

NEWSLETTER No. 3

June 2006

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Project Scope

WP 1 - Next generation of systems
WP 2 - Standardised system concepts
WP 3 - Integration into buildings
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WP 5 - Advanced applications
WP 6 - Project management

Time Schedule

Project started July 1st, 2004
Duration: 36 months

Participants

18 different organisations out of 14 different European countries

Internet

www.swt-technologie.de/html/negst.html

WORK DONE UP TO NOW

DELIVERABLES WP 1

Report on today's system technology, report on theoretical system evaluation

DELIVERABLES WP 2

Evaluation of existing financing models for larger solar thermal systems, marketing material

DELIVERABLES WP 3

Inventory of existing guidelines and directives in EU countries, concepts for easy installation

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Technical status report for cooling and desalination technologies, suitability of different collector technologies

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NEGST workshop at Intersolar trade fair 2007

BRIEF INFORMATION ABOUT THE PROJECT

The overall objective of this project is to provide a framework for research and industry to bring more cost-effective solar thermal systems, particularly for domestic hot water preparation and / or space heating on the market. This is necessary in order to contribute to the European Union's Action Plans with regard to the reduction of CO₂ emissions and the cost effective supply of renewable energies.

The project work is divided into 6 different work packages: Work package 1 aims at the development of a new generation of solar thermal systems and their introduction to the market, whereas work package 2 deals with standardised system concepts for larger solar thermal systems. Work package 3 concerns the integration of solar thermal systems in buildings and work package 4 has the objective to focus on preliminary normative work for a next generation of solar thermal systems and components. Work package 5 concentrates on advanced applications like technologies of seawater desalination and cooling systems and work package 6 comprises mainly project management and the dissemination of project results.

WORK DONE UP TO NOW

The project started in July 2004 and has a duration of 36 months. More than half of the project period has passed and there are already interesting and valuable results available. Newsletter No. 3 gives a brief overview of the work that has been done up to now.

All reports can be downloaded free of charge from the project website: <http://www.swt-technologie.de/html/negst.html>, section: Midterm Report & Public Deliverables. The deliverables are arranged according to the different work packages (WP). The designation WP1.D1 e.g. indicates first deliverable (D1) of work package 1 (WP1).

This newsletter is issued on appropriate occasions in order to inform industry, manufacturers and other interested parties about the status and results of the project. Furthermore it announces dates and places for scheduled workshops and public conferences where the gained knowledge is disseminated. Former editions of the newsletter can be downloaded from the project website:

<http://www.swt-technologie.de/html/wp6.html>

RESULTS AND DELIVERABLES OF WORK PACKAGE 1

The objective of this work package is to accelerate the *development* of a new generation of solar thermal systems and their introduction to the market. In order to be able to identify the most promising European system concepts with high market impact a detailed **market survey on today's system technology** was compiled (WP1.D1). The survey gives an overview on the situation in different markets as well as on market requirements in 12 European countries. It shows for example the distribution of solar domestic hot water systems and solar combisystems, indicates the share of installed collector area in single and multifamily houses and includes the space heating and domestic hot water demand in the individual countries.

Meanwhile, the most promising system types with highest impact on the market have been identified. Trends that could be perceived are amongst others:

- **compact systems** with little installation effort and small space requirements
- **retrofit systems**, offering the possibility to integrate the solar thermal system in existing heating systems
- **drainback systems** for Southern European climatic conditions.

The selected promising system types have been evaluated with regard to market potential, costs, energy efficiency and with regard to additional criteria like building integration, installation aspects and space requirements, ecological aspects, application area etc. The summary **report on the theoretical system evaluation** (WP1.D2) as well as the nine evaluation reports for each individual system are also available on the project website.



Figure 1: Compact system

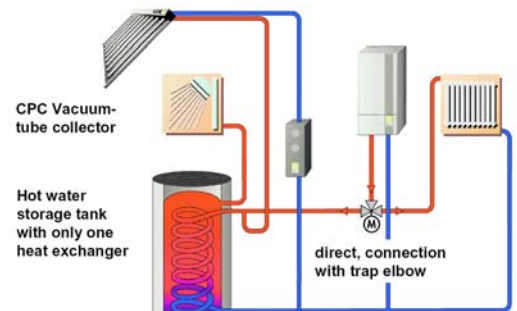


Figure 2: Retrofit system

RESULTS AND DELIVERABLES OF WORK PACKAGE 2

NEGST WP2 aims at pointing out and overcoming the barriers that hinder the dissemination of large-scale solar thermal systems in larger buildings like multi family houses or hotels. By the end of the project, apart from references on organisational issues like financing and marketing, recommendations for widely standardised system concepts with the potential for broad replication are supposed to be available.

At the current state of work, barriers and perspectives of large-scale solar thermal systems in Europe have been analysed through a survey on experts and specialised companies. The results of the inquiry are summarised in WP2.D1.

Furthermore, a report on existing and practicable models for encouraging the investment in large solar thermal systems has been published (WP2.D3), including several best practise applications on Guaranteed Solar Results (GSR) and Third Party Financing (TPF) throughout Europe. The described methods for minimizing financing and planning risk have been observed to find increasing commercial application in countries with larger market penetration like Austria and Germany.

As a third so far concluded issue, material for marketing large solar thermal systems to investors in the building industry has been compiled and summarised in WP2.D4. The report provides a basis for future information and marketing material created by companies or agencies. The core issues that are supposed to be lined out taking into account the national framework are presented and the compiled examples of marketing material are jointly provided as references.

RESULTS AND DELIVERABLES OF WORK PACKAGE 3

In this work package pre-normative work on uniform methodologies to fully integrate solar heating systems in the building envelope is done. For this reason, an **inventory of existing requirements and directives** in EU countries has been compiled concerning topics like strength of construction (wind/snow), avoidance of fire risk, noise problems, rain and moisture penetration, water tightness, etc. This inventory includes more than 180 regulations, guidelines and national standards concerning building integration from Austria, France, Germany, the Netherlands, Norway, Portugal and Sweden (WP3.D1_2).

WP3.D5 gives **recommendations of concepts for easy installation and integration of solar thermal systems into conventional heating appliances.** The report includes examples for the integration of solar thermal systems in single family houses

- with or without separate hot water store
- two separate systems for hot water preparation and space heating

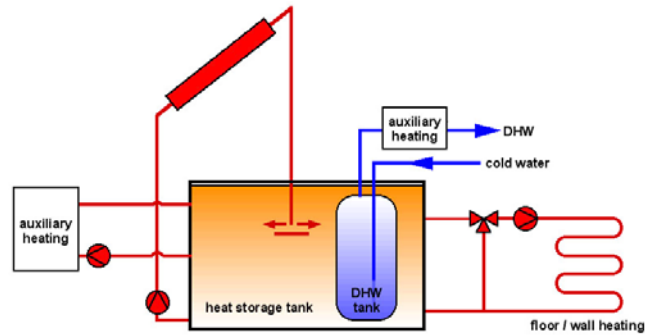


Figure 3: Non-pressurized Drain-Back System

and examples for multi family houses with centralized and decentralized solar thermal systems

- conventional systems with 2 or 4-pipe heat distribution networks
- conventional systems with a separate domestic hot water system for each apartment (see figure on the right hand side).

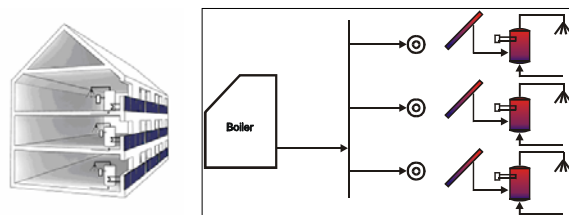


Figure 4: Decentralized Solar Thermal System

RESULTS AND DELIVERABLES OF WORK PACKAGE 4

This work package has the objective to carry out pre-normative work for a next generation of solar thermal systems and components. As a first step it was agreed on a list of standards and test methods that will be produced. As this is very comprehensive and standardisation work is still going on, no final results are available up to now. However, a report on the status of work is given in WP4.D1. The complete results will be published at the end of the project.

RESULTS AND DELIVERABLES OF WORK PACKAGE 5

The main objective of NEGST Work Package 5 is to assess the potential of solar thermal systems for advanced applications, such as cooling and desalination. In this context, a **technical status report on solar desalination and solar cooling** (WP5.D1) was prepared. It comprises the market situation in the individual European countries, a presentation of different cooling systems like adsorption and absorption chillers and the identification of the most promising technologies for solar cooling and solar desalination.

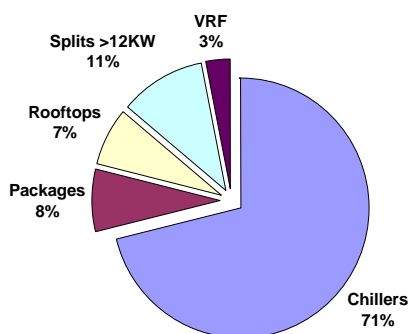


Figure 5: Central Air-Conditioning Systems

Deliverable WP5.D2 contains a **report concerning the suitability of different collector technologies for solar cooling and solar desalination.**

OVERVIEW OF AVAILABE DELIVERABLES

The following overview shows the deliverables that can be downloaded free of charge from the project website: <http://www.swt-technologie.de/html/negst.html>, section: Midterm Report & Public Deliverables. The deliverables are arranged according to the different work packages (WP). The designation WP1.D1 e.g. indicates that this is the first deliverable (D1) of work package 1 (WP1).

No	Title of Deliverable
WP1.D1	Summary report on today's system technology
WP1.D2	Report about theoretical system evaluation
WP2.D1	Survey on barriers and chances of large solar thermal systems
WP2.D3	Report concerning investigation and evaluation of existing financing models
WP2.D4	Material for marketing SDHW systems to investors in the building industry
WP3.D1_2	Inventory of guidelines, Overview of existing requirements in EU countries and directives
WP3.D4	Workshop on integration of thermal solar functions into building components
WP3.D5	Recommendations of concepts for easy installation and integration in conventional heating appliances
WP4.D1	Meeting minutes and status reports of subtask meetings related to advanced collectors, advanced stores, advanced controllers, combisystems, solar cooling, combination of solar thermal and heat pump technology, solar desalination, fluids, LCA – Life Cycle Assessment, conversion from m ² to power and energy
WP5.D1	Technical status report on solar desalination and solar cooling
WP5.D2	Report concerning the suitability of different collector technologies for solar cooling and solar desalination
WP6.D2	Project presentation
WP6.D3	Project website (http://www.swt-technologie.de/html/negst.html)
WP6.D4	Two workshops for industry – Content and Results
WP6.D5	Printed or electronic special publications
WP6.D6	Interim Report
WP6.D7	Presentation(s) at European Solar Thermal Energy Conference estec2005
WP6.D8	Special seminars focused on possible specific project results

OUTLOOK

NEGST workshop at Intersolar 2007, Freiburg, Germany:

At the end of the NEGST project, the most important results will be presented at a large, Europe-wide workshop that will take place around the Intersolar Trade Fair in June 2007. Further information will be available in due time on the project website:

<http://www.swt-technologie.de/html/negst.html>, section: Workshops.