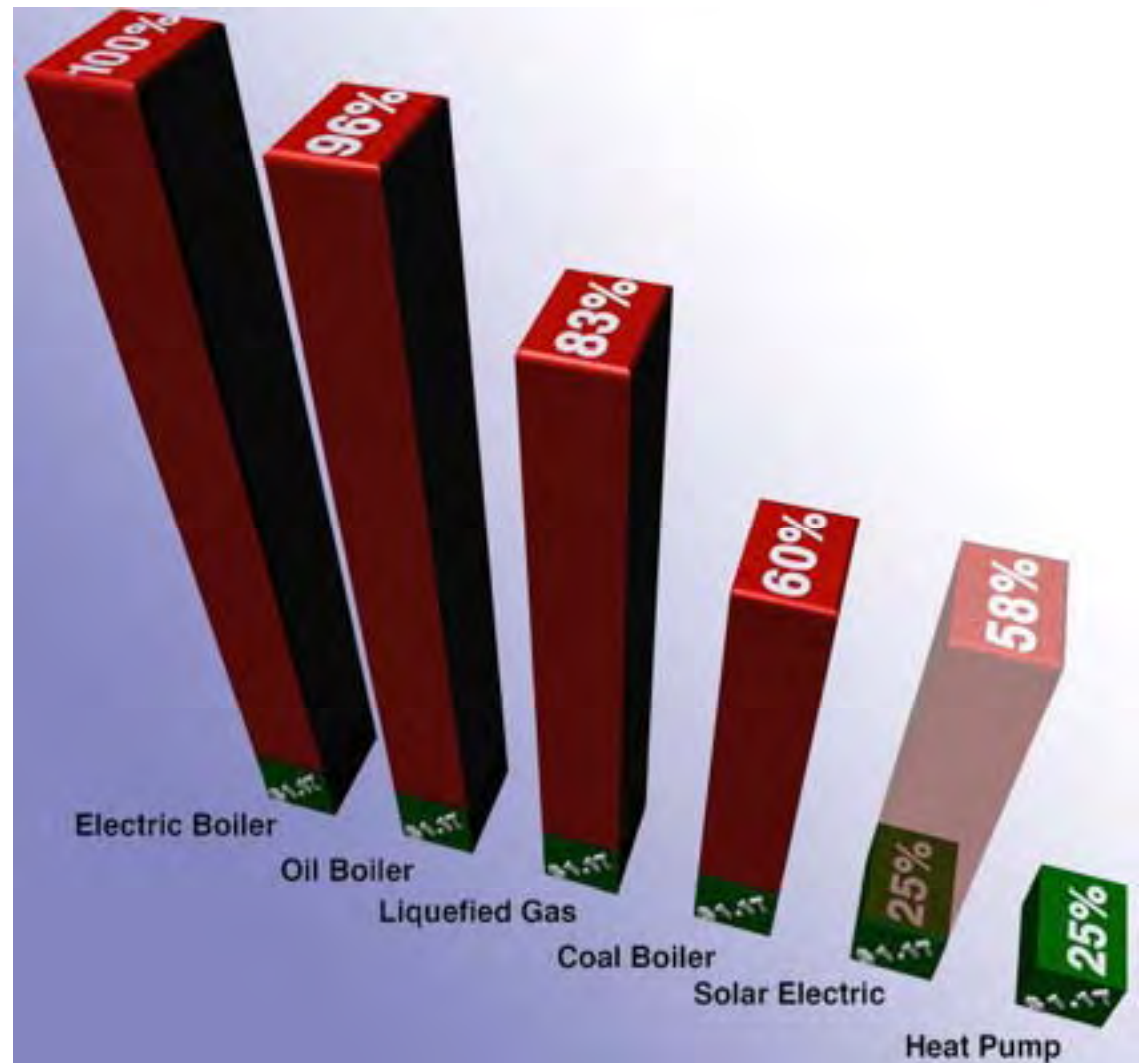
≈ Heat Pump 25%

≈ Solar Geyser

Summer 0% + Winter 50%

= 25%

+ Rain = 58%



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Comparison	Solar Geyser (200L Retrofit)	Heat Pump for 300L
Cloudy Weather	Efficiency Reduce	Unaffected
Night time	Electrical Backup Required	Slightly less efficient in lower ambient temperature
Hail / Rain	Rain Clouds reduce efficiency Severe hail can damage vacuum tubes	Unaffected
Winter / Summer	Winter solar radiation half of the radiation in summer	Slightly less efficient in lower ambient temperature
Sensitivity to installed position	Precise location, orientation & angle	Well ventilated area close to the geyser
Volume Hot Water	Limited to geyser capacity	No limit
Electricity Saving	40% to 75%	40% to 75%
Cost	R 10,000	R 12,000



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## Product Selection:

	Solar Closed Coupled	Solar Split Pumped	Solar Split Thermo Siphon	Heat Pump
North facing / No Shade Big Roof 35°			X	
North facing / No Shade Small Roof 35°	X			
Thatch Roof				X
Flat Roof	X	X	X	X
Retrofit: Kwikot		X		
Retrofit: 1 X Geyser		X		X
Retrofit: 2 X Geyser				X



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## Payback Period: 200L Geyser

200 L Geyser		New House / Burst Geyser	Retrofit Solar	Retrofit Heat Pump
Geyser Cost		- R 4,000		
Solar System Cost		R 21,000	R 14,000	R 12,000
Eskom Subsidy		-R 4,000	- R 4,000	
<b>Nett Cost</b>		<b>R 13,000</b>	<b>R 10,000</b>	<b>R 12,000</b>
Monthly Electricity Bill 2009		R 1,200	R 1,200	R 1,200
Yearly Electricity Bill 2009	33%	R 14,400	R 14,400	R 14,400
Saving from Solar Geyser 2010		R 4,800	R 4,800	R 4,800
Saving from Solar Geyser 2011	25%	R 6,000	R 6,000	R 6,000
Saving from Solar Geyser 2012	25%	R 7,500	R 7,500	R 7,500
<b>Payback Period (Years)</b>		<b>2.2</b>	<b>2</b>	<b>2.1</b>

