

# TECHNOLOGY WORKSHOP ON SOLAR PROCESS HEAT FOR INDUSTRY

**15 March 2013**



**RENEWABLE ENERGY HOUSE**

Rue d'Arlon 63-67 - B-1040 Brussels



According to the IEA Solar Heating and Cooling Technology Roadmap, by 2050, 20% of the energy used for low temperature industrial heat could be provided by solar process heat (<math><120^\circ</math>). This would correspond to an installed capacity of 3,200 GWth, producing around 7.2 EJ solar heat per year.

Key industrial sectors with the highest potential are food and beverage, textile, transport equipment, metal and plastic treatment as well as the chemical industry.

Areas of application with the most suitable industrial processes include cleaning, drying, evaporation and distillation, blanching, pasteurisation, sterilisation, cooking, melting, painting, and surface treatment.

The workshop on “Solar Process Heat for Industry” will present the most recent developments and insights into collector technology, as well as solar thermal system integration combined with energy saving measures. Experience with installed systems will also be a major topic.

Presentations by representatives from the European Commission, research institutions, technology suppliers and end consumers will provide an informative knowledge transfer.

The workshop is targeted at representatives from industry associations, solar thermal technology suppliers, machinery manufacturers and energy consultants.



# Programme

**09:30 - 10:00 Registration and Coffee**

10:00 - 10:10 Welcome address - RHC-Platform  
Gerhard Stryi-Hipp, Chairman, ETP RHC

10:10 – 10:30 EC support to RDD for renewables on heating / cooling  
José Riesgo, European Commission, DG Energy

10:30 – 10:50 IEE activities on RES H/C with a focus on solar process heat,  
Antonio Aguilo, Executive Agency for Competitiveness and Innovation (EACI)

10:50 – 11:10 Potential of solar process heat  
Werner Weiss, AEE INTEC, Austria

11:10 – 11:30 Low CO<sub>2</sub> production in European food and beverage industry - Branch  
concepts  
Christoph Brunner, AEE INTEC, Austria

11:30 – 12:00 Process Heat Collectors and Integration of Solar Heat  
Elimar Frank, SPF, Switzerland

12:00 – 12:15 The InSun Project: a comprehensive view on solar process heat technologies  
Francesco Orioli, Soltigua, Italy

**12:15 – 12:30 Questions and discussion**

**12:30 – 13:30: Lunch break**

**Applications in the Food and Beverage Industry**

13:30 – 13:50 Solar thermal process heat in the brewing industry – perspectives from an end user  
*Peter Jonkers, Heineken, The Netherlands*

13:50 – 14:10 Use of solar process heat - a challenge in brewing technology  
*Ludwig Scheller, GEA Brewing Systems, Germany*

14:10 – 14:30 Example of concentrated solar systems (PTC) in the dairy industry in Switzerland  
*Stefan Minder, NEP Solar, Switzerland*

**14:30 – 14:50 Questions and Discussion**

**14:50 – 15:15 Coffee break**

**Applications in the Automotive Industry**

15:15 – 15:45 Medium temperature applications with Fresnel collectors - state of the art, market  
potential and hurdles  
*Christian Zahler, Industrial Solar, Germany*

Solar process heat for sustainable automobile manufacturing – synergies of a strong  
cooperation  
*Oliver Iglauer, Dürr System GmbH, Germany*

15:45 – 16:05 Basics about and examples for water-based CPC ETC integrations in various  
industries  
*Rolf Meissner, Ritter XL Solar, Germany*

**16:05 – 16:30 Questions and Discussion**

**Panel discussion – Industry Expectations on HORIZON 2020**

16:30 – 17:00 Panelists: *José Riesgo, European Commission*  
*Peter Jonkers, Heineken*  
*Rolf Meissner, Ritter XL Solar*  
*and representatives from industry associations*

**17:00 End of Workshop**

# Speakers

## Gerhard Stryi-Hipp

Chairman of the European Solar Thermal Technology Panel and President of the European Technology Platform on Renewable Heating and Cooling (RHC-platform). He is a researcher in the field of solar thermal energy and Head of energy policy at the Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg/Germany. Since 2011, he has coordinated the market area Smart Energy Cities at Fraunhofer ISE.

## José Riesgo

Industrial chemical engineer, prior to starting at the European Commission, he was manager at a chemical company (ICI) responsible for production (detergents) and, later, manager of a quality control department in the aviation industry (Hexcel US company). He has held several positions at the European Commission, first as Technical officer (in the nuclear area) and then as Desk Officer- Administrator of Programmes/Projects in various fields: Steel sector, Non-ferrous, Transport and, since 2002, in the Renewables sector where he is managing the FP7 activities related to heating/cooling applications (especially on Biomass and Solar Thermal - Hybrids).

## Antonio Aguilo

Industrial engineer with over 10 years experience in the fields of energy efficiency and renewable energy, in both the public and private sectors. Currently he is the project officer for renewable heating and cooling at the Intelligent Energy Europe programme.

## Werner Weiss

Founding member and director of AEE – Institute for Sustainable Technologies (AEE INTEC) in Gleisdorf, Austria and since June 2010 chairman of the Solar Heating and Cooling Programme of the International Energy Agency (IEA). Furthermore, he is a board member of the European Technology Platform on Renewable Heating and Cooling.

## Christoph Brunner

Head of the Industrial Processes and Energy Systems Department at AEE INTEC in Austria, he has coordinated several energy efficiency and renewable energy national and international projects. He is "operating agent" for the current IEA SHC Task 49/IV on "Solar Process Heat for Production and Advanced Application".

## Elimar Frank

Research Director at the Swiss Institute for Solar Technology (SPF) of the University for Applied Sciences in Rapperswil, Switzerland. Since 2011, he has served on the International Solar Energy Societies' Board of Directors. He is Subtask Leader for Process Heat Collectors of the current IEA SHC Task 49/IV on "Solar Process Heat for Production and Advanced Application".

## Francesco Orioli

Director of Soltigua, an Italian manufacturer of solar concentrating collectors for medium temperature applications, he also represents Anest, the Italian CSP industry association, in the sector of solar thermal applications. His main area of activity is the market deployment of concentrated solar thermal technologies.

## Peter Jonkers

In the Heineken Supply Chain, he is the Programme Manager for Green Brewery within the Heineken sustainability programme "Brewing a better future".

## Ludwig Scheller

Member of the technology department, and of the research and development team at GEA Brewery Systems GmbH in Kitzingen, Germany. Engineer, specialist in brewing technology, and European Energy Manager and Energy Auditor. Part of his work is the development of energy efficiency in breweries and the substitution of fossil energies with renewables in the brewing process.

## Stefan Minder

CEO of NEP Solar AG, a pioneer in the field of concentrating solar collectors for process heat. He has led the European subsidiary of NEP Solar since 2008 and has managed the company since its relocation from Australia to Switzerland in 2011. He has been involved with concentrating solar technology development and applications since the mid 90s and has about eight years experience as an energy efficiency consultant for the industry.

## Christian Zahler

One of the co-founders and Managing Directors of Industrial Solar GmbH. He was Project Manager for PSE AG since its creation in 1999, and was instrumental in the development and success of both of the "Test Stands" and "Solar Process Heat" technological business sectors.

## Oliver Iglauer

Project leader for ovens in the R&D department at Dürr Systems GmbH in Germany. Dürr is one of the world's leading suppliers of products, systems, and services, mainly for automobile manufacturing with 7,300 employees in 23 countries and generated 2011 annual sales revenues of about € 1.9 billion. His research activities focus on innovative heating concepts, in particular solar heating with Fresnel collectors and combined heat and power with microturbines. Since 2008 he has been teaching thermodynamics at the Baden-Wuerttemberg Cooperative State University (DHBW).

## Rolf Meissner

Physicist, he has been working for Ritter Energie- und Umwelttechnik since 1990. Previously, he was R&D engineer, product manager for solar and storage technology and equipment controlling. He is also involved in patent engineering and technical consulting for the Chinese-German joint-venture company "Linuo Paradigma". He is the founder and head of the special department "large-scale solar-thermal systems" and managing director of the "Ritter XL Solar" company created in 2010.