

IEA SHC Task 53 Kick off meeting

New Generation Solar Cooling & Heating systems (PV or solar thermally driven systems)

Introduction to IEA SHC and to the Task



Daniel MUGNIER – Vienna, 18/03/2014

The main ambitions are :

- To deal with admin issues
- To confirm the content of the Annex & Work plan document
- To have a dicussion on the priority targets
- To make a planning for next steps

Administrative issues :

- Registration + invoices at AIT ?
- Invoices : VAT or not ?

The International Energy Agency



- The International Energy Agency (IEA) is an autonomous body within the framework of the Organisation for Economic Co-operation and Development (OECD)
 - It was established in 1974
 - It has 26 member countries (Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, the Republic of Korea, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States)
- + the European Commission

Basic aims of the IEA

- To maintain and improve systems for coping with oil supply disruptions
- To promote rational energy policies in a global context through co-operative relations with non-member countries, industry and international organisations
- To operate a permanent information system on the international oil market
- **To improve the world's energy supply and demand structure by developing alternative energy sources and increasing the efficiency of energy use**
- To assist in the integration of environmental and energy policies

International energy technology co-operation

IEA Committee on Energy Research and Technology

CERT

Working Parties

Fossil Fuels

Renewable Energy

End Use

Fusion Power

Implementing Agreements (Examples)

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...

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Solar Heating & Cooling

Heat Pumps

PV Power Systems

Energy Conservation in Buildings & Community Systems

Energy end-use

- Energy end-use: Transportation
- Energy end-use: Industry
- Energy end-use: Buildings
 - Demand Side Management
 - District Heating and Cooling
 - Energy Conservation in Buildings and Community Systems
 - Energy Conservation through Energy Storage
 - Heat Pumping Technologies
- Energy end-use technologies: information centres, systems analysis

Renewable energy

- Bioenergy
- Geothermal Energy Research Technology
- Hydropower Technologies and Programmes
- Ocean Energy Systems
- Photovoltaic Power System (PVPS)
- Production and Utilization of Hydrogen
- Solar Heating and Cooling Systems (SHC)
- Solar Power and Chemical Energy Systems (SolarPACES)
- Wind Turbine Systems

Solar Heating & Cooling Implementing Agreement



- Established in 1976
- Works on technologies that use the energy of the sun to heat, cool, light and power buildings
- 27 countries (Australia, Austria, Belgium, Canada, Denmark, (Finland), France, Germany, Italy, Mexico, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland, (United Kingdom), United States) + European Commission
- Mission: "To facilitate an environmentally sustainable future through the greater use of solar design and technologies."
- International co-operation on a **Task sharing** basis



TASK 40: Net Zero Energy Solar Buildings

The objective of the Task is to study current net-zero, near net-zero and very low energy buildings and to develop a common understanding, a harmonized international definitions framework, tools, innovative solutions and industry guidelines.



[MORE]

About IEA SHC

Solar Heating & Cooling

Research Projects (Tasks)

Events

News

Publications

Resources

Member Area

IEA Solar Heating & Cooling Programme

The Solar Heating and Cooling Programme was established in 1977, one of the first programmes of the International Energy Agency. The Programme's work is unique in that it is accomplished through the international collaborative effort of experts from Member countries and the European Union.

The benefits of this approach are:

- * accelerates the pace of technology development
- * promotes standardization
- * enhances national R&D programmes
- * permits national specialization
- * saves time and money

www.iea-shc.org



Newest Members

Cu

The SHC Programme welcomes our newest member — [European Copper Institute](#).

Publication Highlight

Solar Update - February 2014



Executive Committee



- Main body to run the programme
- Representatives of all member countries and the EU, typically from funding organisations in the field of energy related R&D
- Two meetings per year
- Tasks
 - Control progress of ongoing tasks (Task Status Reports presented by Operating Agents)
 - Discuss new task proposals
 - Develop programme's strategy and operation

What is a TASK?

- Collaborative project with limited duration (typically 3...5 years)
- At least 3 participating countries
- Joint work plan
- Participants can be universities, R&D institutes or private companies (manufacturer, system supplier, planning/engineering companies, ...)
- Two expert meetings per year to organize work, monitor progress and join information
- Number of results and deliverables

Rules for participation

- Participants only from countries which are member of the implementing agreement
- Experts from other countries may participate on request in 1-2 meetings as observer
- Also countries who are not IEA members can join the Implementing Agreement

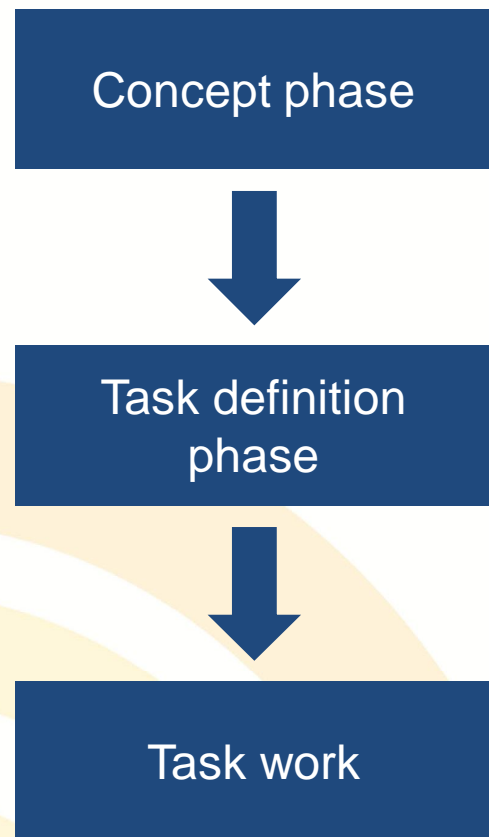
Current Tasks (projects) of the SHC

- **Task 53 - [New Generation Solar Cooling and Heating \(PV or Solar Thermally Driven Systems\)](#)**
- Task 52 - [Solar Energy and Energy Economics in Urban Environments](#)
- Task 51 - [Solar Energy in Urban Planning](#)
- Task 50 - [Advanced Lighting Solutions for Retrofitting Buildings](#)
- Task 49 - [Solar Heat Integration in Industrial Processes](#)
- **Task 48 - [Quality Assurance and Support Measures for Solar Cooling Systems](#)**
- Task 47 - [Solar Renovation of Non-Residential Buildings](#)
- Task 46 - [Solar Resource Assessment and Forecasting](#)
- Task 45 - [Large Scale Solar Heating and Cooling Systems](#)
- Task 44 - [Solar and Heat Pump Systems](#)
- Task 43 - [Solar Rating & Certification Procedures](#)
- Task 42 - [Compact Thermal Energy Storage](#)
- Task 40 - [Net Zero Energy Solar Buildings](#)
- Task 39 - [Polymeric Materials for Solar Thermal Applications](#)

What does mean Task sharing?

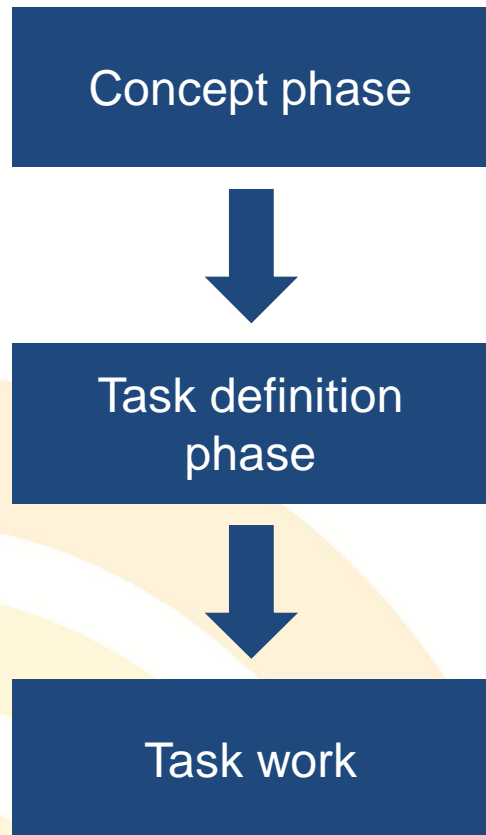
- The Solar Heating & Cooling Programme has only a small common fund ($\approx 10\,000$ US\$ per participating country per year) to run a secretary, cover expenses of the programmes chairman and run dissemination activities
- Projects (Tasks) are carried out based on an Annex Text and Work Plan on which the participating countries agreed
- Each country covers costs of the experts
 - national funding agencies responsible for the SHC
 - own resources (e.g. universities)
 - other national resources
 - other resources (e.g. European Commission)

Typical Life Cycle of an IEA Task



- **Concept Phase**
 - a concept paper is developed and proposed by a country
 - the concept paper has to be approved by the ExCo
- **Task Definition Phase**
 - 1-2 workshops are carried out with participation of experts from the interested countries
 - an Annex Text is produced and has to be approved by the ExCo
 - the Annex Text is the legal document in which the basic work and goals are described and commitments of the participating parties are defined

Life Cycle of an IEA Task (cont'd)



- a Work Plan is produced and has to be approved by the ExCo
- the Work Plan is the main document which describes the structure of the Task and the detailed lay-out of the Work and its distribution among participants
- the Work Plan has to contain an Information Plan in which dissemination activities are outlined

- **Task Work**

- the Task can start after official approval of the Annex and Work Plan by the ExCo
- two expert meetings per year

Context : Status of Solar cooling in 2014

Solar thermal cooling has **difficulty to emerge as a economically competitive solution**

Main reasons :

- Technical : Limit on adaptability due to hydraulics, complexity
- Economical : Investment cost, especially for small systems
- Still need intensive R&D for quality improvement and best solution selection

However, for large systems, solar thermal cooling has very interesting perspectives (UWC Singapore) because :

- Economy of scale
- Specialised engineering and control
- Energy sales

Raising interest from EU on competitive Solar cooling

HORIZON 2020 – WORK PROGRAMME 2014-2015
Secure, clean and efficient energy

COUNCIL DECISION ESTABLISHING THE SPECIFIC PROGRAMME
IMPLEMENTING HORIZON 2020 - THE FRAMEWORK PROGRAMME
FOR RESEARCH AND INNOVATION (2014-2020)

VERSION 8 OCTOBER 2013

WORK PROGRAMME 2014 – 2015

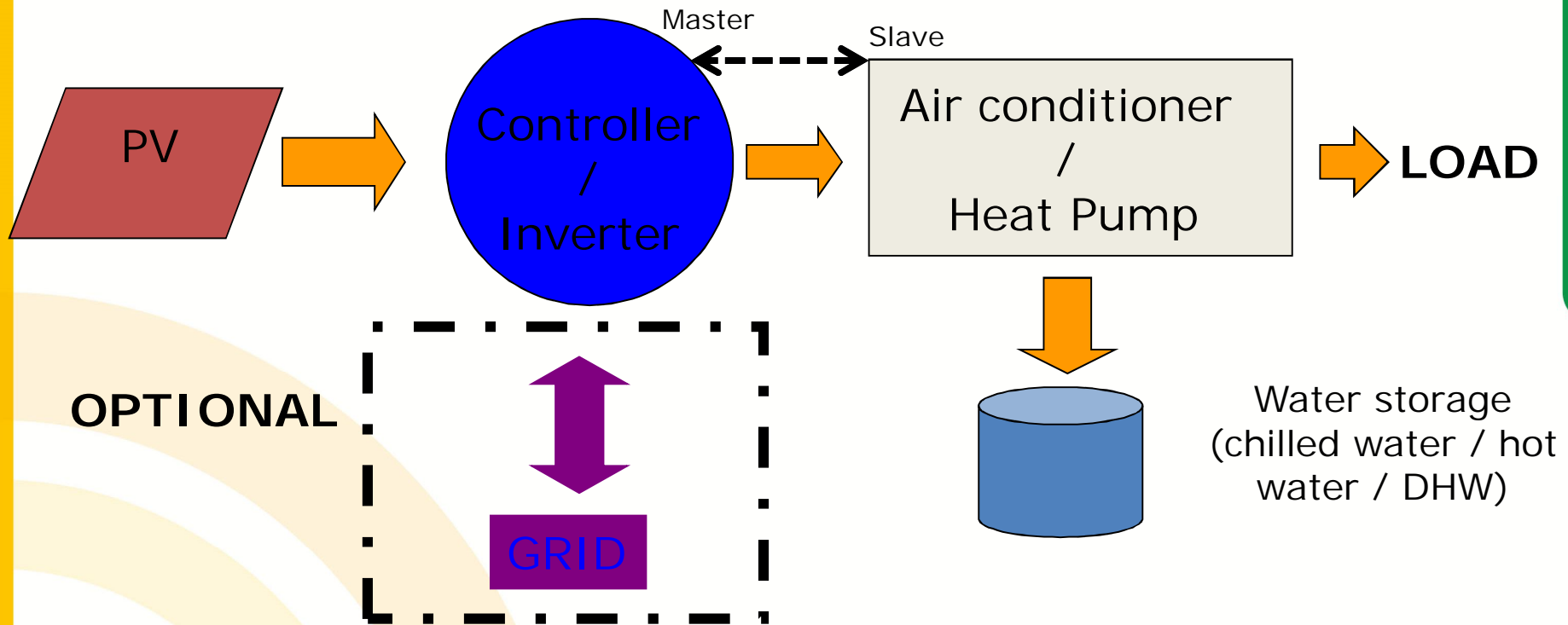
10. Energy Challenge

INFORMAL DRAFT DISCUSSION DOCUMENT

Important notice:

The present document is meant to facilitate the discussions towards the preparation of the work programme 2014 – 2015. It does not at this stage cover all relevant aspects and it does not prejudice the outcome of the on-going inter-institutional negotiations on Horizon 2020 or internal work on cross-cutting aspects. Hence, it remains subject to change.

Basic concept



New Task on Solar cooling status : Work Plan and Annex



TASK 53

New generation solar cooling & heating systems

(PV or solar thermally driven systems)



Task description and Work plan

November 2013

This text has been produced by

Daniel Mugnier (TECSOL, France)

With the support of
Jean Christophe Hadorn (Bas Consultants, Switzerland)



TASK 53

New Generation Solar cooling and heating systems

(PV or solar thermally driven systems)



Annex

October 2013

This text has been produced by

Daniel Mugnier (TECSOL, France)

With the support of
Jean Christophe Hadorn (Bas Consultants, Switzerland)

.. But let's explain the Task more into details...



Proposed Task Goals

- (1) **to analyze the interest of new generation solar cooling & heating concepts systems for bulidings in all climates and select best solutions** which lead to highly reliable, durable, efficient and robust solar cooling and heating (ambient + DHW) systems
- (2) **to contribute to market entry of the technology** and identify most promising market areas in terms of cost competitiveness and value of electricity.

Scope of the Task

System : solar driven systems for cooling and heating

- * Solar thermal driven innovative compact cooling+heating systems
- * Photovoltaic + air conditioning system (Compression air conditioning / heat pump (if heating as well) ; food conservation not included)

Applications : Off grid & grid connected buildings

(houses, small multi-family buildings, offices, shops, commercial center, hotels)

Power range : from 1 kW cooling to several tens kW cooling/heating

Limit : Need to have **a direct coupling between solar and cold production machine**. The coupling can be partial or total (for the PV- machine one especially)

Proposal of Fhg ISE : direct coupling between solar and cold production machine **or considering special configurations and control strategies, to allow a maximised use of PV power direct for heating/cooling even without direct coupling**

Topics to be covered by the Task

- Interaction PV/solar thermal (ST) production – Cooling/heating/DHW demand
- Storage or no storage (thermal or electric)
- Electrical storage or water cold/hot storage
- Control strategy (peak demand management, full comfort or solar only, etc..)
- Value of electricity and value of cold including LCA analysis (embodied energy)
- Partial grid connection or stand alone
- New solutions for compressors, DC or AC and new solution for optimised compact sorption cooling kits
- Efficiency of existing compressors connected with PV DC or AC input ?
- Use of PV/ST to manage other heating or cooling devices (appliances, DHW, etc...)
- Size limit ? optimisation ?
- Standards and tests methods (for REC's, EU Ecodesign directive for instance)
- Best cost : high tech or low cost ? Sensibility to conventional energy cost ?
- Best suited PV/ST technology (cost vs performance)
- Integrated solutions BIPV/BIST to cool distribution devices

Outcome

- Investigation on new small to medium size solar cooling systems (thermal and PV) and develop best suited cooling & heating systems technology focusing on reliability, adaptability and quality
- Proof of cost effectiveness of new solar cooling & heating systems
- Investigation on life cycle performances on energy & environmental terms (LCA) of different options
- Assistance for market deployment of new solar cooling & heating systems for buildings worldwide
- Increase of energy supply safety and influence the virtuous demand side management behaviors

Time Schedule

- **40 months**
- **From end 2014 to end 2017**

Proposed Task Structure

Subtask A
**Components, Systems &
Quality**

Subtask B
**Control, Simulation &
Design**

Subtask C
Testing and demonstration projects

Subtask D
Dissemination & market deployment

Participating countries

.. at least 8 countries

France

Austria

Spain

Italy

Sweden

Australia

Switzerland

China

Turkey ?

Germany ?

Algeria ? Korea ?

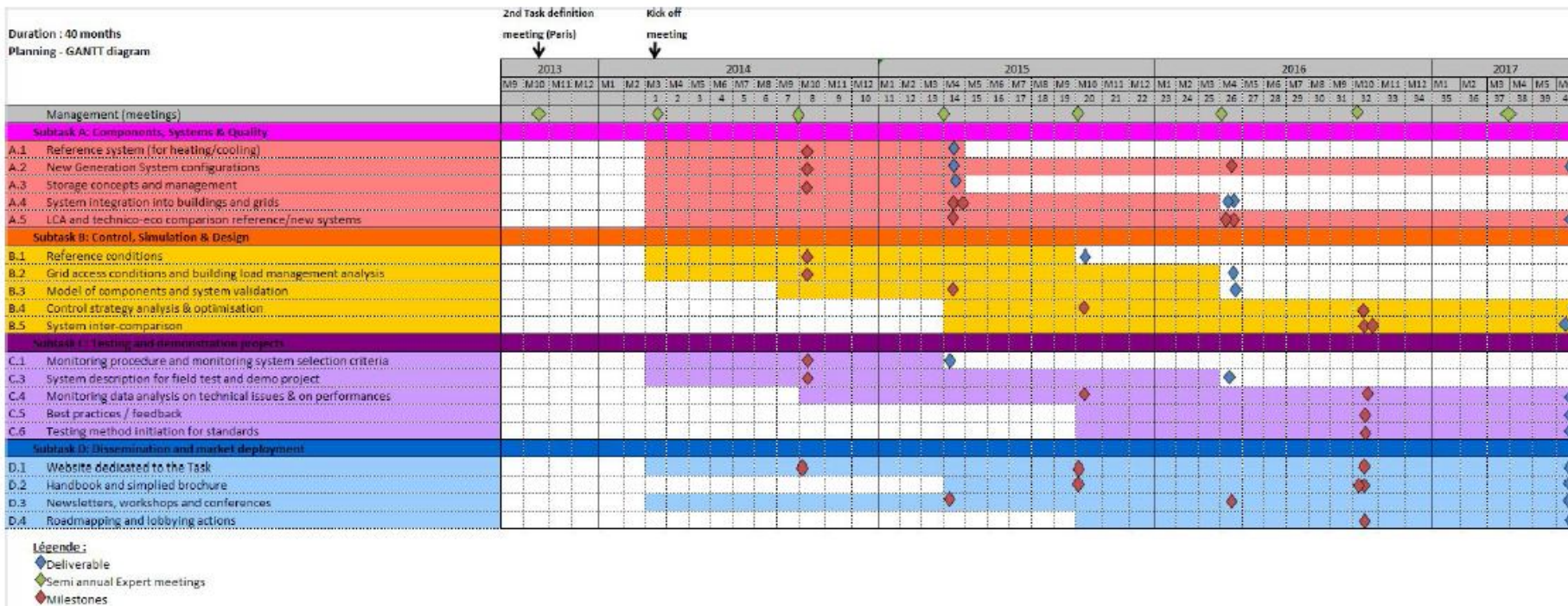
Israel : no more

Contributors

Contributors/participants



| Country | Organization |
|-------------|--|
| Algeria | CDER |
| | UDES |
| | GES Consulting |
| Australia | Commonwealth Scientific and Industrial Research Organisation (CSIRO) |
| Austria | Austrian Institute of Technology |
| | AEE INTEC, AEE - Institute for Sustainable Tech- |
| | University of Innsbruck |
| France | TECSOL S.A |
| | ESIEE Paris |
| | CNAM |
| | ATISYS Concept |
| | Ecole des Mines de Paris |
| | 2IDEA |
| | Cythelia |
| | Université de Rennes 1 |
| | CLIPSOL |
| | EDF R&D |
| NKE | |
| Germany | Green Chiller |
| | ITW |
| | Viessmann |
| | Fraunhofer Umsicht |
| | ILK Dresden |
| | Belectric Solarkraftwerke GmbH |
| | ZAFH.NET |
| | Fraunhofer ISE |
| | SMA |
| ZAE Bayern | |
| Israel | Technion Haifa |
| | ECOVIZ |
| Italy | Politecnico di Milano |
| | EURAC research |
| | Università degli Studi di Palermo, Dip. Ricerche Ener- |
| Korea | Jeju National University |
| Netherlands | De Beijer RTB B.V. |
| Spain | Universidad Miguel Hernández de Elche, Alicante |
| Sweden | Mälardalen University |
| Switzerland | SPF Institut für Solartechnik |
| | Base Consultants |
| | COSSECO |

Time schedule



Subtask A: Components, Systems & Quality




Participants Interest :

-  high
-  moderate
-  leadership

| | Subtask A : Components, Systems & Quality | | | | |
|--------------------------|---|---|------------|-----------------------|------------------------|
| | A1-Reference system | A2-New generation system configurations | A3-Storage | A4-System integration | A5-LCA and comparisons |
| 2IDEA/FREECOLD | | | | high | |
| ATISYS CONCEPT | high | high | high | high | high |
| LGP2ES | high | high | | high | high |
| CYTHELIA | | | | | |
| EDF R&D | | high | high | | high |
| ECOVIZ | | | | | |
| FRAUNHOFER ISE | leadership | moderate | | | high |
| Fraunhofer UMSICHT | | high | leadership | high | moderate |
| AIT (PV experts) | | moderate | | | moderate |
| ILK DRESDEN | moderate | moderate | moderate | moderate | moderate |
| CNAM | | moderate | | moderate | |
| Mines de Paris | | high | | | high |
| POLIMI | | moderate | moderate | | moderate |
| UIBK | moderate | | moderate | moderate | |
| RTB | moderate | moderate | moderate | moderate | high |
| SPF | high | high | high | high | high |
| TECSOL | | leadership | | | |
| UNI RENNES | | | | | moderate |
| ZAE | | moderate | | high | |
| ZAFHNET | moderate | | | leadership | high |
| IIFIR | | | | | |
| AEE Intec | moderate | moderate | | | |
| Viessmann | | high | | high | high |
| Base Consultants | | | | | |
| EURAC | moderate | | | | moderate |
| Universidad MHE Alicante | | | | | |
| University of Palermo | | | | | leadership |
| Shanghai University | | moderate | | moderate | moderate |

Subtask B: Control , Simulation and Design




Participants Interest :

-  high
-  moderate
-  leadership

| | Subtask B : Control, Simulation & Design | | | | |
|--------------------------|--|--------------------------------------|--------------------|---|----------------------------|
| | B1 – Reference conditions | B2 – Grid access and Load management | B3-Models & valid. | B4-Control strategy analysis & optimization | B5-Systems intercomparison |
| 2IDEA/FREECOLD | | | | high | |
| ATISYS CONCEPT | | moderate | moderate | moderate | moderate |
| CNAM | | | moderate | moderate | moderate |
| CYTHELIA | | | high | high | |
| EDF R&D | | | moderate | | moderate |
| AIT | | leadership | moderate | moderate | |
| FRAUNHOFER ISE | moderate | moderate | | high | |
| COSSECO | | | | moderate | |
| ILK DRESDEN | | moderate | moderate | moderate | moderate |
| LBL | | high | high | high | high |
| Mines de Paris | | moderate | | moderate | |
| POLIMI | | | moderate | moderate | moderate |
| RTB | | | | | high |
| SPF | | | moderate | | moderate |
| TECSOL | | | | high | leadership |
| UNI RENNES | | | moderate | | |
| ZAE | | moderate | moderate | moderate | moderate |
| ZAFHNET | moderate | | leadership | moderate | moderate |
| AEE Intec | | | moderate | moderate | moderate |
| Jeju National University | | moderate | | moderate | |
| UIBK | moderate | | moderate | leadership | moderate |
| EURAC | leadership | | | | |
| Viessmann | | | | moderate | |
| CSIRO | moderate | | moderate | | |
| GES consulting | | | moderate | | |

Subtask C: Testing and demonstration projects

Participants Interest :

-  high
-  moderate
-  leadership

| | Subtask C: Testing & demo projects | | | | |
|--------------------------|--|-------------------------------------|---------------------------|---------------------------------|----------------------------|
| | C1-Monitor. Procedure & select. Criteria | C2-System selection for field tests | C3-Monitor. Data analysis | C4-Best practices on monitoring | C5-Testing method initiat. |
| COSSECO | | | | | |
| ATISYS CONCEPT | | | | | |
| LGP2ES | high | | high | high | |
| CYTHELIA | | high | | | |
| EDF R&D | moderate | moderate | moderate | | |
| FRAUNHOFER ISE | | | leadership | | |
| Fraunhofer UMSICHT | | high | high | | |
| AIT | | leadership | | | |
| ILK DRESDEN | | | | | |
| Mines de Paris | moderate | moderate | moderate | moderate | moderate |
| POLIMI | moderate | moderate | moderate | moderate | high |
| RTB | moderate | moderate | moderate | moderate | moderate |
| SPF | moderate | | | | high |
| TECSOL | high | high | high | high | |
| UNI RENNES | | | | | |
| ZAE | | | | | |
| ZAFHNET | | | | high | |
| AEE Intec | leadership | | | | |
| Viessmann | | | | | |
| Mälardalen University | | | | | |
| UIBK | | | | | |
| Green Chiller | | | | | leadership |
| Universidad MHE Alicante | | | | leadership | |
| UNIPA | | | | | |



NATIONAL PARTICIPATION LETTER

Date 01/03 2014

To Operating Agent
Daniel MUGNIER
TECSOL SA,
105 av Alfred Kastler - BP 90434
66 004 PERPIGNAN Cedex - FRANCE
E-mail : daniel.mugnier@tecsol.fr

National Participation Commitment Letter for

Task 53: *New generation solar cooling & heating systems (PV or solar thermally driven systems)-* of the IEA Solar Heating and Cooling Programme

Task Start Date 1/03 2014 Completion Date 30/06 2017

This letter confirms and acknowledges the commitment of the undersigned Contracting Party, which is a Participant in the abovementioned Task, to:

- (1) fulfil the minimum participation requirements specified in [Annex Text, Task 53, October 2013](#), which is a minimum of 0.2 person year per annum
- (2) to abide by the Task Research Work Plan prepared by the Participants and approved by the Executive Committee, and
- (3) to ensure that their national representatives are funded to attend all Task experts meetings (physically or by videoconference mean at least).

Nominated experts for this Task are:**

| Name | Address/ Area of Expertise | Level of Effort: x person month per year | Funding Source (contingent on funding from the specified source) | Dates Funding is Guaranteed |
|------|----------------------------------|--|---|--------------------------------|
| | | | | |
| | | | | |

Other contributions to the Task (facilities, equipment, project, etc.)**

Contracting Party & Country** _____

Signature of ExCo Member** _____ Date** _____

Approved by Operating Agent (after the letter is returned) _____

* To be filled in by Operating Agent before letter is sent to ExCo members

** To be filled in by ExCo member

Administrative issues :

National participation letters



Task 53 Website

The screenshot displays the website for SHC Task 53. At the top, there are navigation links for 'IEA SHC HOME' and 'TASK HOME', a 'MEMBER LOGIN' button, and a search bar. The main banner features the SHC logo and the title 'SHC Task 53 New Generation Solar Cooling & Heating' over a background image of solar panels on a building roof. A left-hand navigation menu includes links for 'About Project', 'Participants', 'Meetings / Events', 'News', 'Publications', 'Related Sites', 'Member Area', and 'Contact'. The main content area is titled 'New Generation Solar Cooling & Heating Systems (PV or solar thermally driven systems)' and includes an 'Overview' section. To the right, there are two sidebars: 'Task Information' and 'What's New'. The 'Task Information' sidebar lists the operating agent as Dr. Daniel Mugnier in France, with contact details: +33 4 68 68 16 42, fax: +33 4 68 68 16 41, and email: daniel.mugnier@tecsol.fr. The 'What's New' sidebar has tabs for 'NEWS', 'MEETINGS', and 'PUBLICATIONS', with the text 'Check Back Soon' below.

IEA SHC HOME | TASK HOME | MEMBER LOGIN | SEARCH

SHC
SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

SHC Task 53
New Generation Solar Cooling & Heating

About Project
Participants
Meetings / Events
News
Publications
Related Sites
Member Area
Contact

New Generation Solar Cooling & Heating Systems (PV or solar thermally driven systems)

Overview

The main objective of this Task is to assist a strong and sustainable market development of solar PV or new innovative thermal cooling systems. It is focusing on solar driven systems for both cooling (ambient and food conservation) and heating (ambient and domestic hot water).

The scope of the Task are the technologies for production of cold/hot water or conditioned air by means of solar heat or solar electricity, i.e., the subject which is covered by the Task starts with the solar radiation reaching the collector or the PV modules and ends with the chilled/hot water and/or conditioned air transferred to the application. However, although the distribution system, the building and the interaction of both with the technical equipment are not the main topic of the Task this interaction will be considered where necessary.

Task Information

OPERATING AGENT
Dr. Daniel Mugnier
FRANCE
+33 4 68 68 16 42 fax: +33 4 68 68 16 41
daniel.mugnier@tecsol.fr

What's New

NEWS | MEETINGS | PUBLICATIONS

Check Back Soon

Task 53 Flyer (see below the Task 48 one..)



Solar cooling installation for a wine cellar in South of France (Source : TECSOL)



Flat-panel collector field adapted for solar cooling (Source : Industrial Solar GmbH)



Solar cooling installation using DDC technology and air collectors in Central Europe (Source : Fraunhofer ISE)



Solar cooling installation for a Tertiary building in Tropical climate (Source : TECSOL)

IEA SHC TASK 48

Quality assurance and support measures for Solar Cooling

www.iea-shc.org/task48

CONTEXT : A tremendous increase in the market for air-conditioning can be observed worldwide especially in developing countries. The results of the past IEA SHC Tasks and works on solar cooling (ie : Task 35 Solar Air-Conditioning and Refrigeration) on the one hand showed the great potential of this technology for building air-conditioning, particularly in sunny regions. On the other hand, it has been shown that further work is necessary in order to achieve economically competitive systems and which presents solid long-term energy performance and reliability.

OBJECTIVES : The proposed project is intended to find solutions to make the solar thermally driven heating and cooling systems at the same time efficient, reliable and cost competitive. This three major targets should be reached thanks to four levels of activities:

- 1) Development of tools and procedure to make the characterization of the main components of SAC systems
- 2) Creation of a practical and unified procedure, adapted to specific best technical configurations.
- 3) Development of three quality requirements targets:
- 4) Production of tools to promote Solar Thermally Driven Cooling and Heating systems

SCOPE : The scope of the Task are the technologies for production of cold water or conditioned air by means of solar heat, i.e., the subject which is covered by the Task starts with the solar radiation reaching the collector and ends with the chilled water and/or conditioned air transferred to the application. However, although the distribution system, the building and the interaction of both with the technical equipment are not the main topic of the Task this interaction will be considered where necessary.

STRUCTURE : The project, starting in October 2011 for 3.5 years duration, is divided into 4 subtasks :

Subtask A: Quality procedure on component level

- A1: Chiller characterization
- A2: Life cycle analysis at component level
- A3: Heat rejection
- A4: Pumps efficiency and adaptability
- A5: Conventional solar collection
- A6: State of the art on new collector & characterization

Subtask B: Quality procedure on system level

- B1: System/Subsystem characterization & field performance assessment
- B2: Good practice for DDC design and installation
- B3: Life cycle analysis at system level
- B4: Simplified design tool used as a reference calculation tool : design facilitator
- B5: Quality procedure document/check lists
- B6: Self detection on monitoring procedure
- B7: Quantitative quality and cost competitiveness criteria for systems
- B8: Application for validation of preselected best practice examples

Subtask C: Market support measures

- C1: Review of relevant international standards rating and incentive schemes
- C2: Methodology for performance assessment, rating and benchmarking
- C3: Selection and standardisation of best practice solutions
- C4: Measurement and verification procedures
- C5: Labelling possibilities investigation
- C6: Collaboration with T&S for contracting models
- C7: Certification process definition for small systems

Subtask D: Dissemination and policy advice

- D1: Web site
- D2: Best Practices brochure
- D3: Simplified short brochure
- D4: Guidelines for Roadmaps on Solar cooling
- D5: Updated specific training seminars adapted to the Quality procedure
- D6: Outreach report

SUBTASK LEADERSHIP

Subtask A : Quality procedure on component

Politecnico di Milano
Dep. Energy - Via Lambruschini 4
Milano 20136, Italy

Subtask C : Market support measures

CSIRO
PO Box 330
Newcastle, NSW 2300, Australia

Subtask B : Quality procedure on system level

Fraunhofer ISE
Heidenhofstraße 2
Freiburg 79110, Germany

Subtask D : Dissemination and policy advice

Green Chiller Association
Verband für Sorptionskälte e.V.
Stendaler Str. 4
10559 Berlin, Germany

PARTICIPATING COUNTRIES (status in October 2011)

Australia, Austria, Canada, Belgium, France, Germany, Italy, Singapore, South Africa, Spain and USA
(no claim for completeness)

PARTICIPATING MANUFACTURERS AND COMPANIES (status in October 2011)

Aiguasol, ClimateWell, Industrial Solar GmbH, Invensor, Sortech, SOLEM, SOLID, TECSOL, Thermosol.
(no claim for completeness)

SOLAR HEATING AND COOLING PROGRAMME

The Solar Heating and Cooling Programme was established in 1977, one of the first programmes of the International Energy Agency.
The Programme's work is unique in that it is accomplished through the international collaborative effort of experts from Member countries and the European Union.

OPERATING AGENT

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E-mail : daniel.mugnier@tecsol.fr

RELATED SITES



www.iea-shc.org

TASK 48

www.iea-shc.org/task48

Task 53 Logo ??

Task 53 

Task 53 Communication

*** TO COME..**

Task 53 next meetings

2nd Task 53 meeting :

Proposal for Sweden on 07-08-09/10/2014

+ Side event with Climatewell innovative workshop

3rd Task 53 meeting :

Spring 2015... Ideas ???

More information

Daniel Mugnier

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