

**Workshop Report and Press Release of the;**

**Launch of The South African Solar Thermal  
Technology Road Map (SA-STTRM)**

**Held on 19 March 2015**

**At Bytes Conference Centre, Midrand**



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Stellenbosch University's Centre for Renewable and Sustainable Energy Studies in partnership with AEE-INTEC and SESSA hosted a very successful launch of the South African Solar Thermal Technology Roadmap (SA-STTRM) on 19 March 2015 at Bytes Conference Centre in Midrand.

The workshop was attended by delegates from industry, research institutions, government and government agencies.

## Background

The SA-STTRM is a sector-specific roadmap underpinning and informing the wider Solar Energy Technology Road Map (SETRM), which is an initiative of the Department of Energy (DoE) and the Department of Science and Technology (DST) supported by the International Energy Agency.

The SA-STTRM documents the progress made in the use of solar thermal technology in South Africa and gives an analysis of the technological, legislative, regulatory and other barriers that need to be overcome to accelerate the deployment of this technology to harvest renewable energy from the sun in the form of heat. It is a "living" document and comments and changes are continuously added to provide additional value and remain relevant.

The SA-STTRM is part of Soltrain 2, a project funded by the Austrian Development Agency (ADA) to increase the uptake of solar thermal energy technology in Southern Africa. As part of the Soltrain 2 project three Southern African regional Solar Thermal Technology Platforms (STTPs) were set up. The SA-STTRM is one of the outcomes of the South African STTP. Stellenbosch University's Centre for Renewable and Sustainable Energy Studies (CRSES) coordinated the development of the initial document with input from the SA-STTP working groups and other interested parties.

On 27 November 2014, the SA-STTRM draft document was discussed at an open stakeholder meeting in Cape Town. The outcome of this workshop as well as further comments were then incorporated into the SA-STTRM document released this month.

## Major Conclusions of the SA-STTRM

The Vision of the SA-STTRM is that by 2030 there should a ½ square metre of solar thermal collector installed for every member of the population in South Africa. This comes to an estimated 30 million square metres where there currently is only approximately one and half million square metres installed. This will require an annual compounded growth of 25% over the next 15 years, a very ambitious target.

In order to reach the target the road maps suggest that the following contribution from each application of solar thermal energy:

### High Pressure Residential Solar Water Heating;

Estimated units installed 2014: ~150 000

Estimated installation area at 4 m<sup>2</sup> per installation: ~600 000 m<sup>2</sup>

Estimated total houses with existing geysers in South Africa for 2009 (potential for solar water heaters at 1 geyser per house at 100% penetration) ~4 200 000



Target for 2030: ~12 000 000 m<sup>2</sup> (3 000 000 units)

To grow the installed area to ~12 000 000 m<sup>2</sup> by 2030, requires a growth rate of 21% per annum on annual installations.

### **Low Pressure Residential Solar Water Heating;**

Estimated installations 2014: 400 000

Estimated m<sup>2</sup> of installation area at 1 m<sup>2</sup> per installation: 400 000 m<sup>2</sup>

Estimated total houses without geysers in 2009 (potential units at 100% penetration at 1 geyser per house) ~5 300 000

The South African government has committed to install 600 000 units in the next two years. For the purposes of this roadmap, it is presumed that this commitment of 300 000 units per year will be sustained up to 2030, to produce a total installation number of 5 200 000.

### **Industrial / Commercial / Multi-Family Residential installations for Solar Heating and Cooling;**

Installations for this sector are estimated at 213 installations of ~50 m<sup>2</sup>, giving a total installed area of 10 635 m<sup>2</sup> for 2014<sup>1</sup>.

If this market is grown at 60% per year on total installed area from this very low base, a total area of 368 935 m<sup>2</sup> will be installed by 2030.

Estimated installations 2014: 213

Estimated m<sup>2</sup> of installation area at 50 m<sup>2</sup> per installation: 10 635 m<sup>2</sup>

Estimated number of hotels and multi family homes in South Africa – statistics unavailable

Potential for industrial process heat might be determined from boiler statistics, which are at present not available.

If this market is grown with 40% per year on total installations, there will be 48 848 m<sup>2</sup> of solar collectors installed by 2030.

### **Unglazed Swimming Pool Solar Water Heaters**

Estimated installations 2014: 4 335

Estimated m<sup>2</sup> of installation area at 20 m<sup>2</sup> per installation: 86 700 m<sup>2</sup>

The number of swimming pools in South Africa is estimated at 800 000

If this market is grown with 35% per year on total installations, there will be 527 630 installations, or 10 522 598 m<sup>2</sup> of solar collectors installed by 2030, which represents 65% of the current number of swimming pools in South Africa.

<sup>1</sup> Industrial process heat installations will be much larger – on average ~200 m<sup>2</sup> per installation



### Solar Thermal (ST) heating /cooling of buildings

Solar thermal design is the art and science of using the natural forces of a given climate and a building's orientation, size, disposition and management of its elements in order to achieve indoor comfort, while using a minimum of imported energies. Energies flow naturally while the building is in a passive mode – hence it is also called passive design.

Solar thermal buildings outlast the life cycle of power stations, and can be built faster and more cost-effectively. These buildings constitute solar collectors with built-in energy storage facilities.

The equivalent SWH glazed area of solar thermal buildings is 11 400 000m<sup>2</sup> by 2030, including 24 hour thermal storage.

### SA-STTRM launch, 19 March 2015

The day started with a welcoming address by Matthias Radosztics from the Austrian Embassy in Pretoria. Thereafter, the South African Solar Thermal Technology Platform (SA-STTP) and the South African Solar Thermal Technology Roadmap (SA-STTRM) was introduced by Werner Weiss, Managing Director of AEE - Institute for Sustainable Technologies (AEE INTEC) from Austria, the implementing agent for Soltrain 2.



Figure 1: Participants listening to Matthias Radosztics from the Austrian Embassy





Figure 2: Participants listening to Werner Weiss, Managing Director AEE - Institute for Sustainable Technologies (AEE INTEC), the Austrian implementing agent for Soltrain 2.

This was followed by a presentation by Professor Wikus van Niekerk from CRSES to give some background and perspective on the SA-STTRM.

The SA-STTRM document was then symbolically handed to Matthias Radosztics from the Austrian Embassy.



Figure 3: Professor Prof Wikus van Niekerk handing a copy of SA solar thermal technology roadmap to Matthias Radosztics from the Austrian Embassy



Copies of the SA-STTRM document were also handed to Andrew Etzinger, Eskom's Senior General Manager for Integrated Demand Management, James Green, Chairman of SESSA Solar Water Heating Division, Professor OD Dintchev of Tshwane University of Technology and Katima Temba, Executive: Testing and Inspection at SABS.

Responses to the SA-STTRM were presented by Andrew Etzinger, Eskom's Senior General Manager for Integrated Demand Management, James Green, Chairman of SESSA Solar Water Heating Division, Professor OD Dintchev of Tshwane University of Technology and Katima Temba, Executive: Testing and Inspection at SABS.



Figure 4: Professor Prof Wikus van Niekerk handing a copy of SA solar thermal technology roadmap to Andrew Etzinger, Eskom's Senior General Manager for Integrated Demand Management



Figure 5: Professor Prof Wikus van Niekerk handing a copy of SA solar thermal technology roadmap to James Green, Chairman of SESA Solar Water Heating Division



Figure 6: Professor Prof Wikus van Niekerk handing a copy of SA solar thermal technology roadmap to Katima Temba, Executive: Testing and Inspection at SABS



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Figure 7: Katima Temba, Executive: Testing and Inspection at SABS, Professor OD Dintchev from Tshwane University of Technology and Professor Wikus van Niekerk form Stellenbosch University, CRSES

## Main outcomes

There was broad consensus for the goals and praise for the SA-STTRM document from all participants.

The main additions to the document that will be consulted with interested parties and incorporated into an updated version of the SA-STTRM are:

- To develop and add a visual representation of the impact to the national electricity supply system with different levels of penetration in an easy to interpret way
- To add projected potential employment figures for manufacturing, installation and maintenance of solar thermal technologies

Further discussion included concerns about:

- A long-term stable regulatory and policy environment
- Quality of solar heating products and the quality of installations
- Local content requirements – impact and implications
- The design of buildings that don't incorporate solar thermal technologies from the outset
- The structure and continuation of the rebate, and other supporting policies and measures
- Pricing and profitability issues for industry





And a need for:

- An independent and functioning ombudsman (linked to the concern about quality)
- A more flexible product testing regime and regulations
- More structure and cooperation in industry
- Inclusion of a survey on solar thermal installations in the next census by Statistics South Africa.

To receive an updated copy of the SA-STTRM, to add any further comments, to be added to the mailing list for the SA-STTRM, or for high-resolution copies of photos, please email Karin Kritzingner at [karink@sun.ac.za](mailto:karink@sun.ac.za).