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**SWH 500 Project**  
**CEF/UNDP-GEF, South Africa**

**Summary**

The South African Solar Water Heating (SWH) market has considerable potential to leverage electricity savings, increase employment opportunities, improve electricity demand management and reduce greenhouse gas emissions. Although a wide range of products are available on the market, the industry within South Africa was faced with severe limitations in terms of SWH standardization, awareness, affordability and financing, which ultimately prevents widespread market penetration of this technology.

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input checked="" type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input checked="" type="checkbox"/> Households	<input checked="" type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input checked="" type="checkbox"/> Financial instruments	<input type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input checked="" type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input checked="" type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input checked="" type="checkbox"/> Solar energy
<input checked="" type="checkbox"/> User behaviour	<input checked="" type="checkbox"/> ESCOs	<input type="checkbox"/> Biomass
<input type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

**Introduction**

The project aimed to transform the market for Solar Water Heaters (SWHs) in South Africa by tackling barriers currently experienced in the South African SWH market such as. severe limitations in SWH standardization, awareness, affordability and financing which in turn were preventing widespread market penetration of SWH technology.



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The project oversaw the installation of 500 incentivised Solar Water Heaters in middle to higher income urban households while in parallel standardizing the national SWH quality and testing regime. In addition, the project sought to consolidate a widened distribution and maintenance infrastructure, offer attractive financing options and ensure continued public awareness on both the supply and the demand-side.

## Objectives

The project had two main objectives:

1. An environmental objective to achieve climate stabilisation by reducing CO<sub>2</sub> emissions.
2. A development objective to improve the quality, accessibility, affordability of solar water heaters and increase job prospects within the South African SWH industry. The end result should be a higher uptake of this technology from the middle-income residential sector.

## Methodology

This 5 year project was to be implemented in two phases. Phase 1 of the project (30 months) was to focus on areas where households were already accustomed to using hot water. Upon completion of phase 1 the project would enter into phase 2. An important link between phase 1 and 2 was to be a sustainably supported market environment (standards, awareness, promotion, economies of scale), and a dedicated business case which was to be prepared in parallel with the evaluation of the project and under consideration of the lessons learned. This business case was to include analysis and prognosis of the following data.

- Performance of SWH units in Phase 1
- Customer feedback and satisfaction
- Development of the demand curve
- Electricity savings and payback potential for households
- Market potential and demand (survey)
- Comparison of different financial models

## Financial resources and partners

During phase 1 (30 months) all activities were to be carried out using GEF and CEF Pty Ltd research and development funds.



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## Key findings, lessons learned and repeatability

Developmentally:

- Standardised SWH quality and testing regime widened distribution and maintenance infrastructure, continued public awareness.
- Increased job prospects within the South African SWH industry.
- Results validated by stakeholder survey.
- Increased job prospects within the South African SWH industry.  
Eskom incentive programme  
General increased awareness also given the need for alleviation of the current national electricity supply capacity shortage.

Environmentally:

- 500 systems installed
- 2.3 MWh per annum per system achieved (Eskom DSM 50 pilot)  
1.14 ktCO<sub>2</sub>e annually or 8 ktCO<sub>2</sub>e (7 year crediting period)

Lessons and recommendations

One of the clear successes of the solar water heaters for urban housing project is clearly the creation of standardised product range and a facility for testing of products. Despite pioneer market symptoms such as the fledgling industry lacking structure, work intensive (i.e. create or support an industry) made this work challenging, it was a worthwhile endeavour.

Public education and awareness creation is demanding and expectations require careful management. Additionally, Monitoring and Evaluation mechanisms need to be put in place earlier. As such, transitions between staff turnover need to be seamless with focus on knowledge management and archiving. Lastly, the repository for final project documents also need to be made accessible.

### Contact for more information:

Project Web Site:	<a href="http://www.cef.org.za">www.cef.org.za</a>
Organisation / Agency:	Central Energy Fund (CEF Pty Ltd)
Main contact:	Mrs Nadia Moosa
Tel:	(011)280-0300
Fax:	(011) 880-9803
E-mail:	<a href="mailto:Nadiam@cef.org.za">Nadiam@cef.org.za</a>