Solar Water Heaters

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Solar water heaters absorb the sun's electomagnetic radiation in the form of heat. This technology can be used by households, office buildings and industry for water heating. The hot water can also be used for room heating via copper pipes installed under the floor.

Solar water heaters (SWH) are very efficient in utilising solar energy for water heating and are a durable technology. Many SWH come with a 10-year warranty or more.

A SWH can reduce a household's electricity expenditure by up to 50% and thus save a lot of electricity and money. This way SWHs can contribute towards Namibia's energy saving programmes.

In Namibia many households use electricity to heat their water, although the country has a strong solar energy resource. This is a waste of electricity, since SWHs provide the same service for free once the initial costs are recovered from the savings. This takes between 3 and 5 years depending on the tariff.

Electricity for hot water

There are an estimated 100,000 electrical geysers in Namibia.

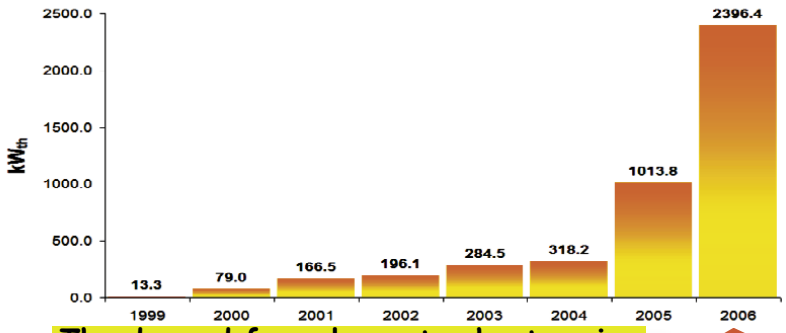
Namibia imports about 50% of its electricity.

Electricity consumption for domestic water heating is 8% to 12% of the national consumption.

An average household spends between N$ 150 to N$ 300 every month to heat water with electricity.

Collectively all households in Namibia spend a total of over N$ 150 million per year on electricity to heat water.

Installed Thermal Energy in Namibia 1999 - 2006

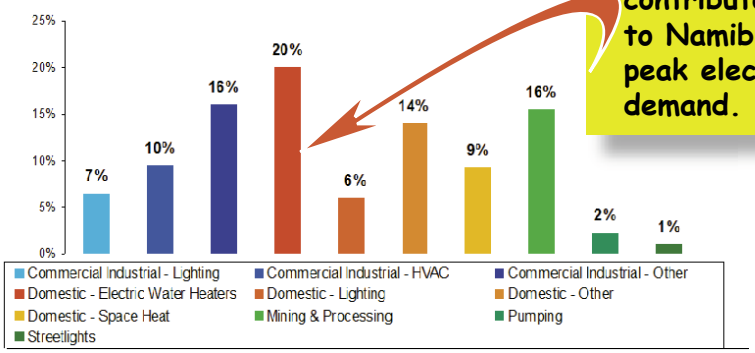


The demand for solar water heaters is increasing dramatically in Namibia.

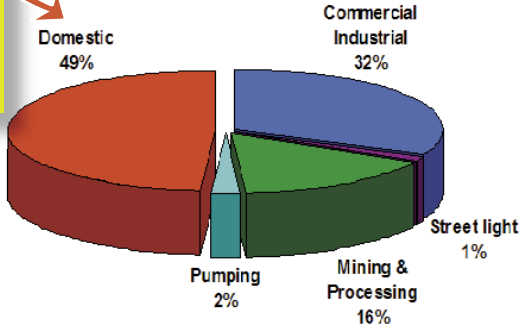
Using electricity for water heating is the single highest contributor to Namibia's peak electricity demand.

Households are the single largest electricity consumer during Namibia's peak electricity demand.

Estimated Contribution to Peak Electricity Demand



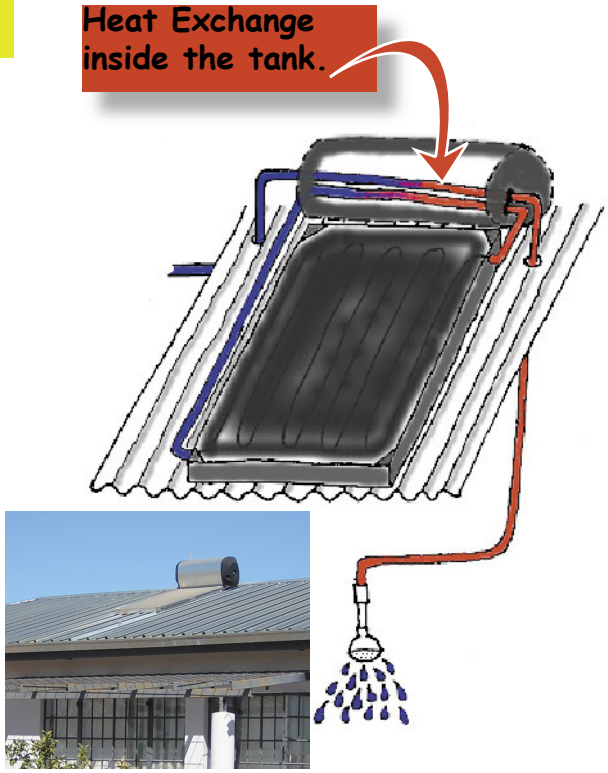
Estimated Demand Peak Contribution - Namibia



There are two different types of solar water heaters:

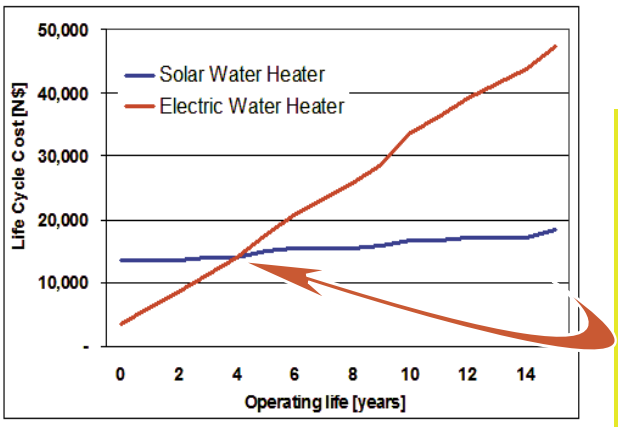
Indirect Solar Water Heater

An **indirect** or **dual circuit** SWH transfers the heat collected to your house water. This "heat exchange" happens in the **water storage tank**. The water storage tank is often situated above the **solar collector**. The solar collector is black, for heat absorption, and contains rows of connected copper pipes which the water flows through. Hot water from the solar collector transfers its heat to the household's hot water supply, but does not mix with the household's water. This closed circuit is ideal for areas with high lime content in the water and avoids lime deposits in the copper pipes, which would ultimately result in clogging. Anti-corrosion and anti-freeze fluids can also be added to the "solar water" for additional preventative maintenance.



Direct Solar Water Heater

A **direct** or **single circuit** SWH directly heats up the household's hot water supply. Water from the household enters the **solar collector**, where it is heated up and then used in the house. The direct SWH also uses a **water storage tank** , which is often mounted above the solar collector. Some direct SWH can use the existing electrical geyser as a water storage tank. If the electrical geyser is installed inside the roof, below the solar collector, a small circulation pump is required that delivers hot water down to the geyser and cold water up to the solar collector.



In Windhoek, at a pre-payment tariff of N$ 0.755 per kWh, a solar water heater will have recovered the cost to purchase it after 4 years.

Additional Information

http://en.wikipedia.org/wiki/Solar_hot_water

http://www.aceee.org/consumerguide

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