

Press Release

Freiburg
March 11, 2010
No. 07/10
Page 1

Solar Cooling is Ripe for the Market

The German Federal Ministry for the Environment sponsors the Testing of Solar Air-Conditioning Units in the Practice

Air-conditioning with solar power? This may sound paradoxical at first but is actually technologically feasible today. By combining solar thermal energy and adsorption technology, heat can be used to cool buildings. The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety BMU is promoting a widespread test for solar air-conditioning systems in the practice. The partners involved - Solvis GmbH & Co. KG, SorTech AG, the Fraunhofer Institute for Solar Energy Systems ISE and the University of Applied Sciences Offenburg - are presently looking for participants for this test.

“The principle of solar-driven adsorption chillers is at the same time both simple and sophisticated,” explains Tomas Núñez, project leader at Fraunhofer ISE. “Like conventional chillers, the cooling is produced through the evaporation of a refrigerant. In contrast to conventional cooling techniques, however, solar thermal energy instead of electricity is used for the driving energy.” This is an optimal match, since sunshine is abundant during seasons with high air-conditioning demand, and the system components like the storage and the collectors can be utilized to capacity. Not only is this an advantage for the system but also is beneficial to the environment. Compared to conventional cooling techniques, electricity savings of up to 80% can be realized by using solar-driven adsorption chillers. In addition, no environmentally harmful substances are used for the cold production – rather, just pure water is used as refrigerant.

**Fraunhofer Institute for
Solar Energy Systems ISE**
Heidenhofstr. 2
79110 Freiburg
Germany
Press and Public Relations
Karin Schneider
Phone: +49 (0) 7 61/45 88-51 50
Fax: +49 (0) 7 61/45 88-93 42
E-mail: info@ise.fraunhofer.de

www.ise.fraunhofer.de

Fraunhofer ISE has been working on this technology for many years. Through the various demonstration projects for

Press Release

Freiburg
March 11, 2010
No. 07/10
Page 2

different applications carried out over the past years, Fraunhofer ISE and its partners have already proven that solar cooling is ready for the market. Already systems are in use throughout Europe for air-conditioning show rooms, offices, office lunchrooms and rooms for instruction.

At the Fraunhofer Institute for Solar Energy Systems ISE itself, a solar-assisted adsorption chiller from the company SorTech AG is used to cool the lunchroom and the kitchen since 2007. The chiller is driven by energy produced from 22m² of high efficiency flat plate collectors from the company Solvis GmbH & Co. KG. During summer operation, the heat from the solar thermal system provides the driving energy for the adsorption chiller. The exhaust heat produced in the cooling process is released into the earth by means of vertical ground probes. If the solar radiation is not sufficient, the heat grid provides the additional driving energy in order to sustain the cooling. During winter operation, the heat from the ground probes is brought up to the required temperature level for room heating with the help of the adsorption unit which functions as a heat pump in winter, and the heat grid provides the driving energy for the chiller. The heat pump achieves a thermal COP (Coefficient of Performance) of up to 1.5, and the efficiency of the heat source is increased by up to 50%.

In a cooperative project, sponsored by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), the partners Fraunhofer ISE, the University of Applied Sciences Offenburg, SorTech AG and Solvis GmbH & Co. KG, ten solar cooling systems with a power range between 5 and 30 kW are to be installed and equipped with measuring instruments. Private households and companies, who are interested in participating in this practice test, can apply at the contact given at the end of this article. "The demand profile is not fixed and can address either the residential or the commercial sector. In the course of the project, the system will be laid out, designed and equipped with comprehensive measurement devices on an

**Fraunhofer Institute for
Solar Energy Systems ISE**
Heidenhofstr. 2
79110 Freiburg
Germany
Press and Public Relations
Karin Schneider
Phone: +49 (0) 7 61/45 88-51 50
Fax: +49 (0) 7 61/45 88-93 42
E-mail: info@ise.fraunhofer.de

www.ise.fraunhofer.de

Press Release

Freiburg
March 11, 2010
No. 07/10
Page 3

individual basis," explains Walter Mittelbach, CEO of SorTech AG. The components used are high-quality products from the company Solvis GmbH & Co. KG for the solar and system technology and from the company SorTech AG for the thermally-driven chiller unit.

Participants can look forward to the following advantages: an initial price reduction of 20% on the system, free testing and system maintenance on a regular basis as well as free measurement, monitoring and analysis of the operation to be carried out by the University of Applied Sciences Offenburg and the Fraunhofer ISE. "The customer receives a complete system solution, fitted to his individual needs and serviced through to the end of the project in December 2012," describes Ralf Kynast from Solvis GmbH & Co. KG.

Text of the PR and photos can be downloaded from our web page: www.ise.fraunhofer.de

If you are interested in participating in the Test in the Practice: Solar Cooling, you can apply under the keyword "SolCoolSys" at the following address:

SOLVIS GmbH & Co. KG

Dipl. Ing. Karsten Woelk
Grotrian-Steinweg-Str. 12
38112 Braunschweig
Phone +49 (0) 531/2 89 04-230
kwoelk@solvis-solar.de

Fraunhofer Institute for Solar Energy Systems ISE

Heidenhofstr. 2
79110 Freiburg
Germany
Press and Public Relations
Karin Schneider
Phone: +49 (0) 7 61/45 88-51 50
Fax: +49 (0) 7 61/45 88-93 42
E-mail: info@ise.fraunhofer.de

SorTech AG

Dr. Jörg Rupp
Weinbergweg 23
06120 Halle
Phone +49 (0) 345/279 809-19
joerg.rupp@sortech.de

Press Release

Freiburg
March 11, 2010
No. 07/10
Page 4

Contact Persons for further information:

Project leader at Fraunhofer ISE

Dr. Tomas Núñez, Fraunhofer ISE
Phone +49 (0) 7 61/45 88-55 33
Fax +49 (0) 7 61/45 88-95 33
tomas.nunez@ise.fraunhofer.de



For Germany:

Dipl. Ing. Karsten Woelk
Marketing Head, Large Systems
SOLVIS GmbH & Co. KG
Grotrian-Steinweg-Str. 12
38112 Braunschweig
Phone +49 (0) 531/2 89 04-230,
Fax +49 (0) 531/2 89 04-299
kwoelk@solvis-solar.de

International:

Dipl. Ing. Ralf Kynast
International Sales
SOLVIS GmbH & Co. KG
Grotrian-Steinweg-Str. 12
38112 Braunschweig
Phone +49 (0) 531/2 89 04-247
Fax +49 (0) 531/2 89 04-299
rkynast@solvis-solar.de

Fraunhofer Institute for Solar Energy Systems ISE

Heidenhofstr. 2
79110 Freiburg
Germany
Press and Public Relations
Karin Schneider
Phone: +49 (0) 7 61/45 88-51 50
Fax: +49 (0) 7 61/45 88-93 42
E-mail: info@ise.fraunhofer.de

www.ise.fraunhofer.de

Press Release

Freiburg
March 11, 2010
No. 07/10
Page 5



Dr. Jörg Rupp
Head of Marketing
SorTech AG
Weinbergweg 23
06120 Halle
Phone +49 (0) 345/279 809-19
Fax +49 (0) 345/279 809-98
joerg.rupp@sortech.de



Projekt partner Monitoring:
Research Group **net** at the University of Applied Sciences
Offenburg
Prof. Elmar Bollin; Dipl. Ing. (FH) Daniel Jödicke
Phone +49 (0) 781/205-136
daniel.joedicke@fh-offenburg.de

**Fraunhofer Institute for
Solar Energy Systems ISE**
Heidenhofstr. 2
79110 Freiburg
Germany
Press and Public Relations
Karin Schneider
Phone: +49 (0) 7 61/45 88-51 50
Fax: +49 (0) 7 61/45 88-93 42
E-mail: info@ise.fraunhofer.de

www.ise.fraunhofer.de