

## Solar Water Heating Rebate Programme

### Targets set for solar water heating in South Africa

South Africa is facing an electricity shortage with the demand for electricity growing beyond what Eskom can supply. In order to mitigate system restraints, Eskom has various programmes promoting energy efficiency and the use of alternative energy.

Promoting the use of sustainable resources is important if South Africa is to reach its energy savings targets set by the South African government, which requires renewable energy to replace 10,000 GWh of electricity by 2013. The Department of Energy estimates that 23% of this target can be met through solar water heating and Eskom is therefore actively encouraging consumers to switch to solar water heating.

To fund the Solar Water Heater Rebate Programme, which was started in 2008, National Energy Regulator of South Africa (NERSA) allocated funds, to cover programme development, marketing and funding the incentives to consumers to pay rebates for five years, after this period the programme will be reviewed.

### Achievements and benefits

Since 2008, Eskom has subsidised the purchase of registered solar water heaters; to date 156,000 claims have been received for systems installed as at end September 2011. More than 38 000 high pressure and 84 000 low pressure systems have been rolled out nationally resulting in energy savings of approximately 60GWh/annum. Further, South Africa's solar water heating market has expanded from a mere 20 suppliers in 1997 to more than 400 suppliers in 2011. This demonstrates the growth and success of this implementation.

By reducing the electricity demand in residential areas through Solar Water Heating, pressure on the electrical grid in certain areas is reduced, resulting in a more stable power supply and reducing the amount of energy loss through the transmission and distribution of electricity. This is just another way that Solar Energy can help light up South Africa. The programme has also brought hot water to people who never had it before thus changing their lives for the better in line with government's promise of a better life for all.

As per the table on the following page, for every GWh saved, 0.99kt of CO<sub>2</sub> is avoided, resulting in a saving of ~ 60kt of CO<sub>2</sub> per annum.



Table 1: Environmental implications of using or saving one kilowatt-hour of electricity<sup>1</sup>

Parameter	Savings per 1 kWh
Coal use	0.53 kilograms
Water use	1.40 litres
Ash produced	155 grams
Particulate emissions	0.33 grams
CO2 emissions	0.99 kilograms
SO2 emissions	7.75 grams
NOx emissions	4.18 grams

<sup>1</sup> Eskom Annual Report 2011, page 327



## Approved suppliers and systems

Eskom is happy to advise that South Africans can still apply for rebates on the purchase of SABS and Eskom approved solar water heating systems following installations by Eskom accredited installers. By providing rebates through its network of accredited suppliers and installers, Eskom is making quality solar water heaters more accessible and affordable to consumers.

From an industry of only 10 suppliers we now have a total of 122 accredited suppliers, 351 registered distributors and 180 registered independent installers. Currently 48 of these suppliers are supplying products that have the SABS Mark Approval and 29 are in the process of obtaining it. A total of 45 suppliers are selling both mark approved products and non-mark approved products.

All systems tested by the SABS receive an efficiency rating (Q-factor), which indicates the kilowatt hours of electricity the system is expected to save on a typical day as determined by the SABS testing procedure. SABS testing ensures that the solar water heater meets the minimum requirements for quality, performance and safety.

Eskom has a strategic approach to selecting the energy efficient technologies it offers to the market and technologies must be benchmarked to international standards. To qualify for the rebate, consumers must purchase a system that is registered on the programme and offers a five year guarantee.

Homeowners simply fill out a rebate form and submit it to the auditors Deloitte. Rebates are paid directly into consumers' bank accounts within eight weeks provided that all the required documentation is submitted.

The programme has also resulted in the establishment of an effective quality standard and it is now a legal requirement that a certificate of electrical compliance is issued for new installations and any alterations to the electrical system.

The installation of a timer on a solar system is compulsory on the Eskom programme to ensure savings and to assist customers to optimise their own savings.

The fact that water heating accounts for 30 – 50% of the domestic electricity bill is due to the energy intensive elements used to heat the water. These elements which form the back up heating option in solar systems, have an effect on energy saving. These elements have to be there to ensure that in times of cloudy or rainy weather home owners do not go without hot water. However if the timers are not set to control these back up elements then Eskom and the home owner do not benefit from the entire solar initiative. It is advised that the element should only be on two hours before 18h00 and two hours before 06h00.



## Extent of the rebates

The system's Q-factor (capability to replace electricity) is considered when calculating the rebate. Rebates will be provided as long as funds are available. Discounts vary according to the size of the system installed and its associated electricity saving potential or capability to replace electricity. Rebates currently range from R3,280 up to R8,964 depending on the system purchased.

Eskom does not control or set the prices of systems. The aim of the programme is to set a minimum quality standard to protect the customer and industry as a whole. There are a range of systems registered with the programme, even some lower cost low pressure systems are registered.

Customers are free to shop around and even use other suppliers in the market but, if they are not part of the programme to reduce costs to the consumer, they may not have been passed through the SABS testing or approval. Costs of solar water heaters vary between R7,000 and R35,000 depending on the size, type and source, ie imported or locally manufactured.

The upfront cost of a solar water heater (including installation) is higher than an electric geyser. However, this is recouped over time with savings on your electricity bill.

With the current rebates in place payback is typically within five years. This depends on geographical area, water consumption patterns, number of people in the household, the type of system and energy costs etc.



## Lessons learned

Eskom has been instrumental in putting in place regulations and quality standards for South Africans to have solar systems tested by SABS. Consumers now have the option of choosing a system that has either an SABS test report or full mark approval.

The programme grew quickly from 10 suppliers in 2008 to more than 150, but the consumer had to be educated in detail on how it works, what its benefits are and why it was a good option to use for water heating.

Based on a proven successful Australian model, Eskom realised early on that asking suppliers to claim their rebates back was administrative and time intensive as they would have to process thousands of claims, so the programme was adapted to ask each consumer to claim their rebate personally.

Go to [www.eskom.co.za/idm](http://www.eskom.co.za/idm) and click on the Solar Water Heating link for a complete list of registered suppliers. The list is updated continually as new suppliers are accredited.

