



Press release

Stellenbosch, South Africa - 8th November 2018

2nd International Conference on the “Reduction of water consumption in CSP plants” offers technical solutions to tackle challenges in CSP plants

The project MinWaterCSP addresses the challenge of significantly reducing the water consumption of CSP plants while maintaining the overall cycle efficiency. Its objective is to reduce evaporation losses and mirror cleaning water consumption for small- and large-scale CSP plants through a holistic combination of next generation technologies. After three years of intense work, the international consortium presented its final results at its 2nd International Conference in Stellenbosch, South Africa.

At this occasion, the full-scale test facility dedicated to the testing of a novel axial flow fan and delugeable heat exchanger was inaugurated. Over 75 CSP stakeholders from six countries representing amongst others owners of power plants / power utilities, technology suppliers, research and NGOs participated in the event to learn more about the MinWaterCSP solutions.

„MinWaterCSP has developed extraordinary tools that enables us to significantly reduce water consumption in CSP plants. This has been shown during various test programs at our demonstration sites in Spain, Morocco and South Africa”, says Dr. Albert Zapke, Technical Coordinator of the Horizon 2020 funded project MinWaterCSP.

The conference hosted by MinWaterCSP project partner Stellenbosch University offered different perspectives on the topic of reduced water consumption in CSP plants, also reflecting the view of the end user. CSP experts from SASTELA, the CSP operator ACWA Power and the cooling system operator Eskom presented their expectations, while MinWaterCSP partners from research and industry presented their successful MinWaterCSP technology solutions. In addition, Horizon 2020 CSP sister project Raiselife contributed to the conference programme with their expertise in the monitoring of soiling and associated cleaning strategies.

Four sessions led through the 1,5-day conference:

The first session introduced the MinWaterCSP project and the different technology challenges in CSP plants regarding water management, water consumption and mirror soiling as well as CSP plant cooling.

In the session on **Water Management Challenges in CSP plants**, MinWaterCSP project partners presented their market-ready technologies for **managing water-use strategies** as well as simulation-based analysis of water consumption in CSP plants. Furthermore, an expanded version of the Fraunhofer ISE simulation software **ColSimCSP**, enabling the optimisation of water management planing, was introduced. Within the MinWaterCSP project, ColSimCSP enables the simulation of



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water use, wastewater streams and treatment processes at CSP plants. Furthermore, detailed simulation of mirror cleaning is also possible through the **loop-wise** and **high-resolution** solar field model.

Water and Soiling Challenges linked to Cleaning Activities and Systems for heliostats, Parabolic Troughs and Linear Fresnel Collectors was another crucial topic addressed during the conference.

In this session, the advantages of the new developments in mirror cleaning systems were presented with a special focus on the on-site tests performed and the main results achieved.

Novel cooling system technologies for CSP plants developed within MinWaterCSP and adapted to arid environments were presented. Experimental and analytical research conducted for novel power plant heat exchangers and large axial fans were explained.

As **one of the conference highlights**, participants had the chance to take part in the official inauguration ceremony of the **full-scale test facility at Stellenbosch University** in the afternoon of 8th November. During the site visit to the test facility, two main aspects of a novel cooling system, developed and tested within MinWaterCSP, were presented:

- a 7.315 m (24 ft) diameter axial flow fan and
- a deluge cooling water circulation system.

“The full-scale test facility at the University of Stellenbosch is the first of its kind. It opens up new horizons for testing, verifying and demonstrating cooling system axial flow fans and the novel delugeable heat exchanger in full-scale”, stated Dr. Francois Louw, Kelvion Thermal Solutions (Pty) Ltd., South Africa.

The conference programme was accompanied by an exhibition where stakeholders from industry and research informed about their projects, products and services.

The MinWaterCSP project activities to reduce the water consumption in CSP plants will be finalised by December 2018. The final results will be presented on the project website and in diverse publications.

About MinWaterCSP

MinWaterCSP is a research and development project which aims at reducing water consumption and improving thermal cycle efficiencies of Concentrated Solar Power (CSP) plants. It has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 654443. The project started in January 2016 and will be completed in December 2018.

The MinWaterCSP project consortium consists of 13 partners from 6 different EU and non-EU countries. It is coordinated by Kelvion Holding GmbH (Project Coordinator, Germany) and ENEXIO Management GmbH (Technical Coordinator, Germany). Further partners of the consortium are: Kelvion Thermal Solutions (Pty) Ltd. (South Africa), Fraunhofer ISE (Germany), Sapienza University of Rome (Italy), ECILIMP Termosolar SL (Spain), Stellenbosch University (South Africa), Notus Fan Engineering (South Africa), Laterizi Gambettola SRL – SOLTIGUA (Italy), ENEXIO Germany GmbH (Germany), Institut de Recherches en Energie Solaire et Energy Nouvelles - IRESEN (Morocco), Steinbeis 2i GmbH (Germany) and Waterleau Group NV (Belgium).



Contact and further information

Press contact:

MinWaterCSP Communication and Dissemination Team

Ms. Charlotte Schlicke and Ms. Kathrin Eckerlin

E-Mail: secretariat@minwatercsp.eu

Conference Website:

<https://www.minwatercsp.eu/overview-conference-stellenbosch-november-2018/>

Conference organisation:

Stellenbosch University

Technical Contact: Prof. Johan van der Spuy

Administrative contact: Leigh van der Merwe

Project & technical questions:

Coordinators: Project Coordinator/Technical Coordinator

Kelvion Holding GmbH / ENEXIO Management GmbH

Dr. Falk Mohasseb / Dr. Albert Zapke

E-Mail: contact@minwatercsp.eu

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Attachment:

- Picture of full-scale test facility in Stellenbosch, South Africa (*photo credits: Kelvion Thermal Solutions Pty Ltd and ENEXIO Germany GmbH*)
- Conference Programme
- Link to further information for the press:
<https://events.steinbeis-europa.de/eigenwolke/index.php/s/EKE4cnGFTQVVHDP>

