EVENT DESCRIPTION
Project Partner: SAENA

Title of the event: Regional Conference Solar Process Heat

Date & location: 08th of September, 2011, Freiberg
Organiser(s): Sächsische Energieagentur – SAENA GmbH, Vereinigung der Sächsischen Wirtschaft e.V. (VSW), Unternehmerverband der Metall- und Elektroindustrie Sachsen e.V. (SACHSENMETALL)
Number of Participants: 101

Summary

The regional conference was held in the frame of the 2nd Symposium “Acting Resource-efficient” which had the aim of directing participants attention to saving potentials in thermal use. In different presentations on this topic the attendants could inform themselves about waste heat recovery, solar process heat, energy management, industrial energy-consulting and heat storage. Concrete examples with practical experience have been explained by the companies themselves. Finally, two round trips completed the symposium.

Objective & main programme points

Unused potentials for cost savings in the fields of electricity and thermal use exist in almost every company. This year’s slogan “Acting Resource-efficient” wanted to direct the attention to saving potentials in thermal heat. In order to cover the high thermal demand during a company’s production process with solar process heat, the potential of waste heat has to be analyzed first. Only further thermal demand can be supplied by the sun. In order to ensure the competitiveness in the long run, companies should act energy efficiently. This can be supported by energy management systems according to DIN EN 16001 for example.
In the opening of the symposium, the speakers (Mr. Micksch, Mr. Borchers, Dr. Homilius) emphasized the importance of energy efficiency for Saxon companies and the political context. In the shared part of the presentation, Dr. Nitzsche (DBI – Institute for Gas Technology) explained how to make waste heat sources usable, named the available technologies for waste heat recovery and the factors responsible for deciding about economic usage. If a company has made all waste heat potentials accessible, they may consider using solar heat for producing process heat. Mr. Stryi-Hipp (Fraunhofer ISE – Fraunhofer Institute for Solar Energy Systems) showed typical processes which are adequate for using solar process heat due to their temperature level and load profile. He also introduced the project SO-PRO.

Presentation section A was themed “Sustainable energy supply and usage”. SAENA named Saxon examples which already implemented innovative measures (based on a detailed energy consultation, the so called Saxon Certificate for Energy performance in Industry and Trade) for raising efficiency.
Presentation section B was themed “Solar process heat”. Dr. Urbaneck presented the possibilities, constraints and strategies for using different thermal energy storage systems. Dr. Müller added that information with his presentation on heat storage specifically for the temperature range of 100 °C to 180 °C using latent-heat storage systems and capsuled phase change materials (developed by ILK - Institute of Air Handling and Refrigeration). Mr. Lanz presented the evaluation of different facilities by the Solar Institute Jülich, optimization suggestions and the results of the profitability analysis. The solar fresh air preheating for the varnishing process in his enterprise has been described by Dr. Hoffmann. This is used for preheating the process air of a varnishing facility and for preheating the air in the hall. Finally, two round trips to ACTech and DVGW-demonstrating center for gas technology and Combined Heat and Power followed.

Conclusions & lessons learned (based on stakeholder input)

The attendants evaluated the symposium positive. The presented themes awakened the attendants’ interest; both presentation sections and the round trips have been well attended. During the breaks the attendants actively exchanged information. This point should have planned to get more time.

Solar process heat is evaluated as interesting option by many companies but its economic conditions are still not beneficial enough for its use. Even speakers with long-time experience with solar heat are of the opinion that indeed the theoretical potential of solar heat is very high, but practically its use is currently only promising economically in niches. Furthermore, the experience with older facilities shows that there may occur serious problems e.g. stagnation. In conclusion, it can be said that the project SO-PRO has at least raised the planners’ and solar branch’s awareness for the specific interests and problems of solar heat supply.
In the future it is important to identify those companies who do not intend to use solar process heat for economic motivations but for image reasons. An alternative approach could be the use of primitive and cost-saving technologies like the heat supply of HEOS Energy GmbH demonstrates. However, quantitative results from the operation of this facility are still missing. The solar branch optimizes the costs of the collectors e.g. by substituting copper for aluminium for the absorber. Compared to the significant cost savings photovoltaic experienced during the project duration of SO-PRO by mass production in the GW range, it is now in question if the market for solar heat to supply process heat will have to face other competitors in the future. Nevertheless it is reasonable to accompany different technologies to the point of market penetration in form of pilot projects.

ANNEX

The following documents are included in the annex:

- pictures
- programme
- Flyer

Pictures

Presentations in the Plenary Hall

Presentation section B (So-Pro) - Dr. Müller

Presentation section B - Mr. Lanz

Presentation section B - Dr. Hoffmann

Break talks

Round trip through DBI (Institute for Gas Technology)

Programme

from 13:30 ***Registration***

14:00	Opening by Mr.Dietmar Borchers, CEO WTC – Heat Technology Chemnitz and member of VSW – Federation of the Saxon Economy
14:10	Greeting Dr. Peter Homilius, Department Energy Policy in the State Ministry for Economic Affairs, Labour and Transport
14:20	The use of industrial waste heat – methodology, technologies and practical examples, Dr.-Ing. Jörg Nitzsche, DBI- Institute for Gas Technology, Freiberg
14:50	Solar process heat, technology/practice/planning guideline, Dipl.-Phys. Gerhard Stryi-Hipp, Chief Energy Policy and chief of the department thermal collectors and applications at Fraunhofer ISE - Institute for Solar Energy Systems, Freiburg
15:20 - 15:40	coffee break

Presentation section A "Sustainable energy supply and usage"

15:40	DIN EN 16001 – Implementation of an energy management system in the "glassy manufactury" (Gläserne Manufaktur of VW) Dresden, Christoph Nieschwietz, Central Energy Management of Volkswagen AG, Wolfsburg
16:00	Waste heat recovery in production processes, Sebastian Meyer and Hartmut Boden, Purkart Systemkomponenten GmbH & Co. KG, Großrückerswalde
16:20	Resource-efficient implementation of projects – Saxon examples, Marc Postpieszala, Sächsische Energieagentur – SAENA GmbH, Dresden
16:40	Sustainable energy supply in medium-sized companies – motivation and expectations, Dr.-Ing. Florian Wendt, CEO ACTech GmbH Freiberg and member of Board of Directors SACHSENMETALL e.V.

Presentation section B "Solar process heat"

15:40	Thermal energy storage technologies – state of the technology, Dr.-Ing. Thorsten Urbaneck, TU Chemnitz, Institute of Technical Thermodynamics, Chemnitz
16:00	Heat storage in the temperature range of 100 °C to 180 °C, Dr. Roland Müller, Institute of Air Handling and Refrigeration (ILK), Dresden
16:20	Evaluation report on facilities for the production of solar process heat in companies, Marco Lanz, Solar-Institute Jülich of FH Aachen, Jülich
16:40	Solar fresh air preheating for varnishing processes, Dr.-Ing. Klaus Hoffmann, HEOS Energy GmbH, Chemnitz

from 17:00 to 18:00 round trips, talks and diner

- DBI, visitation DVGW-demonstrating center for gas technology and Combined Heat and Power
- ACTech, visitation geothermal installation

Proceedings:
http://www.saena.de/Aktuelles/Veranstaltungen/Veranstaltungsdetailseite.html?term_id=366

The approved presentations (in German) may be downloaded from the following links:

- ACTech:
  http://www.saena.de/tycon/file.php?id=6714
- Fraunhofer ISE:
  http://www.saena.de/tycon/file.php?id=6715
- ILK:
  http://www.saena.de/tycon/file.php?id=6716
- Solarinstitut Jülich:
  http://www.saena.de/tycon/file.php?id=6717
- SAENA:
  http://www.saena.de/tycon/file.php?id=6718
- TU Chemnitz:
  http://www.saena.de/tycon/file.php?id=6719

Detailed information about waste heat recovery can be found on the web site www.abwaermeatlas-sachsen.de.